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The **text should begin from page 3** under the headings: Introduction, Material and Method, Results and Discussion.

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- [1] J. van der Geer, J.A.J. Hanraads, R.A. Lupton, The art of writing a scientific article, J. Sci. Commun. 163 (2010) 51-59.

## Journal of Nobel Medical College

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Volume 7, Number 1, Issue 12, January-June 2018, I-iii

### Editorial

## Stem Cell Therapy: Promises versus Challenges

**Dr Arambam Giridhari Singh,**

*Professor, Department of Biochemistry*

DOI: <http://dx.doi.org/10.3126/jonmc.v7i1.20834>

"Can **stem cells** help me Clive"? The person asking this question was Jeff Kaufman a Wisconsin man in his 40s, completely paralyzed by amyotrophic lateral sclerosis (ALS). On the receiving end was Clive Svendsen, a stem cell researcher in the University of Wisconsin-Madison. Svendsen knew how long the trial may take and being a realistic man replied as quoted "yes Jeff, but it's going to take time and money. He started his ALS chapter in 2003 with Jeff as one of his patients. Jeff died in 2010 due complications from ALS. After 15 years of his ALS chapter, Svendsen, while working for his new assignment on an approved trial of ALS patients, clearly pointed out that a lot has been accomplished in the last 15 years and the next 15 years will likely offer new insights into ALS. He is still not assuring a complete cure of the disease. In the meantime what concerned Svendsen was the appearance of charlatans spreading false claims that ALS patients can be cured by 40,000 USD [1]. This part of an article written by Karen Ring prompted me to write this editorial

**Stem cell is defined as an undifferentiated cell of a multicellular organism which is capable of giving rise to indefinitely more cells of the same type and from which other kinds of cells arises by differentiation.**

There are 5 **stem cell** types based on the extent to which they can differentiate into different cell types

- (1) **Totipotent stem cells:** Most powerful stem cells which can differentiate into embryonic and extra embryonic tissues, most important characteristic being their ability to generate a fully functional living organism. Example: 2-3 days old fertilized egg.
- (2) **Pluripotent stem cells:** Next most powerful cells, characteristics being their ability to do self renewal and differentiate into any of the three germ layers (ectoderm, endoderm and mesoderm) which can further differentiate into all tissues or organs. Example: 3-5 days old **embryonic cells**. A new stem cell with properties similar to embryonic stem cell was created after being engineered from mouse cell in 2006 and from matured human cell in 2007 by manipulating the expression of certain genes by reprogramming somatic cells back to the pluripotent state hence, named as **Induced pluripotent stem cell (iPSC)**.
- (3) **Multipotent stem cells** which can develop into more cells but only for closely related family of cells. **Hematopoietic (adult) stem cells** are the examples as they can produce all the blood cells.
- (4) **Oligopotent stem cells** when differentiated into a few cells e.g lymphoid or myeloid stem cells

- (5) **Unipotent stem cells** when differentiated into only cells of their own type eg muscle stem cells [2].

### **Chronology of Stem Cell Research**

Alexander A.M. was the first person to show that all blood cells are derived from a common precursor cell which he proposed as hemopoietic stem cell and identified it within mesenchyme as mesenchymal stem cell in the year 1924. The progress of the research was very slow till the bone marrow transplantation as treatment for leukemia in 1956 by Dr E Donnall Thomas in New York, the donor being a twin sibling followed by another transplant using bone marrow from a non-twin sibling in 1968. After this bone marrow transplantation, the basic concept being the presence of stem cells in bone marrow which can produce millions of blood cells, the idea of the use of stem cell as regenerative medicine progressed. At the earlier stages researchers' concentration were mostly towards isolation or creation of stem cells. Hemopoietic stem cell was discovered from cord blood, in 1978, extraction of mouse embryonic stem cell in 1981, multipotent stem cell from mouse brain in 1987, neuronal stem cell from striated tissues in 1992, existence of cancer stem cells in 1997, creation of mouse induced pluripotent stem cell in 2006 and human induced pluripotent stem cell in 2007, the first human clinical trials in the year 2010, advanced cell development programs in 2012 and in the year 2014, US and Japan jointly discovered that any adult cell can potentially rewind back to a pre embryonic state using a simple test [3]. However, during the last a decade and half, not a single breakthrough towards its use as regenerative medicine have so far been reported.

**Promises from the stem cell researchers;** Treatments by restoration of tissues or organs for the patients suffering from injuries or chronic diseases is now considered to be the most recent and emerging branch of medical sciences. The stem cell, by virtue of its being capable of self renewal and differentiation into other cell types, its research has laid the foundation for such cell based therapies for diseases which cannot be cured by conventional medicine. It can be used to regenerate neurons damaged by spinal cord injury, stroke, Alzheimer's disease, Parkinson's disease or any other neurological problems. It can also produce heart muscle cells that could repair damaged heart after heart attack or replace virtually any tissue or organ that is injured or diseased. Now, they are treated as seeds of tissue repair, regeneration and a promising source of novel therapy. Its research still holds **great promise** for alleviating the suffering of millions of patients. A number of human disorders are on the line for clinical trials starting from Alzheimer's Disease, Parkinson's disease, Myocardial infarction, Amyotrophic Lateral Sclerosis, Autism, Brain Tumor, Cardiomyopathy, Diabetes type 1 and many more [4].

**Challenges facing by the stem cell researchers:-** Some of the important challenges are as listed below.

- (1) Ethical issues are there because; human embryo dies while isolating the stem cells.
- (2) Another challenge with embryonic stem cell is the difficulties in reproducing them in the laboratory and triggers them to differentiate into specific cell types.
- (3) They could also overgrow as happen in the case of cancers.
- (4) The potential of induced pluripotent stem cells are yet to be compared to embryonic stem cell.
- (5) Identification of stem cell in adult tissue is a major difficulty encountering by the scientists.

- (6) Integration of the stem cell transplanted to the patient's body system is still a challenge.
- (7) The major problem to successful stem cell transplant is the prevention of immune rejection.
- (8) Stem cells for cancer treatment is difficult as it can foster cancer cells [5].

**Despite the numerous challenges being faced by the researchers, the stem cells still hold promises for treating many diseases. This, so called regenerative medicine, has great potential and has already delivered some breakthrough but, its future is at risk because of charlatans, poor science, unreliable hopes, unclear funding models and unscrupulous clinics.**

This editorial started from a shocking real life story, again let me also conclude it with another equally shocking real life story; Doris Tyler, an elderly lady, a suspected patient of macular degeneration, being lured by one of the mushrooming stem cell clinics in Georgia, USA, in 2016, consented to extract her fat for injecting into her eye, where she was told the stem cells present in it could halt or even cure the macular degeneration threatening her sight. Five days after the injection, the clinic boasted online that it had performed the first such treatment in Georgia and urged others with her disease to book for appointment. But, contrary to her expectation, Tyler's vision deteriorated and within a few months, she said she was completely blind.[6].

Well, the message I intend to convey to my colleagues here via this editorial is that, we should all avoid peddling unproven cures of stem cell treatments for financial gains.\

## References

- [1] Karen Ring (2017) Can stem cell therapies help ALS patients? The stem cellar; Carnifornia's stem cell Agency,CIRM
- [2] Do you know the 5 types of stem cells?, Bioinformants, [www.bioinformants.com](http://www.bioinformants.com), stem cells, HSCS; (2017)
- [3] Ma Hongbau; Yang Yan and Margaret Ma;(2013) The discovery history of stem cell, [www.researchgate.net/287576349](http://www.researchgate.net/287576349)
- [4] En Espanol (2017). The power of stem cell, California's stem cell agency, CIRM
- [5] Ian Mumaghan,(2014) The challenges of stem cell therapy, Explore Stem cells, [www.explorestemcells.co.np](http://www.explorestemcells.co.np) Stem cell therapy
- [6] 'Charlatans' 'false hope' As stem cell clinic multiply across US, So do complaints. The Seattle Times, April 29, (2018)

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### ***Original Article***

## **Does bronchoscopy help in resolving the etiology of Non-resolving Pneumonia? Experience in a Tertiary Care Center**

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### **Abstract**

#### **Background**

Normal resolution time of pneumonia is variable. Non-resolving pneumonia is a challenging clinical problem. Etiological, patient and treatment-related factors affect outcomes. Bronchoscopy is initial diagnostic technique in evaluating these patients. The study explored the utility of bronchoscopy in diagnosing of non-resolving pneumonia.

#### **Material and Methods**

Records of the patients diagnosed with non-resolving pneumonia who underwent bronchoscopy from 20<sup>th</sup> January 2017 to 19<sup>th</sup> January 2018 were analysed. The data analyzed included demographic characteristics, clinical profile, bronchoscopic findings, chest imaging, and hospital discharge status. Non-resolving pneumonia was defined as focal infiltrates with symptoms of acute pulmonary infection and lack of clinical and radiological improvement within 12 weeks despite a minimum of 10 days treatment. For analysis descriptive statistics like mean and percentage and tabular and graphical presentation were made.

#### **Results**

Forty-five patients had non resolving Pneumonia. A total 75.0% were males with age range of 25 to 85 years and common symptom were cough with fever (75.0%) followed by hemoptysis, chest pain, and breathlessness. Bronchoscopically multiple ulcerated lesions, inflamed tracheobronchial tree with mucopurulent secretions and mass lesions were common. Etiologically 66.6 % patients had TB, followed by lung cancer, bronchiectasis and pneumonia.

#### **Conclusion**

Bronchoscopy has better utility and is the diagnostic modality of choice in establishing etiology of non-resolving pneumonia

#### **Key words:**

*Bronchoscopy, Diagnostic utility, Non-resolving pneumonia,*

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#### **Introduction**

Pneumonia is an important cause of morbidity and mortality worldwide. Normal resolution time of pneumonia after treatment is variable. In patients with pneumonia, if there is no clinical and

radiological improvement despite at least 10 days of treatment with empirical antibiotics, the pneumonia is said to be non resolving pneumonia (NRP) [1]. NRP constitutes 15% of inpatient pulmonary consultations, 10-15% of nosocomial

pneumonias and 8% of bronchoscopies [2]. Incorrect diagnosis, inadequate therapy, impaired host defense, atypical organisms, resistant pathogens, non-infectious causes, tuberculosis, endo-bronchial lesions is the common causes of NRP [3]. NRP is a challenging clinical problem in our setting. It is difficult to treat and carries poor prognosis if it is not investigated and treated properly in time. Bronchoscopy is the preferred initial diagnostic technique in evaluating these patients [12]. Within this background we conducted the study with the aim of exploring the utility of bronchoscopy in diagnosis of NRP in our setting.

**Material & Methods:**

All the consecutive patients diagnosed with Non resolving Pneumonia who underwent bronchoscopy during the period of one year from 20<sup>th</sup> January 2017 to 19<sup>th</sup> January 2018 were enrolled in this hospital based study conducted at division of Pulmonary, Critical Care and Sleep Medicine in the Department of Internal Medicine at Nobel Medical College, Biratnagar, Nepal. Non resolving Pneumonia was defined as presence of focal infiltrates with symptoms of acute pulmonary infection and lack of clinical and radiological improvement and resolution within 12 weeks despite a minimum of 10 days of antibiotic treatment. Patients having community acquired pneumonia, not responding to injectable empirical antibiotics for minimum of 10 days treatment were included. The bronchoscopic findings and its utility towards making the final diagnosis was analyzed, other details studied through retrospective analysis of medical records of these patients. Basic descriptive statistics were used to analyze the data.

**Results**

All together 45 non-resolving pneumonia patients were select according to their clinical problem. Etiologically, patient and

treatment-related factors were recorded. The Bronchoscopy was initial diagnostic technique for evaluating all patients and the study was carried out by explored the utility of bronchoscopy for diagnosing of non-resolving pneumonia. The results were presented as follows:

During the one year period altogether forty five patients had found non resolving pneumonia with age range 21 – 85 years. It was found that most of the patients fall more than 40 years of age. Male gender was common (75.0%) and it was also found that 33.0% cover the age group in 41 – 50 years.

**Table 1: Distribution of age groups in years:**

Age in years	(n-45) Number	Percentage
21 – 30	5	11.1
31 – 40	8	17.8
41 – 50	15	33.3
51 – 60	7	15.6
61 – 70	7	15.6
71 – 80	1	2.2
>80	2	4.4
<b>Total</b>	<b>45</b>	<b>100.0</b>

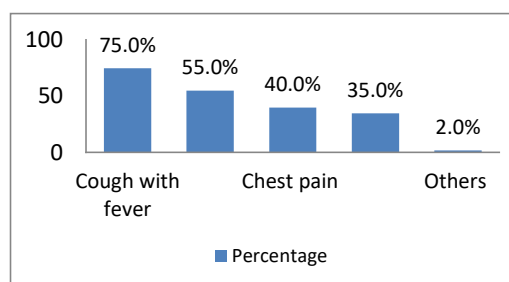


Figure 1. Common symptoms during presentation to hospital

The most common symptom was cough with fever (75.0%) followed by haemoptysis (55.0%), chest pain (40.0%), dyspnea (35.0%) and others (2.0%).

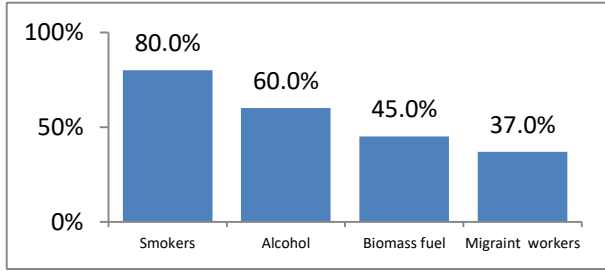


Figure 2. Common risk factors

Among 45 patients, more than 80.0% of them were smokers and 45.0% of the patients had history of exposure to indoor air pollution in the form of biomass fuel smoke and others. 37.0% of the patients had history of working abroad specially in Gulf countries and 64.0% of them had pulmonary tuberculosis.

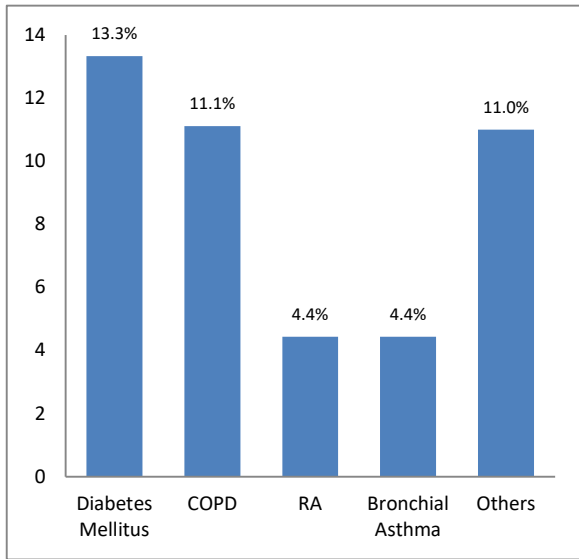


Figure 3 Common co-morbidities of patients in percentage

Diabetes mellitus and COPD were common comorbidities in patients.

**Pre-bronchoscopic radiological findings:**

The chest X-ray showed consolidation in 60.0% of the patients, consolidation with cavity in 25.0% and infiltrates in rest others.

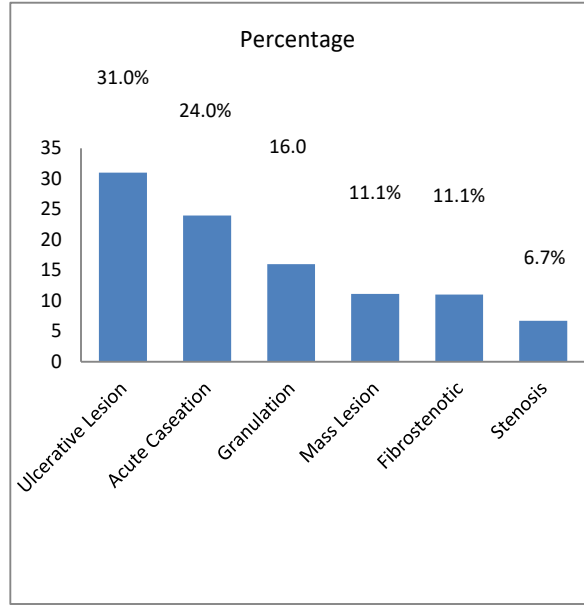


Figure 4. Bronchoscopic findings of patients

Chronic inflammatory features like ulceration, caseation and granulation were common.

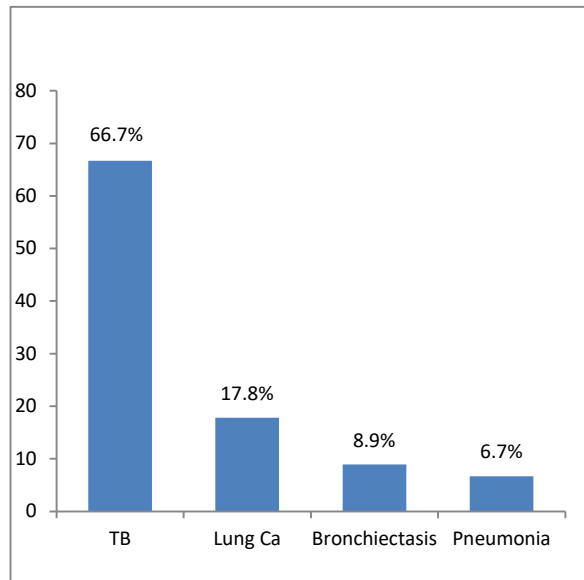


Figure 5. Etiology of non resolving pneumonia

Tuberculosis was the commonest cause of non resolution of pneumonia.

**Pre-bronchoscopic radiological findings:**

The chest X-ray showed consolidation in 60.0% of the patients, consolidation with



cavity in 25.0% and infiltrates in rest of them.

**Discussion:**

Among 45 patients of non resolving pneumonia, 71.0% were above 40 years and most of them were males. Chaudhari AD and co-workers reported that 80.0% were over the age of 40 whereas Raveendra KR and associates found that 90.0% of them were over 40 [4,5]. Males were predominant in both of the above studies. El Solh and colleagues reported that age alone has the most striking influence on resolution of pneumonia and they found that the rate of resolution on chest X- ray found to be 35.1% by 3 weeks and 60.0% by 6 weeks in patients above 70 years [6]. Fein AM and co-workers reported only 30.0% of the patients over 50 have their x-ray cleared by 4 weeks [7]. It seems that increasing age per se and associated comorbidities of aging are main risk factors for non resolution of pneumonia. Most common symptoms in one study were cough (100.0%) followed by fever (96.6%), hemoptysis (53.3%), chest pain (38.5%), and breathlessness (33.3%) [4]. Whereas, another study found that cough in (92.0%) followed by chest pain (38.0%), breathlessness (38.0%), fever (36.0%), and hemoptysis (28.0%) [8]. Our patient's symptomatology tends to conform with both above studies. More than 80% of our patients were smokers, 60.0% abused alcohol, 42.0% of have history of indoor air pollution and 37% worked in Gulf countries. These all risk factors might have contributed to causation and non resolution of pneumonia. Raveendra K R and associates found smoking in 30%, alcohol abuse in 20%, diabetes in 20%, hypertension in 10%, COPD in 11.2%, anemia in 11.2% [5]. Jayprakash B and colleagues found smoking in 60.0%, alcohol abuse in 48.0%, diabetes mellitus in 46%, COPD in 36%, hypertension in

36.0% [9]. Jay SJ co-workers found the common conditions associated with delayed resolution are advanced age, COPD and alcoholism [10]. Diabetes was the commonest comorbidity in other studies which is similar to ours [4,11]. Other risk factors and comorbidities in our study were similar to above mentioned studies with slight difference in their magnitude. The magnitude in the difference may be due to difference in, methodology, patient population, geographical and sociocultural factors among various studies. During bronchoscopic examination one study found mucosal inflammation with purulent secretions in more than 50% patients followed by inflamed mucosa (32.0%) and malignancy in 14.0% [4]. The etiologies of non resolving pneumonia in their studies were bacterial pneumonia (53.33%), bronchogenic carcinoma (26.6%), and tuberculosis in (16.6%). Raveendra KR and associates found tuberculosis in 42.5%, antibiotic resistance (25.0%), malignancy (10.0%), bronchiectasis (7.5%). Jayprakash B et al [9] found tuberculosis in (35.7%), malignancy (27.1%), resistance to empirical antibiotics in (14.0%), bronchiectasis (8.6%) [5]. on bronchoscopic examination our study showed ulcerative lesion, acute caseation and granulation suggestive of probable tuberculosis in most of the cases. In more than two thirds of the patients the etiology was tuberculosis followed by malignancy and bronchiectasis. In our clinical setting, if we suspect non resolving pneumonia, we tend to treat these patients empirically with anti-tubercular medication .We have to do so only after bronchoscopic evaluation of these patients because one third of these patients with NRP actually do not have tuberculosis. Interestingly 67.0% of Gulf workers had pulmonary tuberculosis and this finding needs further study. Whether these patients had new infection in Gulf countries or reactivation of endogenous

infection that was already present during the entry period or other factors playing role in developing clinically overt tuberculosis is not clear. Several studies in the USA have revealed that migrant farm workers confront high risks of tuberculosis [13]. Prevalence of tuberculosis among Asian migrants mainly from India, Pakistan and Nepal working in Qatar's garment industry is high [14]. The number of smokers, alcohol consumers and Gulf workers was high in our study which may be the reason for large number of tuberculosis patients in the study. In one study the diagnostic yield of bronchoscopy in non-resolving pneumonia is 85.7% whereas it is more than 90% in our study [4]. This was a retrospective analysis therefore all the necessary information could not be obtained.

#### **Conclusion**

The study concluded that, Bronchoscopy has good utility in establishing etiological diagnosis of non-resolving pneumonia and is diagnostic study of choice within appropriate clinic-epidemiological backgrounds in our setting.

#### **References:**

- [1] Kyprianou A, Hall C.S, Fein A. M., The challenge of non resolving pneumonia, *Postgrad Med.* 113:79 (2003) 91-92.
- [2] Gotway MB, Leung JW, Dawn SK, Non-resolving pneumonia in an otherwise healthy patient, *ClinPulm Med.* 11 (2004) 198-200.
- [3] Arancibia F, Ewig S, Martinez JA, Ruiz M, Bauer T et.al., Antimicrobial treatment failures in patients with community-acquired pneumonia: Causes and prognostic implications, *Am J Respir Crit Care Med.* 162 (2000) 154-60.
- [4] Chaudhari AD, Mukherjee S, Nandi S, A study on non resolving pneumonia with special reference to role of fiberoptic bronchoscopy, *Lung India.* 30:1 (2013) 27-32.
- [5] Raveendra K R, Ashok M L, Muralidharan J, Treatment outcome profile of non resolving pneumonia among hospitalized community acquired pneumonia patients in tertiary care centre :an observational study, *J Evolution Med Dental Sci.* 13:31 (2014) 8608-8613.
- [6] El Solh AA, Aquilina AT, Gunen H, Rmadan F, Radiographic resolution of community acquired pneumonia in the elderly, *J Am Geriatr Soc.*52( 2004) 224-227.
- [7] Fein AM. Pneumonia in the elderly: Overview of diagnostic and therapeutic approaches, *Clin Infect Dis.* 28 (1999) 726-9.
- [8] Kirtland SH, Winterbauer RH, Slowly resolving chronic and recurrent pneumonia, *Clin Chest Med.* 12( 1991) 303-18.
- [9] Jayprakash B, Varkey V, Anithakumari K, Etiology and clinical outcome of non resolving pneumonia in a tertiary care centre, *JAPI.* 60 (2012).
- [10] Jay SJ, Jhonson WG, Pierce AK, The radiographic resolution of streptococcus pneumoniae, *N Engl J Med.* 293 (1975) 798-801.
- [11] Avjigan M, Specificity and sensitivity in clinical diagnosis for chronic pneumonia, *East Mediterr Health J.* 11 (2005) 1029-37.
- [12] Feinsilver SH, Fein AM, Neiderman MS, Faegenberg DH, Scultz DE, Utility of Fibroptic-Bronchoscopy in non resolving pneumonia, *Chest.* 98 (1990) 1322-26.
- [13] Quandt SA, Elmore RC, Arcury TA, Norton D, Eye Symptoms and Use of Eye Protection Among Seasonal and Migrant Farmworkers, *South Med J.* 94:6 (2001) 603-7.
- [14] Al-Khal AL, Bener A, EnarsonDA, Tuberculosis among garment workers in an Arabian Developing Country: State of Qatar, *Env Occ Health.* 60:6 (2005) 295- 298.

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**Original Article**

## **Spectrum of Urothelial lesions in Cystoscopic biopsies: A Histopathological Perspective.**

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**Abstract****Background**

Urinary Bladder lesions are one of the most common presenting lesions in the Outpatient department. On the other hand neoplastic conditions of the urinary bladder are the major cause of morbidity and mortality. Bladder carcinoma is the 7<sup>th</sup> most common carcinoma worldwide and is the major cause of morbidity and mortality.

**Material & Methods**

All the cystoscopic biopsy received in the Department of Pathology at Nobel medical college and teaching hospital from August 1<sup>st</sup> 2016 to July 31<sup>st</sup> 2017 was included in the study. Received cystoscopic biopsies were processed and classified as per 2004 WHO/ISUP classification of urothelial tumors Patients were also categorized according to the age and sex to find out the prevalence of urothelial lesions on them.

**Results:**

Out of the 78 patients 54 were males and 24 were females. Very few (n=15, 19.23%) cases of non neoplastic lesions were biopsied. Low grade urothelial carcinoma was the most common diagnosis in the patients which accounts for 49.2 % (n=31) of the total neoplastic conditions.

**Conclusion:**

Low grade urothelial carcinoma was the most common lesion encountered with the peak age range of 61-70 years.

**Key words:**

*Urothelial carcinoma, low grade, high grade, cystitis*

**Introduction:**

Urinary Bladder lesion is one of the most common presenting lesions in the OPDS, which includes both neoplastic and non neoplastic conditions. Non neoplastic conditions like cystitis are barely lethal but they deteriorates the quality of life. On the other hand neoplastic conditions of the urinary bladder are the major cause of morbidity and mortality[1]. Prevalance of Bladder carcinoma varies worldwide. It ranks 7<sup>th</sup> most common cancer

worldwide[2] and is 2<sup>nd</sup> among the tumor seen by urologist after prostatic cancer[3]. Prevalence of Urothelial tumors varies in Asian countries. As per Indian census, it is the 9<sup>th</sup> most common tumor in India[4]where as in Pakistan, it ranks 3<sup>rd</sup> behind lung and oral cavity cancer in male[5]. Incidence of male to female patients are (3-4:1) [6]. The higher number of urothelial carcinoma in male may be due to smoking habits, and occupational exposure[7].Most of the patient present

with gross and microscopic hematuria[8]. Types of urothelial carcinoma have varied from country to country. 90% of the bladder carcinoma in the western countries were those of Transitional cell type, where as Squamous cell type was the most common in Egypt[9]. WHO/ ISUP has categorized urothelial tumors into Papilloma, Papillary urothelial neoplasm of low malignant potential (PUNLMP), Low grade papillary carcinoma (LPUC) and high grade papillary urothelial carcinoma[10]. Majority of the newly diagnosed bladder cancers are of low grade papillary urothelial carcinoma without invasion which has shown recurrence rate up to 75%[11]. The recurrence of tumor has increased in the prevalence of the tumor. The various subtypes of bladder tumor has shown difference in clinical, diagnostic and therapeutic differences[12]. Cystoscopy is the primary and gold standard diagnostic tool for the bladder tumors[13]. So, this study was done to find the frequency of different types of bladder lesions seen in our medical college along with the variability in age and sex of the patient.

**Material and Methods:**

Ethical clearance from the institutional review committee was taken for the study. All the cystoscopic biopsy received in the Department of Pathology at Nobel medical college and teaching hospital from August 1<sup>st</sup> 2016 to July 31<sup>st</sup> 2017 were included in the study. Received cystoscopic biopsies were fixed overnight with 10% formalin and then processed. Four micron thick sections were obtained and were stained with H&E. 2004 WHO/ISUP classification of urothelial tumors were used to categorized neoplastic lesions. Patients were also categorized according to the age and sex to find out the prevalence of urothelial lesions on them.

**Result:**

A total of 78 cystoscopic biopsies were received in the department of Pathology

over the study period. All of them were included in the study. Among the 78 cases, 54 (69.24%) were males and 24(30.76%) were females with male: female ratio of 2.25:1. Neoplastic conditions were not seen in any sex group below 50 years of age. Patients with neoplastic conditions outnumbered than the non neoplastic condition. A total of 63 neoplastic lesions were seen in compare of 15 non neoplastic conditions. Male (n=46) to female (n=17) ratio in neoplastic condition was 2.7:1. Age group of the patient ranged from 31 years to 92 years. Peak age group was present in between 61-70 years. Distribution of the patient as per age and sex were shown in Table 1.

*Table 1: Age and sex distribution of all patients*

Age (yr)	Male	%	Female	%	Total	Percentage (%)
<40	2	2.56	0	0	2	2.56
40-50	5	6.41	3	3.84	8	10.25
51-60	12	15.38	6	7.69	18	23.07
61-70	23	29.48	10	12.82	33	42.30
71-80	10	12.82	4	5.12	14	17.94
>80	2	2.56	1	1.28	3	3.84
	54	69.24	24	30.76	78	100

Various histopathological diagnosis were tabulated (Table 2) as non neoplastic and neoplastic lesion. Among the non neoplastic lesion chronic non specific cystitis was the most common lesion encountered.

*Table 2: Distribution of cases according to histopathological diagnosis*

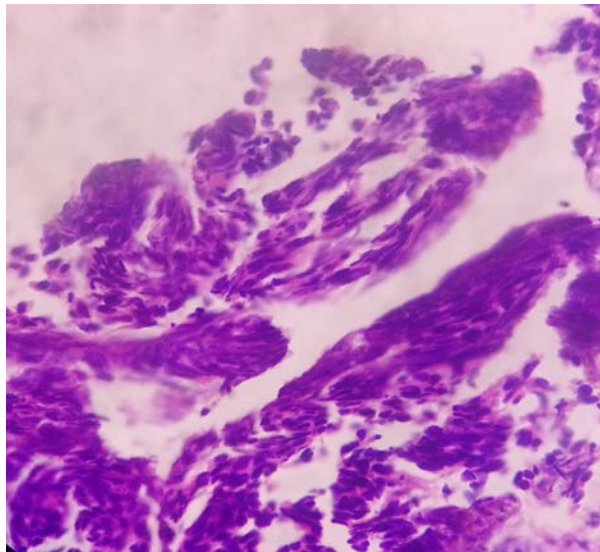
S. N.	Histopathological diagnosis	No. of Cases	%
A.	Non Neoplastic lesions	15	19.23
1	Chronic non specific cystitis	08	10.25
2	Eosinophilic cystitis	01	1.28
3.	Acute of Chronic Cystitis	04	5.12
4	Follicular cystitis	01	1.258
5	Tubercular cystitis	01	1.28
B	Neoplastic Lesions	63	80.77

A total of 63 patients of neoplastic lesions were observed in the study. Distributions

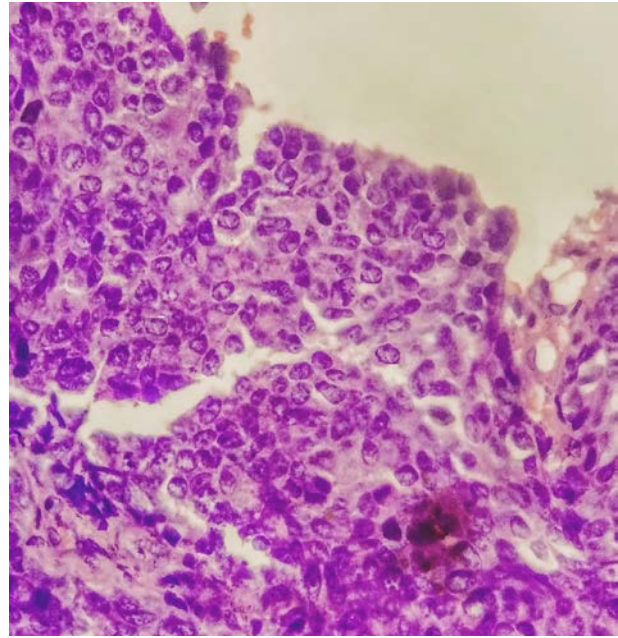
of the neoplastic lesions were done according to 2004 WHO/ISUIP classification (Table 3). Of the total neoplastic lesion low grade papillary urothelial carcinoma (n=31, 49.2%) was the predominance one, none of which showed muscular invasion. 14 cases (22.23%) were those of high grade urothelial carcinoma. 10 out of 14 cases showed muscular invasion. All the neoplastic lesions were those of transitional cell type.

*Table 3: Histological Grading of Urothelial Neoplasm as per ISUP/WHO 2004*

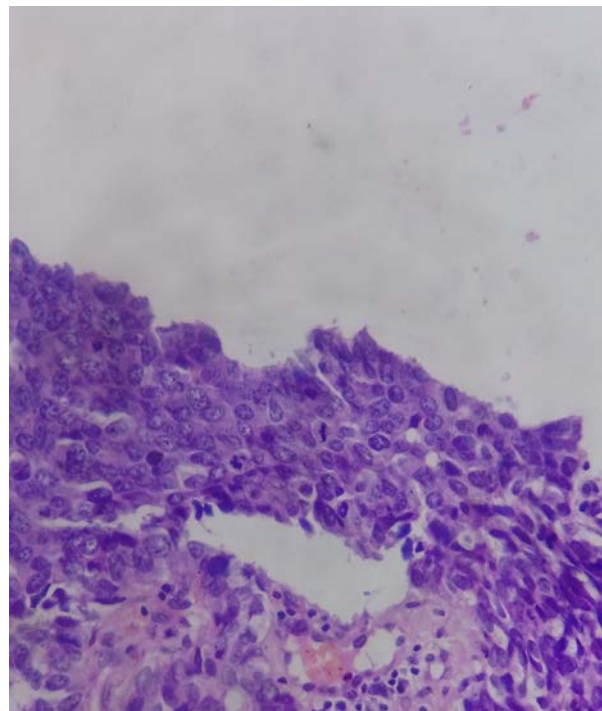
S. No	Grade	No. of cases	Percentage
1	Papilloma	8	12.69
2	PUNLMP	10	15.87
3	Low grade papillary urothelial carcinoma	31	49.20
4	High grade papillary urothelial carcinoma	14	22.23
		63	100



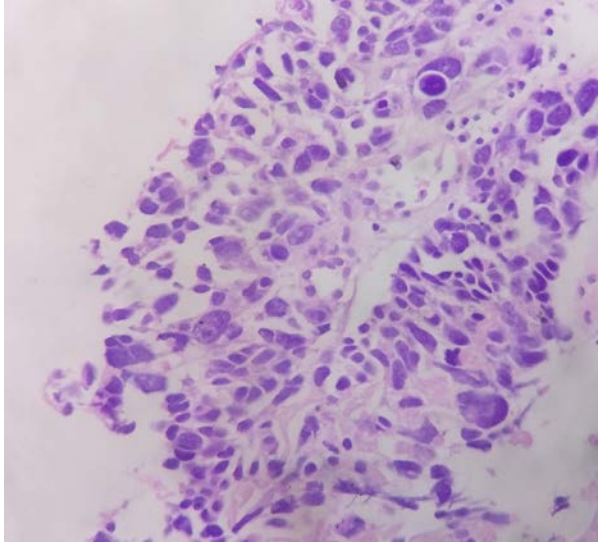
*Picture 1(100x magnification, H&E Stain ): Papilloma showing papillary fragments.*



*Picture 2(400x magnification, H&E Stain): Papillary urothelial neoplasm of low malignant potential (PUNLMP) showing proliferation of cells without mitosis and significant atypia.*



*Picture 3(400x magnification, H&E Stain): Low grade Urothelial Carcinoma showing mitosis at all level with moderate cellular atypia but with the preservation of an umbrella cells.*



*Picture 4(400x magnification, H&E Stain): High Grade Urothelial Carcinoma showing significant cellular atypia along with prominent macro-nucleoli and loss of umbrella cells.*

#### **Discussion:**

Urothelial Papilloma is a benign tumour of an urinary bladder with a finger like projection where as PUNLMP (papillary urothelial neoplasm of low malignant potential) is an abnormally thick urothelium, but without cytologic atypia. They share few features of similarity with papilloma. Low grade papillary urothelial carcinoma is a papillary neoplasm lined by urothelium with minimal nuclear atypia consisting of scattered hyperchromatic nuclei, infrequent mitotic figures and mild variation in size and shape where as High grade papillary urothelial carcinoma is a urothelial neoplasm exhibiting papillary fronds which show cells that are dyscohesive with large hyperchromatic nuclei, high degrees of anaplasia and atypical mitotic figures [2]. Cystoscopic biopsy is the primary diagnostic tool in the diagnosis of urothelial lesions. Apart from the diagnosis, it also provides additional information to the urologist which can impact the treatment[14].

In our study, 69.24% of the total patients were male and male to female ratio was

2.25 :1 In the study done by Pudasaini et al[14] it was 3.5:1 but in the study done by Thapa et al, it was 2.7:1[15]. Peak age group of our study was 61-70 years with presence of 42.30% of total cases of the study which is similar to the study done by Pudasaini et al, Thapa et al and Laishram et al[14-16]. Various urothelial lesions were tabulated as neoplastic and non neoplastic lesions. Majority of the cases were those of neoplastic lesions (n=63, 80.77%). It may have happened, because biopsy was done in the clinical suspicion of neoplasia. Among the non neoplastic condition, non specific chronic cystitis was the most common disease encountered (n=8, 10.25%), which was similar to result of Thapa et al [15](12.94%) and Vaidya et al[17] (14.95%).

All of the malignant lesions in our study were those of urothelial carcinoma where as a small portion of squamous cell carcinoma was encountered in the study done by Thapa et al, Vaidhya et al and Bhawana et al [15, 17, 18] (it is ideal to mention the name of authors). Among the Urothelial carcinoma, low grade urothelial carcinoma was most common with presence of 31 cases (49.2%) which was similar to the study done by Laishram et al (53.85%)[16] and Thapa et al (50%)[15]. Present study was carried out to find out the spectrum of bladder lesions in Nobel Medical college. Since Pathological grading and muscle invasion are the most significant predictors of survival [19], we looked for the muscle invasion in each malignant case. Muscle invasion was seen in 10 cases (15.87% of total neoplastic conditions) of high grade urothelial carcinoma where as it was not seen in low grade carcinoma [15]. In the study done by Laishram et al, 42.1% showed muscle invasion [16], where as in the study done by Pudasaini et al it was 25% [14].

Our study shows the increase frequency of urothelial tumor in male patients of 61-70

years of age. Most of the tumor were low grade urothelial carcinoma. Muscle invasion correlates with high grade malignancy hence muscle inclusion in the cystoscopic biopsy is very important.

#### Conclusion:

Low grade urothelial carcinoma was the most common lesion encountered with the peak age range of 61-70 years. Though it is low grade, recurrence rate is high hence close follow up is required. Invasion of the muscle layer was presence in most of the high grade carcinoma, hence there might be a definite correlation between tumor grade and muscle invasion.

#### References:

- [1] Vinay Kumar AA, and Fausto N, The lower urinary tract and male genital, Robbins and Cotran, Pathologic basis of disease system, 7th ed. Philadelphia: Saunders. (2004) 1026-36.
- [2] Grignon DJ A-AH, Algaba F et al. , Tumors of the urinary tract: Infiltrating urothelial carcinoma, In Moch H, Humphrey PA, WHO Classification of Tumors of the Urinary System and Male Genital Organs. (2016)81–133.
- [3] Matalaka I, Bani-Hani K, Shotar A, Bani Hani O, Bani-Hani I, Transitional cell carcinoma of the urinary bladder: a clinicopathological study, Singapore medical journal.49:(0(2008)790-4.
- [4] Yeole BB, Kurkure AP, Koyande SS, Geographic variation in cancer incidence and its patterns in urban Maharashtra, Asian Pac J Cancer Prev.7:3 (2006)385-90.
- [5] Y. B. Epidemiology of cancers In Karachi (1995-1999),2001:31.
- [6] The Urothelial tract: renal pelvis, ureter, urinary bladder and urethra. 3rd ed. SS IS, editor. Philadelphia: Lippincott Williams and Wilkins; (1999)1864
- [7] Gupta P, Jain M, Kapoor R, Muruganandham K, Srivastava A, Mandhani A, Impact of age and gender on the clinicopathological characteristics of bladder cancer, Indian J Urol.25:2 (2009)207-10.
- [8] Murphy DM, Zincke H, Furlow WL, Management of high grade transitional cell cancer of the upper urinary tract. J Urol.125:1(1981)25-9.
- [9] Al HSe, Frequency of transitional cell carcinoma in local suburban population of Karachi, JLUMHS. (2007)83-5.
- [10] Pan CC, Chang YH, Chen KK, Yu HJ, Sun CH, Ho DM, Prognostic significance of the 2004 WHO/ISUP classification for prediction of recurrence, progression, and cancer-specific mortality of non-muscle-invasive urothelial tumors of the urinary bladder: a clinicopathologic study of 1,515 cases, Am J Clin Pathol.133:5(2010)788-95.
- [11] Boustead GB, Fowler S, Swamy R, Kocklebergh R, Hounscome L, Stage, grade and pathological characteristics of bladder cancer in the UK: British Association of Urological Surgeons (BAUS) urological tumour registry, BJU Int. 113:6(2014)924-30.
- [12] Hussain N SA, Mekki S et al, A clinicopathological study of urinary bladder neoplasms in patients at three centers in Khartoum, Sudan, Sudan Journal of Medical Science.4(2009)249–55.
- [13] Srikousthubha, Sukesh, C VR, Hingle S, Profile of lesions in cystoscopic bladder biopsies: a histopathological study, J Clin Diagn Res. 7:8(2013)1609-12.
- [14] Pudasaini S, Subedi N, Prasad KB, Rauniyar SK, Joshi BR, Bhomi KK. Cystoscopic bladder biopsies: a histopathological study, Nepal Med Coll J.16:1(2014)9-12.
- [15] Thapa R LM, Bhatta AD, Spectrum of histomorphological diagnosis in cystoscopic bladder biopsies, Journal of Pathology of Nepal 7(2017)1062-5.
- [16] Laishram RS, Kipgen P, Laishram S, Khuraijam S, Sharma DC, Urothelial tumors of the urinary bladder in Manipur: a histopathological perspective. Asian Pac J Cancer Prev. 13:6(2012)2477-9.
- [17] Vaidya S, Lakhey M, K CS, Hirachand S, Urothelial tumours of the urinary bladder: a histopathological study of cystoscopic biopsies, JNMA J Nepal Med Assoc. 52:191(2103)475-8.
- [18]. Bhavana Grandhi M.D SSRBMD, Vissa Shanthi M.D, B.V.Vydehi M.D., N.Mohan Rao M.D., Ankita Goel M.D. Histopathological Spectrum of Urothelial Lesions,IOSR Journal of Dental and Medical Sciences.15:6(June 2016)04-7.
- [19] Blaveri E, Brewer JL, Roydasgupta R, et al, Bladder cancer stage and outcome by array-based comparative genomic hybridization, Clin Cancer Res, 11,(2005) 7012-22.

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**Original Article**

## **Self-care activities among patients with diabetes attending a tertiary care hospital in Biratnagar, Nepal.**

**Dejina Thapa\****Department of Nursing, Nobel medical College Teaching Hospital, Biratnagar, Nepal**Received: 18<sup>th</sup> February, 2018; Revised after peer-review: 22<sup>th</sup> March, 2018; Accepted: 21<sup>st</sup> April, 2018*DOI: <http://dx.doi.org/10.3126/jonmc.v7i1.20841>**Abstract****Background:**

Diabetes mellitus is a complex disease and has emerged worldwide. Self care management is very important to control and prevent from complications. Although it can be preventable by adopting the healthy numerous skills and health education .

**Method and Materials:**

A cross-sectional study of 141 patients with >1-year duration of type 2 diabetes mellitus (DM) were interviewed at Nobel Medical College Teaching Hospital using a non-probability sampling technique to select the sample between October 2017 -January 2018 to respond the diabetic self care questionnaire. For the analysis the descriptive statistics was used. T test and anova were used for the association between the variables.

**Result:**

A total of 141 diabetic were participated in the study, in which 50.4% were male and 49.6% female. Among the respondents 27% were in the age group below 50 years, 50.4% were illiterate , 42.6 % were overweight and most of the respondents had duration of disease between 1 to 5 years. The mostly performed self care activities was foot care whereas least was blood sugar monitoring. The mean score of self care behavior of respondents was  $53.56 \pm 4.48$ . Among them 50.4% of respondents had self care behavior below 69.5% i.e. had poor practice and 49.6% scored 69.5% and above i.e. had good practice. The obtained results showed that there is significant association of self care behavior with age, education level, occupation and age at diagnosis but not with sex.

**Conclusion:**

The scenario of self care activities in some areas were found not up to the mark. So health personnel should provide education to the people with diabetes as it has significant benefit with regard to have better quality of life and prevention of complications.

**Keyword:**

Self Care Activities, Type II Diabetic Mellitus

**Introduction**

Diabetes mellitus (DM) has been a fast leading problem all over the world [1]. In 2015 it was estimated that there were 415 million people suffering from diabetes, mostly with aged 20-79years, 5.0 million

deaths and by 2040 the number is likely to increase by 642 million [2]. The currently pandemic diabetic threatens to both developed and developing countries as a result it affect in social, economic and health [3]. In Nepal, approximately



18.56% of population suffers from the type 2 diabetes mellitus [4]. Furthermore in Nepal it has been found that non-communicable diseases a major public health concern [5,6].

In addition, diabetes associate with its complications affect high on the finances of the families aswell as the economies burden of the country [7]. As a result there is a high risk of physical disability [8]. Diabetes is a serious, chronic disease associated with wide range of comorbidities which required multisectorial approach for its management and individual can play an important role for being adopting the healthy lifestyle [9].

Effective approaches are available such as healthy eating as per the physician, regular exercise, blood sugar monitoring, taking medication, avoiding alcohol and smoking, and controlling blood pressure and lipids to prevent from premature death and its complications [10]. All these approaches have been found to be effective in controlling blood glucose and to prevent from life threatening major and minor complications like stroke, kidney failure, heart disease and nerve damage and ultimately enhance the quality of life [5,11 ]

Evidence from earlier studies showed patient self-care activities focused interventions has good outcome on diabetes, therefore there is a need of health education program to the diabetic and general population [12]. Despite the fact, adherence to these behavior has been found minimum, especially when looking for a future changes. In order to find a baseline assessment of the self-care activities, taking into consideration these issues, so the objective of our study is to assess the self-care activities of the type 2 diabetic patients and its association with demographic variables..

### **Materials and Methods**

A hospital based cross-sectional study was carried out at Nobel Medical College Teaching Hospital, Biratnagar, Nepal in medicine OPD from October 2017 to January 2018. A total of 141 with T2DM adult patients ( $\geq 20$  years) were recruited as a sample and purposive sampling technique were adopted. In the study, patient who has DM2 for less than one month were excluded. The sample size was calculated by using a population proportion formula. Prevalence from the previous studies was found 58 % of good practice on self care [5], 15 % margin of error, 95% confidence interval and 20 % non-response rate. The interview method was used to collect the information regarding self-care activities using the revised version of summary diabetes self-care activities questionnaire (SDSCA) [13] and tool is highly valid and used in various areas. There are seven components; among these we included exercise, diet, blood sugar testing, medication practices and foot care. Except in blood sugar testing, there is uniform pattern to all the components. The questionnaire was translated in Nepali and pretesting was done and necessary modification was also done.. Ethical clearance was obtained before doing the study. The collected data was calculated by using Statistical Software Package for Social Sciences (SPSS 22 version). Demographic variables, Diabetic profile and Self care activities was calculated using descriptive statistics whereas coorelation between self care activities and demographic variables was calculated using T test and avova test.

### **Results**

#### **Demographic characteristics of the sample**

Among the 141 sample, 50.4% were males compared to females 49.6% . We found that over represented age was found to be below 50 years 27% . Similarly majority of the respondents were illiterate 50.4%.24.1% of the respondents

were business man followed by agriculture 12.8%. The details of socio-demographic of the study respondents are shown in below (Table 1)

**Table 1 Demographic characteristics of the sample (n = 141)**

Demographic Characteristics	Category	Frequency (n=141)	Percentage (%)
Age (in years)	Below 50	38	27
	50 – 59	37	26.2
	60 – 69	35	24.8
	Above 70	31	22
Sex	Male	71	50.4
	Female	70	49.6
Marital status	Married	136	96.5
	Widow	5	3.5
Educational level	Illiterate	71	50.4
	Primary level	27	19.1
	Secondary level	27	19.1
	Higher secondary level and above	16	11.3
Religion	Hindu	135	95.7
	Muslim	6	4.3
Residence	Urban	65	46.1
	Rural	76	53.9
Types of family	Nuclear	37	26.2
	Joint	101	71.6
	Extended	3	2.1
Occupation	Agriculture	18	12.8
	Business	34	24.1
	Government services	3	2.1
	Housewife	67	47.5
	Others	19	13.5

### Diabetic Profile of the Sample

Furthermore we tried to elaborate the diabetic profile of the respondents, found that 28.36% of the respondents had a family history of diabetes. Likewise 31.91% of respondents had normal BP. Similarly, 45.4% of respondents were of with normal BMI and weight between

18.5-24.9 kg/m<sup>2</sup> while 42.6% were overweight followed by 8.5% obese and 3.5% underweight. Nearly more than half 64.5% of the respondents diagnosed DM in between 40-59 years of age. Almost half of the respondents 48.9% of the respondents are living with DM from past 5 years. Similarly 74.56% of the respondents have habit of alcohol consumption. ( Table 2)

**Table 2 Diabetic profile of the Sample (n = 141)**

Variables	Category	Frequency (%)	Percentage
History of DM in family	Present	40	28.36%
	Absent	101	71.63%
Blood Pressure	Normal	45	31.91%
	Abnormal	96	68.08%
BMI (Body Mass Index)	< 18.5 kg/m <sup>2</sup> (underweight)	5	3.5%
	18.5-24.9 kg/m <sup>2</sup> (normal)	64	45.4%
	25-29.9 kg/m <sup>2</sup> (over weight )	60	42.6%
	30-34.9 kg/m <sup>2</sup> (Obese)	12	8.5%
Age at diagnosis	20-39	33	23.4%
	40-59	91	64.5%
	60 and above	17	12.1%
Duration of illness	1-5 years	69	48.93%
	6-10 Years	20	14.18%
	More than 10 years	52	36.87%
Habit of smoking	Yes	18	12.8%
	No	123	87.2%
Habit of taking Alcohol	Yes	105	74.46%
	No	36	25.53%

### Activities of diabetic self care component among the sample

Most 95.74% of them had been following the food items as per the physician. Similarly 56.7% do the physical activity regularly, 69.5% of the respondents do blood sugar monitory every 3 month where as 86.5% takes oral hypoglycemic agents.

While most frequently performed self-care behaviour was inspecting feet daily. (Table 3)

**Table 3 Frequency of self-care activities by various domains**

Diabetic self score Items	N= 141	
	Satisfactory	Not Satisfactory
Diet*		
Follow the advice given by treating physician in selection of food items	99 (70.21%)	42(29.78%)
Frequency of meals ( at least 5 times)	76 (53.9%)	65 (46.09%)
Reducing the salt after diagnosis	108 (76.59%)	33 (23.40%)
Eating fruits and vegetables at least 5 days in a week	104 (73.75%)	37(26.24%)
Consuming high fat foods such as red meat, diary products on all day of the week	55 (39%)	86(60.99%)
Physical Activity*		
More than 30 minuts of physical activity at least 5 days in a week	80 (56.7%)	61 (43.26%)
Foot care*		
Wash feet daily	141(100%)	
Habit of inspecting feet	130(92.19%)	11 (7.80%)
Trim nails regularly	141 (100%)	-
Drying the toes on all day of the week	110 (78%)	31 (21.98%)
Blood sugar monitoring*		
In the past 3 month for at least blood sugar monitoring	98 (69.5%)	43(30.49%)
Adherence to oral hypoglycemic agents on 7 days of the week	122 (86.52%)	19(13.47%)
Adherence to injection insulin on 7 days of the week	110 (78%)	31 (21.98%)

\*Denotes Domain under SDSCA Questionnaire

**Level of overall self care activities of the sample**

In our study mean score of self-care behavior of respondents was  $52.05 \pm 4.44$ . Among them 50.4% of respondents had self care behavior below 69.5% i.e. had poor practice and 78% scored 69.5% and above 49.6% i.e. had good practice. (Figure 1)

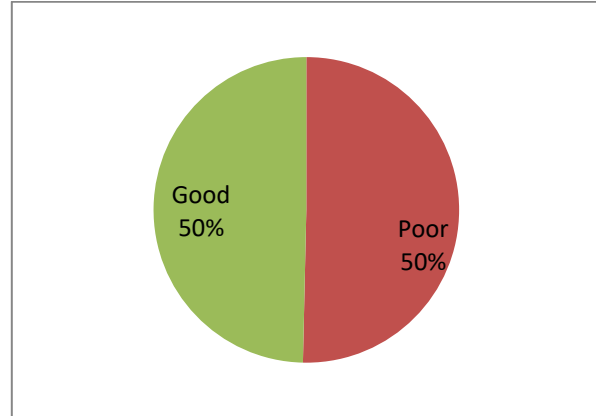


Figure 1 Pie chart showing the Level of Overall Self-care Activities of the sample

**Association between Self Care Activities and Demographic Variables**

Table 4 explain the association between diabetes self care activities and demographic variables. The findings showed that there is a relationship with age, education level, occupation and age at diagnosis whereas there is no relationship with sex.

**Table 4 Association between Self Care Activities and Demographic Variables**

Variables	N	Mean S.D	±	t/F	Df	P value
Age	3	67.16	±	F = 5.71	3, 46	0.01* (S)
Below 50	8	7.03				
50-59	3	70.77	±			
60-69	7	6.26				
60-69	3	71.80	±			
Above 70	5	4.50				
Sex	7	70.12	±	t = 1.47	113. 5	0.14 (NS)
Male	1	7.17				
Female	7	68.67	±			
Educational level	0	4.22				

Illiterate	7	67.96 ±	F = 6.11	4,13 6	0.00* (S)
	1	4.04			
	2	67.95 ±			
	7	8.14			
	2	71.70 ±			
Primary level	7	6.46			
	2	71.70 ±			
Secondary level	7	6.46			
	2	71.70 ±			
Higher secondary level	1	73.95 ± 4.0			
	3	9			
Higher secondary level and above	1	73.95 ± 4.0			
	3	76.00 ± 0			
Occupation	1	72.51 ±	F = 2.65	4,13 6	0.036* (S)
Agriculture	8	6.42			
	3	68.78 ±			
Business Government services	4	4.60			
	3	76.00 ± 0			
Housewife	6	68.69 ±			
	7	4.30			
Others	1	68.98 ±			
	9	10.33			
Age at diagnosis	3	65.53 ±	F = 10.9 4	2,47	0.00* (S)
20-39	3	5.93			
	9	70.79 ±			
40-59	1	5.47			
	1	69.41 ±			
60 and above	7	5.02			

### Discussion

Diabetes mellitus is a chronic disorder which requires life long medical treatment and patients should follow a healthy life style in order to prevent from complications . Currently it is a major public health challenge.

Among the study respondents , nearly half are the over weight and obese similar findings have found in srilanka [14]. Canidian Diabetes association states that 80-90% of DM patients in the world are overweight and obese [15].The reason for overweight and obese may be over consumption of carbohydrate containing foods and lack of knowledge on dietary pattern.

The findings of the present study show that 70.21% respondents follows a regularly healthy diet plan. The findings were similar which was observed by [16]. The reasons for not consuming healthy diet may be lack of education; recommended healthy diet is very expensive and may be busy with family commitments [17].

Regular consumption of health diet is very important as it helps to maintain blood sugar control and proper weight management. Regular activity is a key part of managing diabetes. In our study the physical exercise is found to be poor, as only 56.7% .of the respondents did a 30 min exercise at least 5 days in a week. Similar findings were observed in studies done in [18]. The reasons for poor exercise may be lack of motivation or social influence [17]. Regular exercise helps to maintain ideal body weight, blood sugar and pressure control [19].

Awareness on diabetic foot care will help to decrease the chances of diabetic foot complications as well as amputation of legs. With regard to foot care, all the respondents take care of their foot. The findings is similar to a study done in Malaysia which is 80.9% of the respondents washed their feet on daily basis [20].This may be due to the religious aspect which enables them to washing feet daily. Similarly the findings is contrast with the findings of study done in Nigeria which is only 10.2% practice foot care [21].This finding of poor practice in nigeria may be illiteracy or low socio economic status.

In our study 69.5% checked the blood sugar every 3 month which is similar were observed to a study done in [22]. The level of education appeared to play a magnificent role in medication adherence in accordance with the previous studies [23]. To assess the effectiveness of ongoing treatment blood sugar should be regularly monitored. In our study we found that adherence to oral hypoglycemic drugs (86.52%) and insulin injections (78%) was high which is contrast with the findings of previous studies [23]. The reasons for nonadherence are multifactorial which includes age, perception, duration of disease, polutheraphy, psychological factors[24]. However poor adherence

leads to poor health outcomes and it also has a high burden on healthcare expenses [25]. Nearly half of the respondents have good practice on self care management which is consistent to a study done in Nepal [5]. Thus there is a need of education to enhance the practice regarding diabetic management. In our current study, there is a relationship with age, education level, occupation and age at diagnosis whereas there is no relationship with sex. The findings is consistent with the study done in Nepal [26] where there is statistically significant with age but not with occupation.

### Conclusion

Today, DM is an important challenge for health care providers and health care system in addressing the self care activities . So keeping in mind, there is need of interventional health education to the patient, making them conscious regarding the disease condition, adopting the healthy life style, These helps to minimize the cost of the treatment and maintain the control of the disease with reduce the risk of complications.

### Recommendations

Hospital based lifestyle modification intervention program should be launch which include multidisciplinary team including physician, nurses, dietician, psychologist and social worker should be involved.

### Limitations

It was carried out in only one hospital so findings cannot be generalized to entire country. We couldn't establish the casual relationship as ours was a cross-sectional study.

### Funding

No fund was provided.

### Declarations

### Competing interest

No conflict of interest was stated..

### References

[1] WHO Global report on diabetes, 2017. [www.who.int/diabetes/global-report/en/](http://www.who.int/diabetes/global-report/en/)

- [2] Ogurtsova K, Fernandes JD, Huang Y, Linnenkamp U, et al, IDF Diabetes Atlas: Global estimates for the prevalence of diabetes for 2015 and 2040, *Diabetes Res Clin Pract.* 128 (2017) 40–50.
- [3] Jayawardena R, Ranasinghe P, Byrne NM, Soares MJ, Katulanda P, Hills AP, Prevalence and trends of the diabetes epidemic in South Asia: a systematic review and meta-analysis, *BMC Public Health.* 25 (2012) 12:380.
- [4] Neupane D, Kallestrup P, Non-communicable diseases in Nepal: challenges and opportunities, *J Nepal Health Res Council.* 11(2013):225–8.
- [5] Chaurasia N, Mishra R, Ling H, Thapa B, Pokhrel A, Kumar S, et al, A Self Care Management Awareness Study among Diabetes Mellitus Patients in Rural Nepal, *Am J Public Health Res Am J Public Health Res.* 28;3(2015):67–71.
- [6] Pokharel DR, Khadka D, Sigdel M, Yadav NK, Acharya S, Kafle RC, et al, Prevalence of metabolic syndrome in Nepalese type 2 diabetic patients according to WHO, NCEP ATP III, IDF and Harmonized criteria, *J Diabetes Metab Disord.* 23 (2014) ;13.
- [7] Rosa M, Rosa R, Corriea M et al, Disease and Economic Burden of Hospitalizations Attributable to Diabetes Mellitus and Its Complications: A Nationwide Study in Brazil, *Int. J. Environ. Res. Public Health.* 15(2018):294 .
- [8] Piechota G , Małkiewicz J and Karwat ID , Type-2 diabetes mellitus as a cause of disability , *Przegl Epidemiol.* 58(2004):677-82.
- [9] American Diabetes Association, "Standards of medical care in diabetes—2010," *Diabetes Care*, 33 (2010) :692.
- [10] Shrivastava SR, Shrivastava PS, Ramasamy J, Role of self-care in management of diabetes mellitus, *J Diabetes Metab Disord.* 5;12(2013):14.
- [11] Kasshaun T, Eshetie T and Gesesew H, Factors associated with glycemic control among adult patients with type 2 diabetes mellitus: a cross-sectional survey in Ethiopia , *BMC Res Notes.* (2016);9:78.
- [10] Henk A. van Dam, Frans van der Horst , Bart van den Borne, Rick Ryckman, Harry Crebolder, Provider–patient interaction in diabetes care: effects on patient self-care and outcomes, *Patient education and counseling.* 51(2003):17-2.
- [11] Nabi G, Khan AKA, Rahman NMW, Rabbani R, Chowdhury T I, Life Style Modification Among Diabetic Patients, *Journal of Dhaka Medical College .*6 (2015) :30-36

- [12] Deakin T, McShane CE, Cade JE, Williams RD, Group based training for self-management strategies in people with type 2 diabetes mellitus, *Cochrane Database Syst Rev.* 18;(2005):CD003417.
- [13] Toobert DJ, Hampson SE, Glasgow RE, The summary of diabetes self-care activities measure: Results from 7 studies and a revised scale, *Diabetes Care.* 23(2000) :943–50.
- [14] Padma K, Bele DS, Bodhare TN, Valsangkar S, Evaluation of knowledge and self-care practices in diabetic patients and their role in disease management, *Natl J Community Med.* 3(2012) :3–6.
- [15] Canadian diabetic association. Working together to achieve healthy weights: Addressing the Tsunami of Diabetic 2011. <https://www.diabetes.ca/CDA/media/.../cda-healthy-living-submission-english.pdf>
- [16] Pathariannhelga S, Subhasainie S, Sagarika E, Dietary Habits of Type 2 Diabetic patients: variety and frequency of Food intake, *Journal of Nutrition and Metabolism.* (2016) : 7987395.
- [17] Ghimire S, Barriers to Diet and Exercise among Nepalese Type 2 Diabetic Patients., *Int Sch Res Notices.* 14(2017):1273084.
- [18] Yuan L, Lou QQ, Shen L, Sun LL, Zhao F, et al, A nationwide survey of diabetes education, self-management and glycemic control in patients with type 2 diabetes in China, *Chin Med J (Engl).* 125 (2012):4175–80.
- [19] Chudyk, A and, Petrella R J, Effects of exercise on cardiovascular risk factors in type 2 diabetes: a meta-analysis, *Diabetes Care.* 34(2011): 1228–1237
- [20] Lufti ARM, Zarahiah MR and Ramdhan IM, Knowledge and Practice of Diabetic Foot Care in an In- Patient Setting at a Tertiary Medical Center, *Malays Orthop J.* 8(2014): 22–26.
- [21] Desalu O O, Salawu FK, Jimoh AK et al , Diabetic Foot Care: Self Reported Knowledge and Practice Among Patients Attending Three Tertiary Hospital in Nigeria, *Ghana Med J.* 45(2011): 60–65.
- [22] Maheshwari U, Sowmiya K R, Kavin S, Self-care practices among type II diabetics attending primary health centre, Thiruvallur district, Tamil Nadu, *Int J Community Med Public Health.* 4(2017):2745-2749.
- [23] Vandenbosch J, Broucke SV, Schinckus L et al, The impact of health literacy on diabetes self-management education. *Health Education Journal.* 2018.
- [24] Polonsky W H, Henry R R, Poor medication adherence in type 2 diabetes: recognizing the scope of the problem and its key contributors, *Patient Prefer Adherence.* 10(2016): 1299–1307.
- [25] Garcia-Perez L E, Alvarez M, Dilla T et al , Adherence to Therapies in Patients with Type 2 Diabetes, *Diabetes Ther.* 4(2013): 175–194.
- [26] Gautam A, Bhatta DN, Aryal UR, Diabetes related health knowledge, attitude and practice among diabetic patients in Nepal, *BMC Endocr Disord.* 5 (2015); 15:25

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### Original Article

## Trial of Vaginal Birth After Caesarean (VBAC): Sharing Experience From a Tertiary Care Center of Eastern Nepal

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### Abstract

#### Background

Rising rates of cesarean section is a matter of great concern and trial of labor in previous cesarean section women is an attractive alternative. Vaginal Birth After Caesarean (VBAC) may be one of the strategy developed to control the rising rate of cesarean deliveries in our country. Analyzing outcome of previous cesarean pregnancies will provide an insight for reducing the cesarean rates and formulating protocols and policies for trial of labor. The purpose of this study is to evaluate the pregnancy outcome in previous cesarean section women with VBAC trial with the hope of avoiding unnecessary repeat cesarean section rates.

#### Methodology

It is a cross-sectional observational institute based study carried out in Nobel Medical College Teaching Hospital from 15<sup>th</sup> March 2017 to 14<sup>th</sup> March 2018 after the approval from Institutional Review Committee (IRC). This consists of patient with past history of cesarean section, who delivered in NMCTH during the study period and meeting the Royal College of Obstetrics and Gynecology (RCOG) inclusion criteria for VBAC. Feto-maternal outcomes were analysed.

#### Results

There were 1225 previous cesarean cases, among them, we did VBAC trial in 135(11%) patients, 99 (73.33%) had successful vaginal delivery whereas 36(26.66%) could not do the same after labor trial. Feto-maternal outcome was better in VBAC patients than cesarean group.No maternal and neonatal mortality occurred.

#### Conclusion

In the country like ours where rate of cesarean section is increasing alarmingly we have to try VBAC in appropriate group of patients. National policy and guidelines are necessary after large multicenter prospective studies.

#### Keywords

*Vaginal Birth After Cesarean (VBAC), Cesarean Section, Feto-maternal Outcome*

#### Introduction

Nowadays, there is a significant increase in primary cesarean section for various indications, thus increasing the rate of pregnant women with previous scarred uterus [1]. Vaginal Birth After Cesarean

(VBAC) may be one of the strategy developed to control the rising rate of cesarean section. It is a trial of labor in selected cases of previous cesarean sections in a well-equipped hospital. In 1916, Cargin popularized the dictum once

a cesarean section, is always a cesarean section, which was the era of classical cesarean section [2]. In the present era of lower cesarean section, the dictum now is once a cesarean section, always a mandatory hospital delivery in a well-equipped hospital. Rising rates of cesarean section is a matter of great concern and trial of labor in previous cesarean section is an attractive alternative [3]. Analyzing outcome of previous caesarean pregnancies will provide an insight for reducing the caesarean rates and formulating protocols and policies for trial of labor in previous cesarean section deliveries. The most important event because of which obstetricians still hesitate to attempt planned VBAC is the uterine scar integrity. There is a definite risk of uterine rupture in vaginal birth after caesarean delivery often leading to catastrophies which can be avoided by early diagnosis and prompt intervention. The purpose of this study is to evaluate the pregnancy outcome in previous caesarean section women with VBAC trial with the hope of avoiding unnecessary repeat caesarean section rates.

### **Methodology**

It is a cross-sectional observational institute based study carried out in Nobel Medical College Teaching Hospital, Birtanagar from 15<sup>th</sup> March 2017 to 14<sup>th</sup> March 2018 after the approval from Institutional Review Committee (IRC). This prospective study consists of patient with past history of cesarean section, who delivered in NMCTH during the study period. All women coming with previous cesarean section delivery meeting the Royal College of Obstetrics and Gynecology (RCOG) recommended inclusion criteria for VBAC were taken in this study.(4 )

Exclusion criteria

- History of more than one cesarean section
- Cephalo-Pelvic Disproportion
- Associated with obstetric complications
- Preeclampsia, eclampsia and Antepartum Hemorrhage
- Multiple pregnancy
- Malpresentation, Malposition
- Medical disorder
  - Moderate and severe anemia
  - Hypertension
  - Diabetes mellitus
  - Renal disease
  - Heart disease

Any patient with history of blood transfusion, hematuria, and incontinence of urine, wound infection, puerperal pyrexia and prolonged catheterization in previous cesarean section was noted and were excluded from the study group.

A detail history regarding previous pregnancies, intraoperative and postoperative events, indication of previous cesarean section, and history of previous vaginal delivery were noted. Detail physical examination along with per abdomen fundal height, lie, presentation, position, scar tenderness and Fetal Heart Sound (FHS) recorded. Patient meeting inclusion criteria were enrolled for trial of labor. Patient who were not meeting the inclusion criteria was opted for elective cesarean section. Outcome of trial of labor was categorized into Successful VBAC and Failed VBAC. These cases were analyzed in terms of indication of previous cesarean section, history of previous vaginal delivery. Intraoperative, postoperative complications and neonatal outcome was noted and critically analyzed.

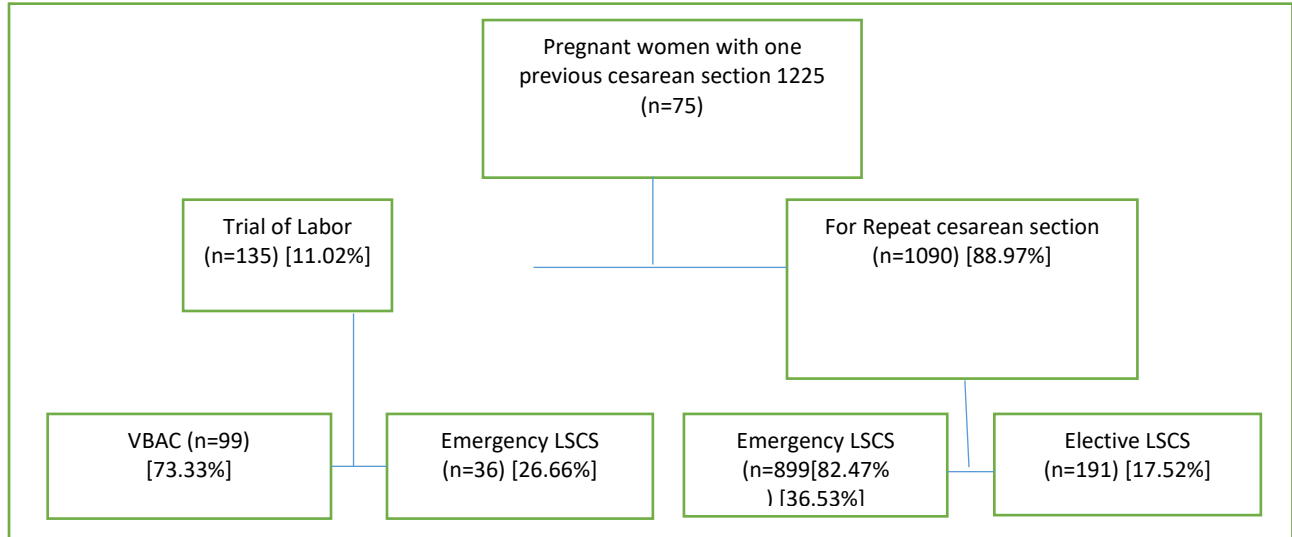
### **Results**

There were 11,048 deliveries during the study period among which 3213(29.08%) patients underwent cesarean section. Out of total 3213 cases of cesarean section 1225(38.12%) were due to previous cesarean section. Above data reflects the



burden of previous cesarean section in our set up. Total 144 cases meeting the inclusion criteria for VBAC were enrolled for study but only 135 cases were analysed because 9 cases dropped out and

requested for cesarean section during the course of labor. Among 135 cases only 29 cases were booked case and remaining were un booked.



Above flow chart shows maximum number of previous cesarean underwent repeat cesarean section in emergency basis because more than 90 percent of women were unbooked and referred to our center in labor and after reaching term.

**Table 2 : Indication of previous caesarean section and outcome of trial of VBAC in present pregnancy.**

**Table 1: Demographic profile**

Patient Characteristics	Successful VBAC Group n = 99	Failed VBAC Group n = 36	P- Value
Mean age (yrs.)	26.63 ± 3.69	26.54 ± 3.11	0.887
Mean Parity	1.30 ± 0.9	1.25 ± 0.7	>0.05
Mean POG in weeks	38.50 ± 2.23	39.52 ± 1.82	>0.05

Mean age of patients was around 26 years which reflects the child bearing age of women in our region. It was observed that high parity and lower period of gestation was significantly associated with successful VBAC.

Patient Characteristics	Successful VBAC Group n = 99	Failed VBAC Group n = 36
Fetal distress	46 (46.46%)	6 (16.6%)
Oligohydraminos	8 (8.08%)	1 (2.77%)
Failed Induction	13 (13.13%)	11 (30.55%)
Eclampsia in LSOL	10 (10.10%)	2 (5.55%)
CPD before onset of Labor	3 (3.03%)	3 (8.33%)
Malpresentation a. Breech b. Transverse	8 (8.08%) 2 (2.02%)	2 (5.55%) 0
Multiple Pregnancy 1 <sup>st</sup> Non-vortex	2 (2.02%)	2 (5.55%)
Not able to recall indication	3 (3.03%)	7 (19.44%)
POP	2 (2.02%)	1 (2.77%)
Cord prolapse	1 (1.01%)	1 (2.77%)

Abruptio placente	1 (1.01%)	0
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While analyzing indication of previous cesarean section and outcome of VBAC, we observed that majority (46.46%) had fetal distress followed by failed induction and malpresentation.

**Table 3: Indication of caesarean section in failed cases of VBAC n-36**

Patient Characteristics	n %
Fetal Distress	17 (47.2%)
Scar Tenderness	8 (22.2%)
Deep transverse arrest	2 (5.55%)
Persistent occipitoposterior position in second stage of labour with non descent of head	2 (5.55%)
Non-progress of labor	3 (8.3%)
Cord Prolapse	1 (2.7%)
Suspected rupture	3 (8.3%)

In failed VBAC group, indication of cesarean section was fetal distress 17 (47.2%) and Scar tenderness 8(22.2%). Among 8 cases of scar tenderness none of the patients had rupture intra-operatively, which indicates scar tenderness may not be the reliable feature of impending or complete rupture of uterus. Though three women were suspected rupture uterus preoperatively, none of them had ruptured intraoperatively. Despite ongoing efforts by governmental NGOS and INGOS to promote family planning, many women 18 (50%) out 36 cases of repeat cesarean group refused to go for tubal ligation. Among them eight women had strong desire for more number of children in the want of male baby. Two of women refused for religious reason, three of them had not discussed with abroad working husband whereas rest five denied as their first child age was below five. This decision exposes them to the development of complications related to scar rupture in subsequent pregnancy and labor.

**Table 4: Present VBAC outcome and history of previous vaginal delivery**

Patient Characteristics	No. of Cases	Successful VBAC n-99	Failed VBAC n-36
History of previous VD	29	24 (24.24%)	5 (13.88%)
History of Successful VBAC	12	11 (11.11%)	1 (2.77%)

Above data demonstrates that the history of past vaginal delivery and VBAC were more frequently associated with successful VBAC.

**Table 5: Operative complications in failed cases of VBAC n = 36.**

Patient characteristics	n %
Postpartum haemorrhage	4 (11.1%)
Wound infection	11 (30.5%)
Bladder Injury	3 (8.33%)
Uretric injury	1 (2.77%)
Gut injury	0
Placenta accreta	3 (8.33%)

In the present study four (11.1%) cases had atonic post-partum haemorrhage managed with uterotonic drugs in one case, whereas other one required internal iliac artery ligation and rest two required peripartum hysterectomy as bleeding was not controlled by uterine artery ligation and B-LYNCH suture. While performing hysterectomy ureter was transected due to extensive adhesion but it was diagnosed intraoperatively and ureteric injury was repaired by urosurgeon in same setting. There were three cases of bladder injury which was unavoidable due to extensive adhesion and all three were operated in periphery for fetal distress in active stage of labour in previous pregnancies. Wound infection was more commonly 11(30.5%) found in failed VBAC cases and among them, six were having haemoglobin level <8 gm% requiring blood transfusion post operatively but none of the patient had significant blood loss intraoperatively. All six cases had preoperative haemoglobin in the range of 9.8 to 10 gm%.

**Table 6: Intranatal Complication in Successful VBAC n = 99**

Patient characteristics	n %
Postpartum haemorrhage	1 (1.01%)
Wound Infection	3 (3.03%)
Scar rupture	None
Urinary complication	None
Puerperal Pyrexia	2 (2.02%)
Placenta accreta	None
Wound Gaping	None
Cervical Tear	1(1.01%)
3 <sup>rd</sup> and 4 <sup>th</sup> degree perineal Tear	None

There was no uterine rupture in successful VBAC group. We observed only one case of postpartum haemorrhage which was manageable with uterotonic drugs and blood transfusion. There were two cases of puerperal pyrexia due to infected episiotomy wound but could controlled by antibiotic according to culture and sensitivity .In both the case Escherichia coli was the causative microorganism and it was sensitive to second generation cephalosporin drugs.

**Table 7: Neonatal outcome**

Patient Characteristics	n %	n %
Mean wt. in Kg	2.7100 +- 0.544	3.12 +-0.580
Apgar Score ≤7 in 5 minutes	1 (1.1%)	3 (8.33 %)
NICU admission	11 (11.11%)	5 (13.88%)
Neonatal mortality	None	None
Duration of Hospital Stay >7 days	5 (5.05%)	3 (8.3%)

While analyzing neonatal outcome, 11 (11.11%) babies were admitted in NICU in successful VBAC group, five for preterm and low birth weight for supportive care. But all five were discharged within 7 days

of admission. Rest was for neonatal jaundice, neonatal sepsis and mild intrauterine growth retardation and there were no cases of neonatal mortality. In failed VBAC group five babies (13.88%) were admitted, three for birth asphyxia and meconium aspiration whose mother had undergone cesarean section for fetal distress, two were admitted for presumed sepsis.

**Discussion**

Many researches are raising the issue that VBAC may not be as safe as originally thought [5,6] but reports are conflicting and these factors along with medico-legal concerns have led to a decline in clinicians offering and women accepting trial for VBAC in various parts of the world [7,8]. It is well established that repeat cesarean section increases the risk of maternal and perinatal morbidity, including bleeding, wound infection, postpartum thromboembolism, increased risk of blood transfusion, anesthetic complications. Similarly repeat cesarean section may carry the risk of neonatal respiratory morbidity and future risk of asthma. So, the present study evaluated the outcome and trends in patients with a history of prior LSCS who delivered in our hospital in one year. In the current study, the attempted rate of VBAC was 135 (11%) of total 1225 cases of previous cesarean section which is comparable (10.4%) with the study done in Pakistan [9] but it is lower than in many other studies done in Western Countries [10]. Underdeveloped countries have low VBAC attempt rate because of multiple factors including limited resources for maternal and fetal monitoring. Most of the women were around 26 years reflecting the child bearing age group of third world countries. Among our 135 patients 99 (73.33%) had successful vaginal delivery whereas 36 (26.66%) could not do the same after labor trial. We were surprised with this high rate of successful vaginal

delivery. Our success rate was higher than a recent study (52.17%) reported by Misra N et al [11]. But other studies have shown success rate of 50-85% [12,24]. Our trial of labor became success because most of the high risk cases were already excluded from the trial. Other reason is that our center has government funded Safe Motherhood Programme, for this reason many women with low socioeconomic status attend our center and they believe more on vaginal delivery in contrast with women of well-to-do families who don't want to suffer labor pain. While analyzing the factors favoring vaginal delivery, our study revealed higher rate of successful VBAC in patients with previous vaginal delivery 24 (24.24%) compared with no prior vaginal delivery 5 (13.88%). This finding corroborates with other studies [13]. Our study has shown that success of VBAC was more significantly associated with previous history of VBAC that is consistent with other studies [14]. While analyzing the indication of previous cesarean section, fetal distress was the leading indication in successful present VBAC group 46 (46.46%) followed by failed induction and malpresentations . Similar results were obtained by other studies [15, 25-26]. Hence trial of labour should always be offered to such patients [11].

Among 36 patients who failed trial of labor and underwent repeat cesarean delivery, the reason was fetal distress 17 (47.2%) followed by scar tenderness 8 (22%) and rest others. This is comparable to the other study [16] where fetal distress and non-progress of labor were main reasons for emergency LSCS in patients with failed VBAC group. Studies in other centers showed that non progress of labor, failed induction and scar dehiscence were reasons for cesarean delivery in failed VBAC patients [17]. Despite these findings what we assume is that the indication of

cesarean delivery is hugely influenced by patient's wishes, obstetrician factors, and availability of monitoring equipments at the time of trial of labor and many other direct and indirect factors which cannot be documented all the time. During analysis of maternal outcomes, maternal morbidity was higher in failed VBAC cases, which is consistent with findings of other study [18]. The maternal morbidity in terms of intraoperative and postoperative complications was more in the failed VBAC cases as compared to successful VBAC group which is consistent with study done by Rizwan N et al [18]. Benefits of successful vaginal birth after cesarean section has a positive impact on the psychology of women and decreases the total cost of hospitalization [18].

Good maternal and fetal outcomes were evident in successful VBAC group in this study when compared with failed VBAC group. Our results were comparable to other studies done by Goel SS et al [19]. In the context of rising rate of primary cesarean section, management of patient with previous cesarean section with the appropriate mode of delivery is the challenge in obstetric practices. Regular and intensive antenatal surveillance, proper selection of patients, vigilant monitoring with competent technical team and dedication on the part of healthcare giver can increase safety of VBAC. There is no doubt that trial of labor is safe if followed with great care but it is not risk free [19]. There were no serious complications like hysterectomy, emergency blood transfusion and visceral injury in patients with successful VBAC group. Only three cases had episiotomy wound infection, one case of atonic PPH but were manageable with oxytocin and methyl-ergometrine, and 2 cases of puerperal pyrexia due to episiotomy wound infection.

Wound infection was more in repeat emergency cesarean section than those

with successful VBAC group. Other complications like Postpartum hemorrhage, placenta accreta, bladder injury and ureteric injury was also more common in repeat emergency cesarean section. Hence we conclude that VBACS is associated with better outcomes than emergency repeat cesarean section. Our results are comparable to Meta-analysis comparing emergency cesarean section versus trial of VBAC group [20]. Although there was no correlation between fetal factors and the success of VBAC in this study but birth weight and postdated pregnancy were commonly associated with failed VBAC group. Regarding neonatal outcome, we evaluated the parameters like mean birth weight, Apgar score, NICU admission and neonatal mortality. Fortunately, no neonatal mortality occurred in both the successful VBAC group and failed VBAC group. The awareness of clinicians in study subjects from litigation point of view, may be the reason for good neonatal outcome in our study. But there are reports of neonatal death in other studies [21]. However we observed 11(11.11%) that baby were admitted in NICU in successful VBAC group for five babies preterm supportive care, two for mild IUGR rest two neonatal sepsis and two neonatal jaundice respectively. None of the baby was admitted for birth asphyxia. This is similar with previous studies indicating vaginal delivery after one cesarean section is safe in regards to neonatal outcome if monitored vigilantly [22-23]. Like other studies this study also has limitations, these are recall bias about previous events by women, non availability of all the previous documents, small sample size and single center based.

### Conclusion

Our study suggests that successful VBAC is associated with better fetomaternal outcomes. Wound infection, blood transfusion, hysterectomy were more

common in failed VBAC followed by cesarean group of patients. Neonatal outcome was not significantly different. We should encourage VBAC trial in appropriate setting after appropriate selection of patients.

### References

- [1] Basic E, Basic-Cetkovic V, Kozaric H, Rama A, ultrasound evaluation of uterine scar after cesarean section, *Acta Inform Med.* 20:3 (2012) 149–153.
- [2] Cragin EB, conservatism in obstetrics, *NY J Med.* 104 (1916) 1-3.
- [3] Ma RM, Duan T, Lao TT, VBACS should be encouraged as a means to reduce the caesarean section rate in China, *BJOG.* 3:10 (2016) 123.
- [4] Royal College of Obstetricians and Gynecologists, Birth after previous cesarean birth, Green-top Guideline No 45, London RCOG (2015).
- [5] Landon MB, Hauth JC, Leveno KJ, Spong CY, Leindecker S, Varner MW, et al., Maternal & Perinatal outcomes associated with a trial of labour after prior cesarean delivery, *N Engl J Med.* 351:25 (2004) 2581-2589.
- [6] Smith GC, Pell JP, Cameron AD, Dobbie R, Risk of perinatal death associated with labor after previous cesarean delivery in uncomplicated term pregnancies, *JAMA.* 287:20 (2002) 2684 – 2690.
- [7] Yeh J, Wactawski-Wende J, Shelton JA, Reschke J, Temporal trends in the rates of trial of labor in low risk pregnancies and their impact on the rates and success of vaginal birth after cesarean delivery, *Am J Obstet Gynecol.* 194:1 (2006)144.
- [8] Anagha Jinturkar A, Dongaonkar D, Study of obstetric and fetal outcome of post cesarean section pregnancy at tertiary care center, *Int J Obs and Gyn.* 10:3 (2014) 530-537.
- [9] Ghafarzadeh M, Namdari M, Ashraf H, Vaginal birth after cesarean section: a retrospective study. *Pak J Med Sci.* 26:4 (2010) 987-989.
- [10] American College of Obstetricians and Gynecologists (ACOG); Vaginal birth after previous cesarean delivery (Washington DC, ACOG, 2010) and Royal College of Obstetricians and Gynecologists (RCOG), Birth after previous cesarean section Green –Top Guidelines No 45, London RCOG (2007).
- [11] Mishra N, Taori N, Misri A, Fetomaternal outcome of pregnancy with previous cesarean

- section, *J of Evolution of Med and Dent Sci.* 3:47 (2014) 11369-11378.
- [12] Canada Society of obstreticians and gynecologists of Canada, Vaginal Birth after previous cesarean birth, clinical practice guideline No 68, Ottawa (ON) SOCG (1997).
- [13] Senturk MB, Cakmak Y, Atac H, Budak MS, Factors associated with successful vaginal birth after cesarean section and outcomes in rural area of Anatolia, *Int J Womens Health.* 10:7 (2015) 693-7.
- [14] Caughey AB, Shipp TD, Repke JT, Zelop C, Cohen A, Lieberman E, Trial of labor after cesarean delivery: the effect of previous vaginal delivery, *Am J Obstet Gynecol.* 179:4 (1998) 938-41.
- [15] Birara M, Gebrehiwot Y, Factors associated with success of vaginal birth after one caesarean section (VBAC) at three teaching hospitals in Addis Ababa, Ethiopia: a case control study, *BMC Pregnancy and Childbirth.* 13:31 (2013) 1-6.
- [16] Rao SM, Sravanthi S, Sandhya B, Maternal and fetal outcome following trial of labour after previous cesarean section (TOLAC), *IOSR-JDMS.* 15:1 (2016) 71-78.
- [17] Cowan RK, Kinch RA, Ellis B, and Anderson R, Trial of Labor following cesarean Delivery, *Obstet Gynecol.* 83:6 (1994) 933-6.
- [18] Rizwan N, Dars S, Siddiqui ES, Safety of vaginal birth after cesarean section, *Int Journal of Obstetrics and Gynecology.* 4:7 (2016) 158-162.
- [19] Goel SS, Tiwari M, Hariharan C, Srivastava DS, Outcome of post cesarean pregnancy and comparison of maternal and fetal outcome following vaginal birth vs repeat cesarean section in a rural hospital, *Int J Reprod Contracept Obstet Gynecol.* 2:1 (2016) 16-22.
- [20] Murphy DJ, Pope C, Frost J, Liebling RE, Women's views on the impact of operative delivery in the second stage of labour: qualitative interview study, *BMJ.* 327 (2003) 1132–1136.
- [21] Ballit JL, Landon MB, Thom E, Rouse DJ, Spong CY et al, The MFMU cesarean registry ; impact of time of day on cesarean complications, *Am J Obstet Gynecol* 195:4 (2006) 1132- 1137.
- [22] Ola ER, Imosemi OD, Abudu OO, Vaginal birth after one previous Caesarean section--evaluation of predictive factors, *Afr J Med Med Sci.* 30:1-2 (2001) 61-6.
- [23] Frass KA, Alharazil AH, Outcome of vaginal birth after cesarean section in women with one previous cesarean section and spontaneous onset of labor, *EMHJ* 17:8 (2011) 646-50.
- [24] ACOG practice bulletin vaginal birth after previous cesarean delivery .clinical management guidelines for Obstetricians-Gynecologists, American college of Obstetricians and Gynecologists. *Int J Gynecol Obstet.* 66:2 (1999) 197-204.
- [25] Dodd J, Crowther C, Huertas E, Guise J, Horey D, Planned elective repeat caesarean section versus planned vaginal birth for women with a previous caesarean birth, *Cochrane Database Syst Rev* 10:12 (2013) CD004224.
- [26] Balachandran L, Vaswani PR, Mogotlane R, Pregnancy outcome in women with previous one Cesarean Section, *Journal of Clinical and Diagnostic Research.* 8:2 (2014) 99-102.

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**Original Article****Effectiveness between two tooth brushing methods on removing dental plaque*****Dhirendra Kumar Giri****Department of Periodontology, Nobel Medical College Teaching Hospital, Biratnagar, Nepal*Received: 4<sup>th</sup> March, 2018; Revised after peer-review: 20<sup>th</sup> April, 2018; Accepted: 18<sup>th</sup> May, 2018DOI: <http://dx.doi.org/10.3126/jonmc.v7i1.20843>**Abstract****Background**

Biofilm usually is a group of micro-organisms in which bacterial cells adhere to each other. It may form on a living or non-living surfaces within a self-produced matrix of glycocalyx. Recently, plaque has been identified as a biofilm, and its structure, microbiology and pathophysiology have been described. The effectiveness between modified bass technique and normal brushing technique has been compared in this study.

**Material & Methods**

Sixty auxiliary workers working in Nobel Medical College and Teaching Hospital were selected using systematic random sampling technique. Plaque accumulation was assessed on the index teeth using Silness and Loe plaque index. Both normal tooth brushing practices and modified Bass technique were asked to perform using a standard tooth brush and fluoridated dentifrices without label was used for all the subjects after the morning breakfast. The difference of the PI scores recorded in different examinations was assessed using ANCOVA test.

**Results**

The mean PI score was found similar for normal brushing and modified bass technique at the base line examination ( $P < 0.05$ ). The modified Bass technique was more effective in removing plaque than normal tooth brushing ( $P < 0.05$ )

**Conclusion**

Tooth brushing is the most common, easy and effective method of plaque control. At the same time tooth brushing with correct technique reduces plaque effectively and maintains the integrity of tooth and surrounding periodontium. Modified Bass technique plays a vital role in prevention of plaque control, dental caries and periodontal disease.

**Keywords:***Modified Bass technique, Oral Hygiene, Plaque control***Introduction**

Biofilms are complex group of bacteria which are found in the human body. Recently, dental plaque has been identified as a biofilm, and its structure, microbiology, and pathophysiology have been described [1]. If the biofilms are not removed regularly, subgingival plaque in

patients with periodontitis has been associated with different systemic diseases and disorders [1]. Tooth brushing is one of the most effective and common method of mechanical plaque removal. Normal brushing consists of horizontal, vertical and circular movements [2]. Studies have shown that manual toothbrushes are

effective tool in preventing gingivitis and removing bacterial plaque [3].

Tooth brushes are over the counter products, hence no special instructions for use is given. The normal tooth brushing practice if adequately performed is sufficient to control dental plaque [4]. Tooth brushing reduces dental plaque and improves oral hygiene. Dentist can improve the oral hygiene of the patient using tooth brushing by two means. Either advocating use of specific tooth brushing method or by improving the performance of normal tooth brushing method but most of the studies have shown specific tooth brushing technique have better result as compared to normal tooth brushing practices [5]. The aim of the present study is to compare effectiveness between modified bass technique and normal brushing technique.

#### **Materials and Methods:**

The present experimental study was conducted in the Periodontics department of Nobel Medical College and Teaching Hospital. The data was collected by personnel interview and clinical examination. The patients were given information regarding their participation in the study and all individual gave written informed consent. Ethical clearance was obtained from Ethical committee of Nobel Medical College and Teaching Hospital. The Study duration was from January 2017 to March 2017.

#### Subjects:

Sixty auxiliary workers working in Nobel Medical College and Teaching Hospital were selected using systematic random sampling technique. It comprised of twenty males and forty females with age ranging from 16 to 28 years. Subjects having periodontal pocket  $\geq 4$  mm, patients undergoing orthodontic treatment, crowding, fewer than 6 natural teeth in each quadrant and subjects under antibiotic coverage were excluded from the study.

Subject voluntarily gave written informed consent.

Plaque accumulation was assessed using Silness & Loe plaque index [6], index teeth were assessed. The examiner (Dental surgeon posted in the department) was trained and experienced in recording oral hygiene index. The examiner was uninformed of the tooth brushing technique used by the subjects while recording plaque Index.

#### Tooth brush and tooth paste:

Both normal tooth brushing practices and modified Bass technique[7] were performed using a standard tooth brush (The Humble Co., Sweden) and fluoridated dentifrices without label was used.

#### PART I Normal tooth brushing practices :

The participants were asked not to perform oral hygiene procedures for 48 hours. The amount of dental plaque using the Silness & Loe plaque index was recorded [6]. After baseline record of PI score, participants were instructed to brush twice daily for three weeks. Any other instruction or oral hygiene advice was not given. Subjects were not allowed to use any other oral hygiene product other than those permitted for the study. Recall visit were at two days, one and three weeks. Plaque was recorded similarly as the criteria used at baseline. Participants were not reinforced during recall visit.

#### PART II Modified Bass brushing technique:

Second part of the experiment was conducted after a period of 2 weeks. During this period subjects were not given any specific tooth brushing instructions.

A new prophylaxis to remove plaque and calculus was carried out. The same 60 subjects were asked not to perform oral hygiene procedures for 48 hours. Then the same examiner evaluated the amount of plaque using Silness & Loe plaque index [6] for mesio-facial, facial, disto-facial and lingual surfaces. After the plaque index was recorded at baseline, the subjects



were instructed to brush their teeth using modified Bass technique [7].

Participants were asked to brush their teeth using modified Bass technique which was demonstrated and hands on to all subjects and confirmed all subjects learnt it properly. Recall visits were same as part one schedule. Participants were not reinforced during recall visit. No other instructions to maintain oral hygiene was advised.

**Statistical Analysis:**

PI scores were as mean ± SD. The mean PI was calculated for mesio-facial, facial, disto-facial and lingual surfaces for all individuals. The difference of the PI scores recorded in different examinations was assessed using ANCOVA test. The significance value was set at (p <0.05) level.

**Results:**

The Mean PI score were similar for normal brushing and modified bass technique at the base line examination (p<0.05). The modified Bass technique was found to be more effective in plaque removal than normal tooth brushing (p<0.05) **Table 1**. Although both the technique showed significant reduction in plaque score for all the surface mesio-facial, facial, disto-facial and lingual as compared to base level examination (p<0.05). Mean PI score reduction was significantly higher with modified Bass technique as compared to normal tooth brushing practices (p<0.05). The results showed that the modified Bass technique again significantly reduces mean plaque score for all (p<0.05) after 7 days. After 21 days, PI score was reduced significantly by modified bass technique where as normal tooth brushing showed no significant reduction. (p<0.05)

**Table 1 (Plaque index score)**

Brushing method	Score ( ± SEM) at Examination			
	Baseline	2 <sup>nd</sup> day	7 <sup>th</sup> day	21 day
Normal brushing	0.43 ± 0.22	0.50 ± 0.32	0.95 ± 0.80	1.05 ± 1.00
Modified Bass Technique	0.44 ± 0.27	0.32 ± 0.34	0.39 ± 0.30	0.44 ± 0.31

Normal brushing	0.43 ± 0.22	0.50 ± 0.32	0.95 ± 0.80	1.05 ± 1.00
Modified Bass Technique	0.44 ± 0.27	0.32 ± 0.34	0.39 ± 0.30	0.44 ± 0.31

**Discussion:**

Different tooth brushing technique has been developed eg: Leonard’s, Stillman’s, Charter’s, Fones’ and Bass [8]. Besides these techniques being taught by Dental professionals still over 90% of the population perform their personal tooth brushing method, the popular “scrub” method. [9].

While this successfully removes plaque from the teeth, it is generally considered harmful because vigorous scrubbing can lead to gingival recession and with dentifrices consisting of abrasives can create tooth abrasions. Bass technique of tooth brushing is the most recommended method because it mainly emphasizes sulcular placement of bristles. Studies have shown effectiveness of Bass Method [10] and several studies have shown effectiveness of Bass method as compared to other tooth brushing techniques. In the present study modified Bass technique was found to be effective over normal tooth brushing in plaque removal which is in accordance with study conducted by Kropf JL[11].

Kremers L et al [12] and Zhang JH et al [13] showed in their study that interdental plaque was more effectively removed by Bass technique than other brushing techniques. This might be the reason of modified Bass technique being most effective over other techniques.

Our study was consistent with the study done by McClure DB and Sangnes G et al [14, 15] who conclude that modified Bass technique was efficient in removing interdental plaque whereas Smutkeeree A et al [16] in his study observed that both modified bass and horizontal scrub method

effectively reduced dental plaque with no significant difference between them.

In our study normal brushing technique was effective in removing plaque but modified Bass technique was found to be more effective and consistent in removing plaque which is in accordance with the study reported by M PoyatoFerrera [17].

The modified bass technique was more effective in lingual sites of anterior sextant. Clinical practices showed us patient pays poor attention to lingual sites during their normal tooth brushing practice because most of the people cannot brush lingual surface of the teeth properly [18].

### Conclusion

Tooth brushing is the most common, easy and effective method of plaque control. At the same time tooth brushing with correct technique reduces plaque effectively and maintains the integrity of tooth and surrounding periodontium. Whereas normal horizontal scrub tooth brushing remove plaque but has detrimental effect on tooth and surrounding structures. Modified bass technique differs from other techniques in that it has sweeping motion from cervical to incisal or occlusal surface and helps in excellent intrasulcular cleansing.

Dental professionals should advocate modified Bass technique as plaque control measure as it plays a vital role in controlling dental caries and periodontal disease. Hence correct brushing technique improves the level of oral hygiene and subsequently decreases the risk of different dental diseases.

### References

- [1] JoAnn R Gurenlian, The Role of Dental Plaque Biofilm in Oral Health, *J Dent Hyg* Fall Supplement (2007) vol. 81 no. suppl 1 116.
- [2] Woodall IR, Dafoe BR, Stutsman N, Weed Fonner L, Yankell SL. *Comprehensive dental hygiene care*, vol.1, St. Louis; C.V. Mosby Company, (1992) 133-77.
- [3] Hancock EB, *Prevention. Annu Periodontal* 1 (1996) 223-55.
- [4] Jepsen S, The role of manual toothbrushes in effective plaque control: advantage and limitations. *Proceedings of the European Workshop on Mechanical Plaque*

- Control. Berlin: Quintessence Publishing Co. Inc.. (1998)72-84.
- [5] Frandsen A, Loe H, Kleinman, *Dental Plaque Control Measures and Oral Hygiene Practices*, Oxford-Washington, DC: IRL Press. (1986) 93-116.
- [6] Silness J, Loe H, *Periodontal disease in pregnancy. II. Correlation between oral hygiene and periodontaldisease. ActaOdontolScand* (1964) 121-35.
- [7] Bass CC, *An effective method of personal oral hygiene* *JL State Med. Soc.* Feb; 106(2) (1954) 57-73.
- [8] Carranza FA, *Glickman's Clinical Periodontology*. Philadelphia: W.B. Saunders 17 (1990) 684-71.
- [9] Katz, S. McDonald, J.L. and Stookey G.K., *Preventive Dentistry in Action*, Upper Montclair, NJ: D C Publishing (1972)138.
- [10] Robinson EA, *Comparative evaluation of the scrub and bass methods of toothbrushing with flossing as an adjunct. J Am Public Health* 66 (1976) 1078-81.
- [11] Kropf JL, *Clinical Evaluation of Magnifying Lighted Mirror and Unwaxed Dental Floss as Oral Hygiene*. Ann Arbor, University of Michigan, *School Dentistry*. (1971) 124.
- [12] Kremers L, Lampert F, Etzold C, *Comparative clinical studies on two toothbrushing methods--Roll and Bass technique, DtschZahnarztl Z.* 33(1978) 58-60.
- [13] Zhang JH, Sha YQ, Cao CF, *Comparative study of the effects of removing plaque by two toothbrushing methods, Beijing Da XueXueBao.* 37 (2005) 542-4.
- [14] McClure DB, *A comparison of tooth brushing techniques for the preschool child, J Dent Child.* 33 (1966) 205-10.
- [15] Sangnes G, Zachrisson B, Gjermo P, *Effectiveness of vertical and horizontal brushing techniques in plaque removal, ASDC J Dent Child.* 39 (1972) 94-7.
- [16] Smutkeeree A, Rojlakkanawong N, Yimcharoen V, *A 6-month comparison of toothbrushing efficacy between the horizontal Scrub and modified Bass methods in visually impaired students, Int J Paediatr Dent.* 21(2011) 278-83.
- [17] M PoyatoFerrera, JJ Segura Egea, P Bullon Fernandez, *Comparison of modified Bass technique with normal tooth brushing practices for efficacy in supragingival plaque removal, Int J Dent Hyg* 2 May (2003) 110-4.
- [18] Rugg-Gunn AJ, Macgregor ID, *A survey of tooth brushing behavior in children and young adults, J Periodontal Res.* 13 (1978).

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**Original Article**

## **Histopathological Study of Ovarian Lump and Serum Tumor Marker Ca 125 estimation as a Screening Tool**

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**Abstract****Background**

Ovarian tumor is the fourth commonest cancer in female in Nepal. About 80% is benign and 20% of these tumors are malignant. Due to its complex nature, vagueness and non-specificity of the symptoms it produces, the ovarian neoplasm can mislead both the doctor and patients. Hence this study was undertaken with aims & objectives to study the morphology of ovarian specimens as well as estimate serum CA125 as screening tool.

**Material and Methods:**

A study of over one year comprised of 75 specimens of ovary diagnosed in the Department of Pathology, Nobel medical college and teaching hospital, Biratnagar. After thorough gross examination and preparation of H&E stained slides the lesion of ovary were classified as per WHO classification. Also, preoperative blood samples were obtained from patients for estimation of serum CA125 level. Blood samples was also drawn from 20 healthy females in reproductive age group who acted as controls.

**Results:**

Of the 75 cases of ovarian mass, based on histology 75% were benign, and 25% were malignant. Surface epithelial tumors were the commonest (68%) of all ovarian tumor, followed by germ cell tumors (13%), sex cord–stromal tumors (6%). Serous Cystadenoma (29%) was the commonest benign tumor and serous cystadenocarcinoma (9%) commonest malignant neoplasm.

CA125 levels was raised in epithelial ovarian cancers. Maximum rise was seen in serous cystadenocarcinoma. Exceptionally a small percentage of epithelial cancer showed normal level (false negative). Also, few benign tumors, non-epithelial tumors and even non-neoplastic lesions showed false positive rise in CA125 (false positive).

**Conclusion:**

Accurate histopathological evaluation of ovarian specimen is necessary both in terms of therapeutic intervention as well as prognosis.

CA125 is an important screening tool for detection of epithelial ovarian cancers.

**Keywords:**

*Ovarian mass, Histopathology, serum CA125.*

**Introduction**

The diagnosis of ovarian tumor is very difficult, and mostly delayed, due to the paucity, vagueness and non-specificity of

the symptoms it produces [1] This misleads both the doctors and the patient. As it is situated deep in the pelvis, so it becomes inaccessible to clinical examination.

Ovarian tumor is one of the commonest neoplasia in women [2]. Benign tumor of ovary accounts for around 80% of all ovarian neoplasm and is far more common than malignant counterpart [3]. The risk factors for ovarian malignancy are less well understood than other genital malignancies, although nulliparity, genetic mutations and family history are supposed to be major contributors [4,5].

There are multiple tumor markers which are useful in diagnosis, prognosis and for early prediction of recurrence. The important cancer markers are cancer antigen 125 (CA-125), Carcinoembryonic antigen (CEA), Alpha fetoprotein (AFP), & Beta Human chorionic gonadotrophin ( $\beta$ -HCG) [6]. CA 125 hold the position as gold standard in detection and prognosis of the epithelial ovarian cancers [7] where as  $\beta$ -HCG and AFP helps in detection and prognosis of germ cell tumor of ovary [8]

**Material and Methods**

The present study is based on gross and microscopic evaluation of specimen of ovary received either as solitary specimens, or as part of total abdominal hysterectomy (TAH) from the department of Obstetrics and Gynecology of Nobel medical college and teaching hospital from September 2016 to October 2017. Fixation of the gross specimens received, was done in 10% formalin for 12-24 hours and there after multiple sections were obtained. The sections were prepared by using paraffin technique, microsections of 5 microns thickness were taken onto glass slides and then staining was done by H & E stain. Special stains like PAS was reticulin stains were done if found to be necessary. For the evaluation of screening of tumor marker in these patients, a day before surgery 5ml of blood was collected from the patients, serum were separated by centrifugation and it was stored for preoperative estimation of CA125. Test was done on a fully automated

Chemiluminescence immunoassay analyzer (Siemens Centaur XP) by using commercially available kits. The analyzer automatically calculated and gave the concentration of each sample in IU/L. For quality control we used Bio-Rad standard control 1 & 2.

**Results**

**Histopathological study**

75 specimens of ovarian lump were received from the department of obstetrics and gynecology of Nobel Medical College and were subsequently examined macroscopically and microscopically.

The observations were made under following headings: -

**A. Macroscopic Examination**

**Site of lesion**

Noting the relationship of ovary with the site of lesion it was found that 35 cases (46%) of all ovarian lump arose from left ovary, 33 (45%) arose from right ovary and only 7 (9%) from both the ovaries (shown in table-I).

**Table - I**

**Showing site of lesion of ovarian tumors.**

No. of Cases	Involvement of left ovary	%	Involvement of right ovary	%	Involvement of both ovaries	%
75	35	46%	33	44%	7	9%

**Consistency**

Out of 75 cases studied, 56 (74%) were predominantly cystic and only 19 (26%) cases were predominantly solid ovarian tumors. Among the cystic tumours 27 had serous fluid content, whereas 12 had mucinous. Hemorrhagic and cheesy materials were found in 5 and 12 cases respectively (shown in table-II).

**Table-II**

**Showing incidence of cystic and solid tumors.**

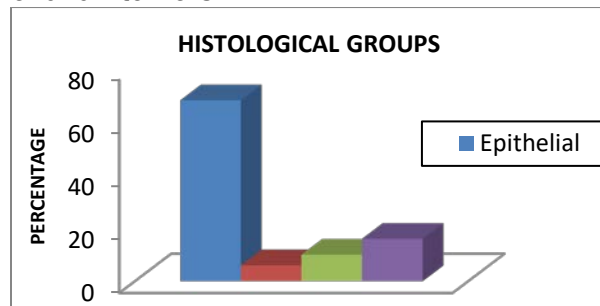
Total No. of Cases	Number of cystic Tumors				% of cystic tumor	No. of solid tumors	% of solid tumor
	Serous fluid	Mucinous fluid	Hemorrhagic & necrotic	Chesymaterial			
75	27	12	5	12	74 %	19	26 %

**B. Microscopic Examination:**

Microscopic examination was done on all the 75 cases of ovarian mass and they were tabulated according to the histological types.

Histological types-

Showing incidence of histological types of ovarian tumors.

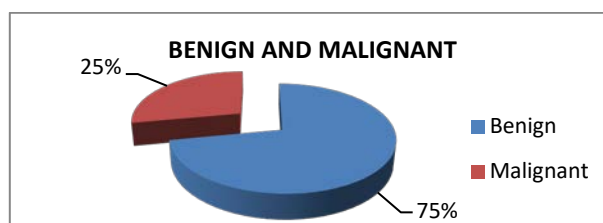


**Table III**

Showing incidence of histological types of ovarian tumors in the classification provided by W.H.O.

Histological types of ovarian tumors	No. of cases	% In relation to total ovarian tumors
I. Epithelial tumors	51	68
A. Serous tumors	29	38
i. Serous cystadenoma	22	29
ii. Serous cystadenocarcinoma	7	9
B. Mucinous tumors	16	21
i. Mucinous cystadenoma	13	17
ii. Mucinous cystadenocarcinoma	3	4

C. Endometroid adenocarcinoma	3	5
D. Clear cell tumors	1	1
E. Brenner tumors (benign)	2	3
F. Epithelial Stromal tumors	Nil	-
II. Sex cord/stromal tumors	4	6
A. Granulosa cell tumors	1	1
B. Fibroma	2	3
C. Fibrothecoma	1	1
III. Germ cell tumors	10	13
A. Dysgerminoma	2	3
B. Dermoid Cyst	6	9
C. Yolk sac tumor	1	1
D. Immature Teartoma	1	1
IV. Non-neoplastic cyst	10	13



Form the above table it was observed that epithelial tumors accounted for 68% of all ovarian tumors. Of them 38% were serous, 21% mucinous, 5% endometroid, 1% Brenner tumors and 1% clear cell tumor. The sex cord tumors were 6% whereas germ cell tumors were found in 13%. Among sex cord tumors, granulose cell tumors were found in 1% of cases, whereas fibroma and fibrothecoma were present in 3% and 1% each respectively. Dysgerminoma and teratoma mature (dermoid cyst) were found 3% and 9% respectively and yolk sac and immature teratoma showing 1% each. Non-neoplastic cysts were seen in 13% of cases.

**Benign and Malignant-**

It was observed that out of 75 ovarian masses, 56 (75%) cases were benign and 19 (25%) were malignant.

**Table-IV**

Total No. of cases	Benign Tumors	Malignant Tumors	Ratio between benign and malignant
	No. of Cases	No. of Cases	

75	56 75%	19 25%	3:1
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**Table-V**  
Showing incidence of various histological of benign ovarian lump.

Histological types	No. of cases	% In relation to benign tumors.	% In relation to total ovarian tumors.
I. Common epithelial tumor	37	64	46
A. Serous cystadenoma	22	38	29
B. Mucinous cystadenoma	13	23	17
C. Brenner tumors	2	4	3
II. Sex cord/stromal tumors.	3	7	5
A. Fibroma groups	2	4	3
B. Fibrothecoma	1	2	1
III. Simple cyst	10	18	13
IV. Germ cell tumor	6	10	8
A. Dermoid Cyst	6	10	8

**Malignant tumor**

Among 19 cases of malignant tumors, serous cystadenocarcinoma were most common with 7 cases. Next to it was mucinous cystadenocarcinoma 3 cases and endometrioid carcinoma 3 cases, followed by dysgerminoma 2.

**Table-VI**  
Showing incidence to various histological types of malignant ovarian tumors.

Histological types	No. Of cases	% In relation to malignant tumors.	% In relation to total ovarian tumors.
1. Epithelial tumors	14	74	8
A. Serous cystadenocarcinoma.	7	37	
B. Mucinous cystadenocarcinoma	3	16	
C. Endometrioid tumors (Adenocarcinoma)	3	16	4
E. Clear cell	1	5	1

II. Sex cord-stromal Tumors	1	5	1
A. Granulos cell tumours	1	5	1
III. Germ cell tumors	4	21	
A. Dysgerminoma	2	11	5
B. Yolk Sac Tumor	1	5	
C. Immature teratoma	1	5	3

**Study of CA-125, AFP, βhcG as tumor markers**

Serum samples were obtained from 75 patients, who were to undergo surgery for ovarian lump. Serum level values these markers were later correlated with the histopathological diagnosis of the resected specimen. The normal cut off value of CEA, was chosen as <5ng/ml, AFP as <20ng/ml and β-hcG as <5mlu/ml

20 healthy female of different age groups were selected on random basis and were used as control.

Mean values of serum tumor markers level were calculated for each group and the tumor marker concentration was compared with histological types of ovarian tumor.

**Table-XIII**  
Showing mean serum CA-125 levels as screening of ovarian lump

Histological types of ovarian tumors	No. Of cases	% of cases	Tumor Marker CA125 (average)			
			<35 IU/L	35-100 IU/L	100-500 IU/L	>500 IU/L
1. Epithelial tumors	51	68%				
A. Serous cystadenoma	29	38%				
i. Serous cystadenoma	22	29%	3	15	4	2
ii. Serous cystadenocarcinoma	7	9%		1	4	

B. Mucinous tumors	16 13	21 %	4	8	1	
i. Mucinous cystadenoma	3	17 %	1	1	1	
ii. Mucinous cystadenocarcinoma		4 %				
C. Endometrioid adenocarcinoma	3	5 %		1	2	
D. Clear cell	1	1 %		1		
E. Brenner tumors (benign)	2	3 %	1	1		
II. Sex cord/stromal Tumors	4	6 %				
A. Granulosa cell tumor	1 2 1	1 % 3	2 1	1		
B. Fibroma		%				
C. fibrothecoma		1 %				
III. Germ cell tumors	10 2	13 %	1	1		
A. Dysgerminoma	6 1	3 % 1	5 1	1		
B. Dermoid Cyst.		9 %				
C. Yolk Sac Tumor		1 %				
IV. Non neoplastic cyst.	10	13 %	9	1		

20 random females in different age groups were to serve as control. 19 out of 20 females serving as control had serum CA125 < 35 IU/L, one case the result of CA-125 – 47 IU/L, the blood was collected during her menstrual period.

Considering CA-125 level < 35 IU/L to be considered as normal, 35-100 IU/L as insignificant rise, 100-500 IU/L as significant rise and > 500 as a very high rise of the tumor marker.

Substantial rise of CA125 was seen in epithelial ovarian cancers only. 87% of epithelial tumors shows rise in tumor

marker, whereas significant rise (> 100 IU/L) was seen in 25%.

Maximum (80%) sex cord/stromal and germ cell tumor do not shows any rise in CA125, none showing any significant rise (>100 IU/L). Almost all of non-neoplastic ovarian mass shows no rise in CA125.

Out of the Epithelial tumors, highest rise in levels of tumor marker was seen in serous cystadenocarcinoma {28% showing very high levels (>500 IU/L), 60% significant rise, none showing normal level}. This was followed by mucinous cystadenocarcinoma {none showing very high levels (>500 IU/L), 33% significant rise, one even showing normal level}. Endometrioid and clear cell carcinoma showed rise in levels but did not show a very high levels (>500 IU/L), 66% of endometrioid showing significant rise. 86% of benign serous and 70% of mucinous adenoma showed rise in CA125, but none of them showed high levels above 500 IU/L. Significant levels above 100 IU/L was seen only 8% of mucinous and 18% of serous cystadenoma.

#### Discussion

Out of 75 cases of ovarian tumors studied, it was recorded that 35 (46%) of ovarian tumors arose from left ovary, 33 (44%) from right ovary and only 7 (9%) from both ovaries (table-I). Bilaterally was mostly observed in serous cystadenocarcinoma. Approximately similar observations were made by Reddy and Rao (1990) who found the involvement of left ovary in 52.5%, right ovary in 42.46%, and both in 5.49% of cases. In a study conducted by Vaidya et al. [9] and Sharma et al. [10] respectively, bilaterality was found in 8.86% cases and 11.29% cases

In the present series, 56 (74%) were predominantly cystic and 19 (26%) were predominantly solid on macroscopic examination. Among the cystic tumors 27 had serous fluid content, whereas 12 had mucinous. Hemorrhagic & cheesy materials

were found in 5 and 12 cases respectively (table-II). Gupta SC et al [10](1986) and Misra RK et al[11] (1990) also had near similar observations.

Of the 75 cases studied in the present series, 56 cases (75% turned out to be benign, whereas 19 cases (25%) were malignant (table- IV). Couto et al [12] (1993) noted that the incidence of benign tumor was 80% and the incidence of malignant tumor was 20%. According to Pilli et al [13] (2001) percentage of benign tumor was 76% and malignant tumor was 24%. The present data seem to be comparable with the figures given by Pilli et al [13] (2001). Whatsoever the variation may be, it is obvious that the incidence of benign tumors is approximately three to four times higher than the malignant one.

Comparing the relative percentage of different histological types of ovarian neoplasm with our study and different other studies, it was found that epithelial tumors comprised 68% of all tumors, followed by germ cell tumors 13%. Sex cord/stromal tumors were found in only 6% cases. Pilli et al [13] (2001) found epithelial, germ cell and sex tumors in relative percentage of 71%, 21% & 7% respectively. Kar et al [10] (2005) found it to be 79%, 16% and 1.5% respectively. Epithelial tumors outnumber all the other neoplasm, a common finding in all the studies.

Serous cystadenomas being the commonest ovarian tumor were present in 22 cases (29%) of total ovarian lesions (table-VIII). This is in accordance with Misra RK et al [11] and Maheshwari V et. al [15] reported an incidence of 49% and 46.01% of serous cystadenoma. In our study most of the tumors were unilateral and cystic in consistency.

Mucinous cystadenoma accounted for 13 cases (17%) out of 75 cases of ovarian lesions. Similar findings have been reported by Prabhakar et al [16] (18%), Maheshwari

et al [15] (13 %). Most of them were cystic in consistency in this study. Bilateral involvement of mucinous cystadenoma was not found in present series. Boyd (1998) reported that bilateral mucinous cystadenoma was relatively uncommon.

Serous cystadenocarcinomas were found to be most common of all malignant ovarian neoplasm, 7 cases (9%), followed by mucinous adenocarcinoma 3 cases (4%). Randhawa et al [14] reported 12% incidence and Pilli et al[13] reported 3% for serous cystadenocarcinoma.

Endometrioid tumor was seen in 3 cases (4% of total 75 specimen received). All were found to be malignant. Maheshwari et al [15] in their observation also found that endometrioid carcinoma occupies 3.6% of ovarian neoplasm.

In total, sex cord tumor constituted 6% of all cases (table-IV) out of which Fibroma was found to be seen most commonly (3%), a finding similar to Bhattacharjee et.al (1998) and Saxena et.al (1992) who also observed fibroma to be 2% and 3% respectively.

The incidence of germ cell tumors was 13% of all ovarian tumors (table-IV) of which commonest category, Benign teratoma (dermoid cyst) constituted 9% of cases of total and 46% of all germ cell tumor. Studies by Gupta SC et al [10] and Couto F et al [12] which showed an incidence of dermoid cyst to be of 23.13 %, 15.45 % of germ cell tumor respectively. This significant difference might be due to the availability of only a modest number of cases in the present series.

Dysgerminoma was seen in 3% of all cases under study. Studies by Gupta SC et al [10] and Couto F et al [12] showed an incidence of 3.5 and 2.9 respectively which is in accordance to our study.

#### **Serum Tumor markers CA125**

The important cancer markers for Ovarian cancers are: cancer antigen 125 (CA-125),



Carcinoembryonic antigen (CEA), Alpha fetoprotein (AFP), & Beta Human chorionic gonadotrophin ( $\beta$ - HCG) [6] of which CA125 holds the position of gold standard in detection as well as a prognostic marker of ovarian cancers [7].

Based on our study, CA125 rises in epithelial ovarian cancers and maximum rise is seen in serous cystadenocarcinoma. Similar observation was seen in a study by Mehboob S. et al [17]. In our study, a very high rise of CA125, much above 500 IU/L was seen in serous cystadenocarcinoma only.

The elevation of CA125 was not observed in epithelial ovarian cancers alone. Rise in level specially in the range of 35-100 IU/L were seen in both non-epithelial neoplasm and non-neoplastic ovarian mass. But all these did not show very high level of tumor marker. Hence, this tumor marker is not specific for epithelial ovarian carcinomas alone. Although high levels almost always suggest epithelial carcinoma.

Not all epithelial ovarian cancers show a rise in CA125. One case of mucinous cystadenocarcinoma showed a normal level (<35IU/L). This lack of specificity and sensitivity is in accordance with study by Buamah, P., 2000 [18]

### Conclusion

An accurate histopathological diagnosis along with clinical staging can help in understanding of ovarian tumorigenesis and proper management.

CA 125 is an important tumor marker for early diagnosis of the epithelial ovarian cancer, although the test like all other tumor markers do have limitations.

### References:

[1] Mankar DV, Jain GK. Histopathological profile of ovarian tumours: A twelve year institutional

experience. *Muller J Med Sci Res.* 6:2 (2015)107–11.

- [2] Young RH, The ovary. In: Sternberg S. *diagnostic Surgical Pathology.* 17th Ed. New York: Raven Press; 1994. p. 2195.
- [3] Novak. *Gynaecologic and obstetric pathology with clinical and endocrine relation.* 8th ed. W.B.: saunders company. 1979.
- [4] Azizs, Kuperstein G, Rosen B, Cole D, Nedelew R, Mclaughlin J, Narod SA et al. A genetic epidemiologic study of carcinomas of the fallopian tube, *Gynecologic oncology.* 80:341 (2001).
- [5] Narod SA, Boyd J. Current understanding of the epidemiology, and clinical implication of BRCA1 and BRCA2 mutation for ovarian cancer. *Current Opinion in obstetric and Gynecology.* 14:19 (2002).
- [6] Mani R, Jamil K and Moharia CV, Specificity of serum tumor markers (CA125, CEA, AFP, Beta HCG) in ovarian malignancies. *Trend Med Res:* 2:3 (2007)128-134.
- [7] Gupta D and Christopher GL. Role of CA 125 in predicting ovarian cancer survival. *J of Ovarian Research* 2:13 (2009) 1757-2215.
- [8] Faisal B L, Muhammad A. Riaz H. Serum Tumor Markers, *Professional Med J March* 13:1 (2006) 1-10.
- [9] Vaidya S, Sharma P, KC S, Vaidya SA . Spectrum of ovarian tumor in a referral hospital in Nepal. *Journal of Pathology Nepal.* 14 (2014) 539-543.
- [10] Gupta SC, Singh PA, Mehrotra TN, Agarwal R. *Indian J Pathol. Microbiol* 29 (1986) 354-362.
- [11] Misra RK, Sharma SP, Gupta U, Gaur R, Misra SD, Pattern of ovarian neoplasm in eastern U.P. *Journal of obstetrics and Gynaecology* 41:2 (1990) 242-246.
- [12] Couto F, Nadkarni NS, Rebello MJ. Ovarian Tumours in Goa-A clinicopathological study. *Journal of Obstetrics and Gynaecology of India* 43:3 (1993) 40812.
- [13] Ganga S Pilli, K.P.Sunitha, A.V.Dhaded, V V.Yenni. Ovarian tumors a study of 282 cases. *J Indian Med Associ;* 100:7 (2002) 420-424.
- [14] Randhawa I, Lata P. A study of ovarian neoplasm. *J. Obstet . Gynec. India* 1980; 30:531-535
- [15] Maheshwari V, Tyagi SP, Saxena K. Surface epithelial tumors of ovary. *Indian J Pathol Microbiol* 37:10 (1994) 75 -85.
- [16] Prabhakar BR, Kalyani M. Ovarian tumors-prevalence in Punjab. *Indian J. Pathol.Microbiol* 32:4 (1989) 276281.
- [17] Mehboob S, Ghafoor F, Yunus S, Sajjad R. Role of CA-125 as an Ovarian Tumor Marker. *Pak J Med Res,* 48:3 (2009).
- [18] Buamah, P., 2000. Benign conditions associated with raised serum CA125 concentration. *J. Surg. Oncol.* 75 264-265.

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**Original Article****School Screening For Scoliosis in the Eastern Part of Nepal****Prakash Sitoula**

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**Abstract****Background**

Scoliosis is common in children of school going age particularly in the adolescents. This condition is asymptomatic and often children present in the advanced stage of this condition with large deformity. Therefore, early detection avoids the problems associated with large curves.

**Material and Methods**

Retrospective analysis of data obtained from screening of eight schools in the eastern part of Nepal between April 2016 and May 2017 was done; Morang district (5 schools) and Sunsari district (3 schools). A consultant Orthopaedic Surgeon, a trained Physiotherapist and an Orthopaedic nurse conducted school screening for scoliosis using the Adam's forward bend test in the Morang district while the latter two were involved in screening in the Sunsari district. The data collected included demographics, number of positive cases and treatment prescribed.

**Results**

5505 children {2840 boys (51.6%) and 2665 girls (48.4%)} were screened for scoliosis in this period. Majority of patients were from the Morang district (86.2%). All six children (five girls and one boy) who were found to have positive Adam's forward test had adolescent idiopathic scoliosis. One child had a curve of 35 degrees and bracing was started. Rest of the children had curves less than 25 degrees and were kept on regular follow up. The referral rate was 1.1 per 1000 children screened for scoliosis.

**Conclusion**

Though the overall prevalence of scoliosis appears to be less in our population, school screening is still important for two main reasons. This may be the only way to detect cases early so that treatment can be instituted before deformity becomes large. Secondly, this activity would also spread awareness about this little known condition in the community.

**Key words**

*Scoliosis; school screening; Adam's forward bend test*

**Introduction**

Scoliosis is a lateral curvature of spine greater than 10 degrees [1]. This condition is known to occur most commonly in the adolescents and the etiology is unknown in majority of them. Children with this condition are otherwise asymptomatic [2];

therefore, it is not uncommon for children to present late with big deformities.

Progression of scoliotic curve is determined by skeletal maturity and curve magnitude [3-4]. Early detection and intervention in the form of bracing prevents curve progression for the curve magnitude

between 25 and 40 degrees [5-7] in skeletally immature adolescents. While curves in the surgical range (50 degrees and above) are better managed early with minimal complications thus halting progression.

The actual incidence of scoliosis in Nepal is yet to be determined. This study aimed to review the data on children of school going age who were screened for scoliosis in the Morang and the Sunsari districts in the eastern part of Nepal to estimate the prevalence of scoliosis in this region of the country.

**Material and Methods**

A retrospective review of data obtained from school screening program for scoliosis between April 2016 and May 2017 was done. IRC approval was obtained.

Five schools in the Morang and three schools in Sunsari districts in the eastern part of Nepal were screened for scoliosis in this period. A consultant Orthopaedic Surgeon, a trained Physiotherapist and an Orthopaedic nurse conducted school screening for scoliosis using the Adam’s forward bend test in the Morang district while the latter two were involved in screening in the Sunsari district. Since no such screening has been done in the past in this region, all children of school going age (from nursery to standard ten) were screened. The consent for screening was taken from the school authorities after briefing them in detail about the purpose and procedure for screening.

The following data were collected: number of students screened, age, gender, number of students who were referred and number who came for further evaluation; number of students who had scoliosis and Cobb angle; treatment given (brace, surgery, none) and number of patients with spinal deformities other than scoliosis.

Categorical and discrete variables were summarized with frequency and percentages. STATA version 12.0

(STATA Corp. College Station, TX) was used to analyze the data.

**Results**

A total of 5505 children were screened for scoliosis in this period. There were 2840 (51.6%) girls and 2665 (48.4%) boys (Table 1). Majority of children screened were from the Morang district, n=4748 (86.2%); girls 2488 (52.4%) and boys 2260 (47.6%). The number of children screened in Sunsari district was 757 (13.8%) out of which 405 (53.5%) were boys and 352 (46.5%) were girls.

**Table 1: Demographic Data**

School	District	Boys	Girls	Total	Suspected Cases	Sex
School 1	Morang	362	456	818	0	
School 2	Morang	284	358	642	0	
School 3	Morang	738	711	1449	1	Girl - 1
School 4	Morang	403	372	775	0	
School 5	Morang	473	591	1064	3	Girls - 2; Boy - 1
School 6	Sunsari	61	50	111	0	
School 7	Sunsari	274	247	521	2	Girls - 2
School 8	Sunsari	70	55	125	0	
<b>Total</b>		<b>2665</b>	<b>2840</b>	<b>5505</b>	<b>6</b>	

Six children (five girls and one boy) were found to have positive Adam’s forward bend test and were referred to the hospital for further evaluation. All these children were found to have scoliosis. The referral rate was 1.1 per 1000 children screened for scoliosis. All except one child had curves less than 25 degrees (Table 2) and were kept on regular follow up. Bracing was started for the child with curve of 35 degrees (case 4).

**Table 2: Children with Identified**

Idiopathic Scoliosis				
Case	Age	Sex	Cobb Angle	Treatment
1	12	F	15	Observation
2	11	F	18	Observation
3	11	F	20	Observation
4	14	M	35	Bracing
5	13	F	12	Observation
6	12	F	16	Observation

Out of eight schools screened for scoliosis, suspected cases were identified in only three schools (two schools in Morang district and one school in Sunsari district). All the suspected cases were found to have idiopathic scoliosis and none of them had congenital or other types of scoliosis.

#### Discussion

Early detection of scoliosis in children prevents devastating physical and psychological problems associated large curves. Curves greater than 100 degrees are associated with major respiratory problems [1]. Similarly, large deformities are known to have high psychological impact in the minds of adolescents and these children are often observed to have low self-esteem [8]. Scoliotic curves greater than 50 degrees at skeletal maturity have been observed to progress at the rate of one degree per annum leading to significant morbidity [1]. School screening for scoliosis helps in early detection of cases.

Early intervention in the form of bracing has been found to be very effective to prevent progression of scoliosis for curves between 25 to 40 degrees [5-7] in the skeletally immature adolescents. The school screening for scoliosis in the present series detected one child with a curve of 35 degrees in whom bracing was started. Remaining children were also skeletally immature with the risk of curve progression and hence were kept on regular follow up. Numbers of studies have reported diverse referral rates following school screening for

scoliosis. Lonstein reported a referral rate of 34 per 1000 children screened in Minnesota, the USA [9]. In a population-based study of Yawn et al in Rochester (the USA), the referral rate was 41 per 1000 and 74% of the children who were referred were identified to have scoliosis [10]. Similarly, the referral rate was 23 per 1000 for screening done in the District of Columbia (the USA) [11]. However, only 47% of children who were referred actually came to the hospital for further evaluation and 54% of those who reported had scoliosis. The referral rate in the current series was 1.1 per 1000 children screened for scoliosis. Six children were referred and all six children were confirmed to have structural scoliosis. Only one of these needed active treatment in the form of bracing. The incidence of scoliosis has been found to be higher in the Caucasians than in the Blacks [10]. The actual incidence of scoliosis has not yet been determined in the Nepalese population. The lower referral rates in the present series could be due to lower incidence of scoliosis in our patient population. However, a prospective study with a larger cohort is needed to determine the true incidence.

Early detection of scoliosis is possible in developed countries where 'School Health Program'[11-12] exists and the school nurses do scoliosis screening routinely. Any suspected cases then are referred to the hospital. In countries like ours where school health program is nonexistent, routine screening by a team of experts from a hospital still has a significant role in overall care of children with scoliosis for two main reasons. Firstly, this may be the only way to detect the children with scoliosis early when they can still be treated effectively by nonoperative treatment methods like bracing. Secondly, this would also be an important means to spread awareness in the Nepalese

community about this little known condition.

Though this is one of the few studies on prevalence of scoliosis in Nepal, it has number of limitations. This is a retrospective study with its intrinsic biases. Though we could have an estimate of prevalence of scoliosis in this region but the sample size was small to generalize the results to the whole population.

### Conclusion

Although the overall prevalence of scoliosis appears to be less in our population, school screening for scoliosis is still important as a public health program for early detection of cases and to increase the consciousness about scoliosis in the general population.

### References:

- [1] Weinstein SL. Idiopathic scoliosis. Natural history. *Spine*. 11:8 (1986)780-3.
- [2] Morrissy RT, School screening for scoliosis, *Spine*. 24:24 (1999) 2584-91.
- [3] Sanders JO, Khoury JG, Kishan S, Browne RH, Mooney JF, 3rd, Arnold KD, et al. Predicting scoliosis progression from skeletal maturity: a simplified classification during adolescence. *J Bone Joint Surg Am*. 90:3 (2008) 540-53.
- [4] Sitoula P, Verma K, Holmes L, Jr., Gabos PG, Sanders JO, Yorgova P, et al. Prediction of Curve Progression in Idiopathic Scoliosis: Validation of the Sanders Skeletal Maturity Staging System. *Spine*. 40:13 (2015) 1006-13.
- [5] Nachemson AL, Peterson LE. Effectiveness of treatment with a brace in girls who have adolescent idiopathic scoliosis. A prospective, controlled study based on data from the Brace Study of the Scoliosis Research Society. *J Bone Joint Surg Am*. 77:6 (1995) 815-22.
- [6] Sanders JO, Newton PO, Browne RH, Katz DE, Birch JG, Herring JA. Bracing for idiopathic scoliosis: how many patients require treatment to prevent one surgery? *J Bone Joint Surg Am*. 96:8 (2014) 649-53.
- [7] Weinstein SL, Dolan LA, Wright JG, Dobbs MB. Effects of bracing in adolescents with idiopathic scoliosis. *N Engl J Med*. 369:16 (2013) 1512-21.
- [8] Lonstein JE, Morrissy RT. Scoliosis school screening: is it of value? *Orthopedics*. 12:12 (1989) 1589-93.
- [9] Lonstein JE. Adolescent idiopathic scoliosis: screening and diagnosis. *AAOS Instruct Course Lect*. 38. p. 105-13.
- [10] Yawn BP, Yawn RA, Hodge D, Kurland M, Shaughnessy WJ, Ilstrup D, et al. A population-based study of school scoliosis screening. *JAMA*. 282:15 (1999) 1427-32.
- [11] Veleziz MJ, Sturm PF, Cobey J, Scoliosis screening revisited: findings from the District of Columbia. *J Pediatr Orthop*. 22:6 (2002) 788-91.
- [12] Lonstein JE, Bjorklund S, Wanninger MH, Nelson RP. Voluntary school screening for scoliosis in Minnesota. *J Bone Joint Surg Am*. 64:4(1982) 481-8.

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### Original Article

## Bacteriological analysis of bile in laparoscopic cholecystectomy patients

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### Abstract

#### Background

Laparoscopic cholecystectomy is commonly performed operation for symptomatic gall stone disease. The presence of stones within the biliary system is associated with the bacterial colonization of the bile. The aim of this study is to evaluate the bacteriological profile of the bile and to determine appropriate antibiotics for preoperative prophylaxis in laparoscopic cholecystectomy patients.

#### Material & Methods

A prospective study was carried out in NMCTH, Biratnagar from June 2017- May 2018. A total of 100 patients admitted through OPD of our hospital for laparoscopic cholecystectomy were studied. About 5ml of bile aspirated from gall bladder was transported to laboratory in sterile syringe for culture and sensitivity. All age groups and both sex were included.

#### Results

Bile culture was positive in 16 patients. The most common organisms isolated from bile was *Escherichia coli* (50%) followed by *Klebsiella* species (25%). Histopathological report of all 16 cases revealed chronic cholecystitis. Wound infection was seen in 5% cases and all were bile culture positive. Most sensitive drug was found to be aminoglycoside group followed by piperacilin and tazobactam.

#### Conclusion

Most common organism isolated from bile culture was *Escherichia coli*. Aminoglycoside group of drugs was found to be more promising compared to other group of drugs. It can be considered as a first line drug for preoperative prophylaxis for patients undergoing laparoscopic cholecystectomy for symptomatic cholelithiasis.

#### Key Words:

Bacteriology, Bile, Laparoscopic cholecystectomy

#### Introduction

Laparoscopic cholecystectomy is considered a gold standard treatment for symptomatic gall stone disease [1]. First laparoscopic cholecystectomy was performed by Philip Mouret in France on

1987 [2]. The presence of gall stones within the biliary system is associated with the bacterial colonization of the bile. The bacteria in the bile may go into the systemic circulation whenever there is stasis of bile due to obstruction or any

surgical intervention. This may lead to sepsis and multiple organs dysfunction syndromes. Bacteria in the bile, is also associated with surgical site infection [3-5]. Therefore this study aims to evaluate the microbiological profile of the bile and to determine appropriate antibiotics for preoperative prophylaxis of the patient undergoing laparoscopic cholecystectomy for symptomatic gall stone disease.

**Materials and Methods**

Prospective study was conducted from June, 2017 to May, 2018 in Department of General and Minimally Invasive Surgery, Nobel Medical College and Teaching Hospital, Biratnagar after taking ethical clearance from Institutional Review committee. A total of 100 patients admitted through OPD of our hospital for laparoscopic cholecystectomy were included in the study. All the age groups and both sex were included. Patients having symptomatic gall stone disease were diagnosed on the basis of history, clinical examination and were confirmed by ultrasonography of abdomen and pelvis. About 5ml of bile was aspirated during laparoscopic cholecystectomy, in a sterile syringe and transported to laboratory for culture and sensitivity. Patient’s demographic data like age, sex was noted. Data were analysed by SPSS software.

**Results**

Out of 100 patients, 83(83%)were female and 17(17%) were male. Therefore female to male ratio was 4.88:1. Age range of patients included in the study varied between 16 -72 years and maximum patients were found in the age group of 30-39 years (31%) as shown in Table1. Bile culture was sterile in 84 cases (84%)and positive in 16 cases(16%). Bacteria were mostly isolated in patients above 50 years of age(62.5%). *Escherichia coli* was the most common (50%) organism isolated followed by *Klebsiella* species (25%). [Figure1]

Histopathological report of 16 patients, whose bile culture was positive, revealed chronic cholecystitis. Post-operative wound infection was noted in 5 patients with bile culture positivity and most of the organisms were sensitive to drugs like gentamicin and amikacin along with piperacillin and tazobactam as depicted in figure 2.

**Table 1. Distribution of age group and gender**

Age group	Female	Male	Total
10-19	2	0	2
20-29	13	2	15
30-39	24	7	31
40-49	18	3	21
50-59	14	3	17
60-69	9	0	9
70-79	3	2	5
Total	83	17	100

Figure 1.

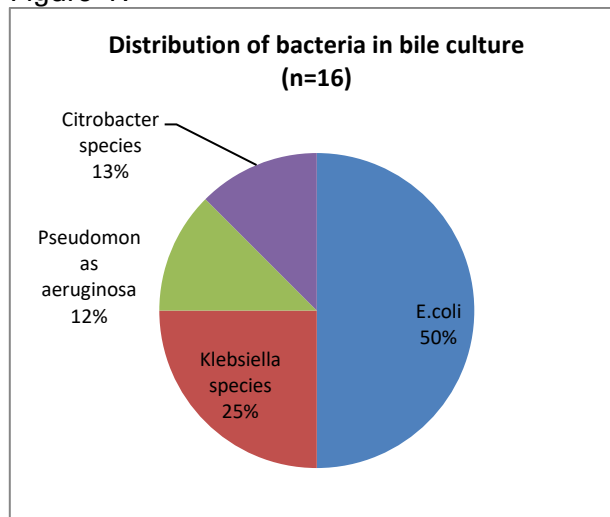
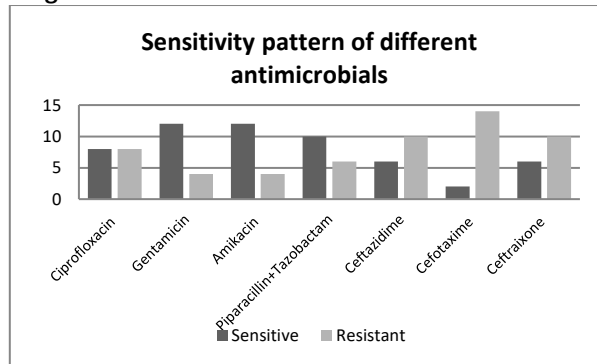


Figure 2.



**Discussion**

Bile in biliary system is normally sterile but in the presence of gall stones or biliary tract disease, colonization of bacteria may occur with subsequent infection [6]. In the present study gall stones disease was commonly seen in female patients (83%) compared to male (17%). Maximum numbers of patients were found in 30-39 years' age group (31%). The similar findings were observed in different studies conducted by Bhandari TR et al and Trotman BW et al [7, 8].

Out of 100 patients 16(16%) patients had bile culture positive in our study. Maximum patients (62.5%) with bile culture positivity belonged to age groups of 50-79 years. In different studies bile culture positivity among patients with symptomatic gallstone ranges from 11-30% and it was more significantly seen in elderly patients. [6,9]. Van Leeuren et al found 16.4% positive bile culture which was similar to our study [10]. However in contrast Parekh et al showed 24.3% bile culture positivity with most of the patients belonging to 3<sup>rd</sup> and 4<sup>th</sup> decade of life [11].

Gram negative organisms like *Escherichia coli*, *Klebsiella* species, *Proteus* species and *Pseudomonas* species are commonly isolated from infected bile while gram positive bacteria are less commonly encountered [11]. In our study *Escherichia coli* was most common organisms (50%) isolated followed by *Klebsiella* species (25%). Similar findings were seen in the study conducted by Parekh et al and Sahayam et al. But unlike our study these studies also found gram positive organisms like *Staphylococcus aureus* and Coagulase negative staphylococci [11, 12].

In all 16 patients whose bile culture was positive for bacteria, gall bladder histopathological report revealed chronic cholecystitis (100%). Therefore, in our study it was found that incidence of positive bile culture is common in patients with chronic cholecystitis. A study

conducted by Alaattin et al also showed the highest incidence of positive culture in patients with chronic cholecystitis (66.7%) [13].

Different studies have concluded that prophylactic antibiotics can prevent post-operative wound infection. Reports show that decreased rates of postoperative wound infection have been seen in patients receiving prophylactic antibiotics than in controls not receiving any treatment. In most of the studies infections was shown to develop only in 5-15% of cases with positive bile culture receiving prophylactic antibiotics [14, 15]. In the present study wound infection was seen only in 5% of cases whose bile culture was positive as prophylactic antibiotic was given to all the patients before surgery.

In our study, sensitivity of the organisms grown (n=16) were tested against different antimicrobials like ciprofloxacin, gentamicin, amikacin, piperacillin and tazobactam, cefotaxime, ceftriaxone and ceftazidime. Most effective drug was amikacin and gentamicin. It was found that sensitivity to aminoglycoside groups of drugs was higher (75%) compared to cephalosporins (30%) in symptomatic gall stone disease. Piperacillin and tazobactam also showed good sensitivity against isolated organisms from bile (62%). Whereas, a study done in India shows good efficacy of cephalosporins as compared to aminoglycosides against organisms isolated from bile, although, sensitivity of the organism to piperacillin and tazobactam is comparable to our study. [11]

#### **Conclusion**

It can be concluded that most of patient's bile was sterile, only 16% patient's bile culture showed the growth of bacteria. Most common organisms isolated was *Escherichia coli* (50%). The chance of wound infections was higher in patients with positive bile culture. Aminoglycoside



group of drugs and Piperacillin and tazobactam showed better sensitivity against isolated organisms and can be considered for first line therapy for preoperative prophylaxis for symptomatic gall stone diseases. There is limitation which has to be considered for future as the study had small sample size and done in single center.

### References

- [1] Walker Reynolds J. The first laparoscopic cholecystectomy, *Journal of the Society of Laparoendoscopic Surgeons*. 5:1(2001)89.
- [2] Kalser SC, National-institute-of-health consensus development conference statement on gall stones and laparoscopic cholecystectomy, *American Journal of Surgery*. 165:4 (1993) 390-8.
- [3] Fyfe AHB, Mohammed F, Dougall AJ. The infective complications of elective cholecystectomy. Operative biliary infection related to postoperative complications. *JR Coll Surg Edinb*. 28 (1983) 90-4.
- [4] Fukunaga FH. Gall bladder bacteriology, histology and gallstones. *Arch Surg*. 106 (1973) 169-71.
- [5] Keighley MRB, Flinn R, Alexander-William J. Multivariate analysis of clinical and operative findings associated with biliary sepsis. *Br J Surg*. 63 (1976) 528-31.
- [6] Southern surgeons club. A prospective analysis of 1518 laparoscopic cholecystectomies. *N Engl J Med*. 324 (1991) 1073-8.
- [7] Bhandari TR, Shahi S, Bhandari R, Poudel R. Laparoscopic cholecystectomy in elderly: an experience at a tertiary care hospital in western Nepal. *Surg Res Pract*. 2017; 2017:8204578
- [8] Trotman BW, Petrella EJ, Soloway RD, Sanchwz HM, Morris TA, Miller WT et al. Evaluation of radiographic lucency or opaqueness of gall stones as a means of identifying cholesterol or pigment stones. Correlation of lucency or opaqueness with calcium and mineral. *Gastroenterology*. 68 (1975) 1563-6.
- [9] Thompson JE, Pitt HA, Doty JE, Coleman J, Irving C. broad spectrum penicillin as an adequate therapy for acute cholangitis. *Surg Gynecol Obstet*. 171 (1990) 275-82.
- [10] Van leeuwen PA, Keeman JN, Butzelaar RM, Van Den Bogard AE. Correlation between a positive gall bladder culture and subsequent wound infection after biliary surgery – a retrospective study of 840 patients. *Neth J Surg*. 37 (1985) 179-82.
- [11] Parekh PM, Shah NJ, Suthar PP, Patel DH, Mehta C, Tadv HD. Bacteriological analysis of bile in cholecystectomy patients. *Int J Res Med Sci*. 3:11 (2015) 3091-3096.
- [12] Sahayam JS, Sulaiman J, Senthurpandian , Anandan H. Analysis of bacteriological profile of bile in cholecystectomy patients. *Int J Sci Stud*. 5:8 (2017) 5-7.
- [13] Alaattin O, Hakan B, Cengiz K, Necati T, Hulya C, Omar FA. Bacteriological analysis of bile in cholecystectomy patients. *N J Med*. 19:1 (2012) 43-6.
- [14] Morran C, McNaught W, McArdle CS. Prophylactic co-trimoxazole in biliary surgery. *Br Med J*. 2 (1978) 462-4.
- [15] Keighley MRB, Drysdale RB, Quoraishi AH, Burdon DW, Alexander WJ. Antibiotics in biliary disease: the relative importance of antibiotic concentration in bile and serum. *Gut*. 17 (1976) 495-500.

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### Original Article

## The Impact of acne on the quality of life of the patients attending dermatology outpatient department at Nobel Medical College Teaching Hospital

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### Abstract

#### Background

Acne is a very common distressing skin condition that affects multiple aspects of quality of life of an individual. It has been illustrated that acne have tremendous effect on an individual's self-image and impacts his or her quality of life. The extent of burden of the disease experienced by the patients seems to be underestimated by the whole medical fraternity. The aim of the study is to determine the health related quality of life impairment in acne patients using CADI and to identify various variables that increase the patients' susceptibility for quality of life impairment.

#### Subjects and Methods

This is a hospital based, cross sectional study conducted in the Department of Dermatology, Nobel Medical College Teaching Hospital from Jan 2017 to December 2017. A total of 202 acne patients were evaluated with CADI. Clinical characteristics were recorded after history and clinical examination.

#### Results

Out of total 202 patients enrolled, 56.4% of patient scored a CADI score of (5-9) indicating moderate quality of life impairment and 15.3% of patient scored a CADI score of 10 or more indicating severe quality of life impairment. The mean CADI score was  $6.82 \pm 2.75$ . There was positive correlation between the CADI score and impact on quality of life with grade of acne, which was statistically significant ( $p < 0.001$ ).

#### Conclusion

Acne is a common skin disease with tremendous adverse effect on the patient's health related quality of life. Patients are affected both physically and mentally with this condition.

#### Key word

*Acne vulgaris, clinical grading, Cardiff Acne Disability Index (CADI), impact on quality of life.*

#### Introduction

Acne vulgaris is the most common skin disease encountered in the general population, and has considerable impact on quality of life of the sufferers [1]. It is the most common dermatological disease for which patients seek physician care in the

Caucasian, African Americans and Hispanic populations and the second most commonly treated dermatological disease in the Asian population [2]. Because, the lesions of acne may vary in number and morphology during it's natural course of disease, numerous measurements have been developed, based

on proper clinical examination and photographic documentation, to assess the clinical severity of the disease [3].

A report in the British Medical Journal in 1989 opined that, in a lifetime, a person is more likely to suffer from acne than any other disease [4]. Acne impacts profoundly on the psychosocial development, on the quality of life, and on career prospects [5]. Acne does ruin beauty and, in some, it leaves with scars for life. All grades of acne is very common in young people, with over 90% of males and 80% of females being affected by the age of 21 years [4,6].

Acne vulgaris is a common distressing skin disease that does affect all aspects of an individual's health-related quality of life (HRQoL); in particular, personal relationships, feelings and emotions, sports, social circle and employment prospects [7]. There is usually a directly proportional relationship between the clinical severity of acne and impairment of HRQoL, although impairment is also dependent upon one's 'coping ability'. Moreover, individuals with minor objective evidence of acne may suffer severe subjective impairment, greatly affecting their HRQoL [8]. Although the psychosocial aspects of acne are well recognized, there is also evidence suggesting psychosocial stress itself, may also exacerbate acne. So until recently, there have been very few validated scales to measure HRQoL [9].

Acne vulgaris is a very common skin condition in Nepal, and it seems to cause much concern to patients and families alike. So this study was conducted to highlight the impact of the quality of life on acne patients.

#### **Materials and Methods**

We did a hospital based, cross sectional study in the outpatient department (OPD) of Department of Dermatology and Venerology, Nobel Medical College Teaching Hospital, Biratnagar, Nepal, over a period of one year from Jan 2017 to Dec 2017.

#### **Sample selection**

##### **Inclusion criteria**

- Patients with clinical diagnosis of acne and 10- 35 years of age.

##### **Exclusion Criteria:**

- Acne patients with history of steroids use and other acne causing drugs.
- Patients with psychiatric illness.
- Age more than 35 years.
- Patients taking anti-acne medications within last 3 months.

Altogether 202 acne patients were selected for the study. Diagnosis was made on the basis of clinical features and classified depending on type of lesions into: Grade I, Grade II, Grade III and Grade IV. All these patients were interviewed using a CADI questionnaire. The completed forms were then scored according to the recommendation made by Motley and Finlay. The details of the selected patients were recorded in a prepared Performa.

#### **Cardiff Acne Disability Index (CADI) [10]**

The Cardiff Acne Disability Index (CADI) (Motley and Finlay, 1992) is a short 5 item questionnaire derived from the longer Acne Disability Index (Motley and Finlay, 1989).

The Cardiff Acne Disability Index is designed for use in teenagers and young adults with acne. It usually doesn't take much time to complete. It is self explanatory and can be simply handed to the patient who is asked to complete it without the need for detailed explanation.

#### **Instructions for scoring**

The scoring for each answer is given as follows: (a) 3 (b) 2 (c) 1 (d) 0

The CADI score is ultimately calculated by adding up the score of each question resulting in a possible maximum of 15 and a minimum of 0. The higher the score, more the quality of life is impaired. The CADI contains total of 5 questions with a maximum possible score of 15. These questions also focuses on symptoms and feelings, social life, use of public changing places, psychological and patient's perception of the acne severity over the last 1 month prior to consultation. These scores were graded as low (0-4), medium (5-9) and high (10-15). The lower the cumulative CADI score, the lower the level of disability perceived by the patient while a reverse is true. The CADI also identifies area of concerns in patients suffering with acne.

**Statistical Analysis**

The results of the study were statistically analyzed using SPSS version 22. Chi-square test and one-way ANOVA test were applied where needed. The level of statistical significance was set at ( $p \leq 0.05$ )

**Results**

Total 202 patients were included in our study, all of them filled out CADI questionnaire after written consent. The mean age of the patients in years were  $20.24 \pm 6.07$ , with minimum age 11 year and maximum age 35 year. Out of total patients 102(50.5%) were male and 100(49.5%) were female. Regarding marital status 62 were married and 140 were unmarried.

Of the total acne patients, 79(39.1%) were at school level or had completed SLC level, 65(32.2%) had completed intermediate level, 46(22.8%) bachelors level and 12(5.9%) had attained their postgraduate degrees. In our study regarding grading of acne, number of patients in grade I was 25 (12.4%), number of patients in grade II was 81(40.1%), number of patients in grade III was

71(35.1%) and number of patients in grade IV was 25(12.4%).

**Overall Cardiff Acne Disability Index Score:**

The mean CADI score was found to be  $6.82 \pm 2.75$  with minimum score of 2 and maximum 13. The mean CADI score was more for females was ( $6.83 \pm 2.89$ ) and for males ( $6.81 \pm 2.62$ ) which was not statistically significant ( $p=0.967$ ). Similarly, the score for married patients were higher ( $6.98 \pm 2.73$ ) than for unmarried patients ( $6.75 \pm 2.67$ ). However this was not statistically significant ( $p=0.578$ ). The educational status of patient was analyses for CADI score. The score for patients in bachelors level were higher ( $7.57 \pm 2.83$ ) than patients of SLC, intermediate or Masters level. However, this difference was not statistically significant ( $p=0.158$ ). Of the four clinical grading of acne evaluated in the study, the grade IV patient scored highest score with CADI of ( $8.92 \pm 2.40$ ) followed by grade III ( $7.77 \pm 2.17$ ), II ( $6.35 \pm 2.63$ ) and I ( $3.56 \pm 1.26$ ) and it was significant statistically ( $p < 0.001$ ) as shown in table 1.

**Table 1: CADI Score of Acne patients and its analysis for different variables.**

Variables	Categories	Number (Percentage)	CADI Score (Mean $\pm$ S.D.)	p-value
Gender	Male	102 (50.5%)	$6.81 \pm 2.62$	0.967
	Female	100 (49.5%)	$6.83 \pm 2.89$	
Marital Status	Married	62 (30.7%)	$6.98 \pm 2.73$	0.578
	Unmarried	140 (69.3%)	$6.75 \pm 2.76$	
Educational status	School Level	79 (39.1%)	$6.75 \pm 2.83$	0.158
	Intermediate	65 (32.2%)	$6.54 \pm 2.65$	
	Bachelors	46 (22.8%)	$7.57 \pm 2.83$	
	Masters	12 (5.9%)	$6.00 \pm 2.05$	
Grading	Grade I	25 (12.4%)	$3.56 \pm 1.26$	<0.001*
	Grade II	81 (40.1%)	$6.35 \pm 2.63$	
	Grade III	71 (35.1%)	$7.77 \pm 2.17$	
	Grade IV	25 (12.4%)	$8.92 \pm 2.40$	

\* The test result is significant at  $P < 0.05$ .

**Quality of life impairment**

Out of 202 patients in our study, 28.2%(n=57) scored a CADI score of less

than 5 suggesting mild quality of life impairment, 56.4%(n=114) scored a CADI score of 5-9 indicating moderate impairment of quality of life; whereas 15.3%(n=31) scored a CADI score of 10 or more indicating severe impairment in quality of life.

The association between different variables undertaken in our study and impact on

quality of life according to CADI score is illustrated in the table no 2. Affect on the quality of life due to acne shows statistically significant association between grading of acne; suggesting higher the grade of acne; more severe is the impact in quality of life.

**Table 2: Analysis of Impact on quality of life according to CADI score.**

Variables	Categories	Impaired Quality of Life (Number and percentage)			P-value
		Low	Medium	High	
Age in years ± SD		19.67 ± 6.07	20.53 ± 6.18	20.26 ± 5.78	0.685
Gender	Male	26 (25.5%)	62 (60.8%)	14 (13.7%)	0.452
	Female	31 (31.0%)	52 (52.0%)	17 (17.0%)	
Marital Status	Married	15 (24.2%)	37 (59.7%)	10 (16.1%)	0.699
	Unmarried	42 (30.0%)	77 (55.0%)	21 (15.0%)	
Educational status	School level	25 (31.6%)	40 (50.6%)	14 (17.7%)	0.294
	Intermediate	21 (32.3%)	36 (55.4%)	8 (12.3%)	
	Bachelors	8 (17.4%)	29 (63.0%)	9 (19.6%)	
	Masters	3 (25.0%)	9 (75.0%)	0 (0.0%)	
Grading	Grade I	24 (96.0%)	1 (4.0%)	0 (0.0%)	<0.001*
	Grade II	31 (38.3%)	43 (53.1%)	7 (8.6%)	
	Grade III	2 (2.8%)	55 (77.5%)	14 (19.7%)	
	Grade IV	0 (0.0%)	15 (60.0%)	10 (40.0%)	
<b>Total</b>		<b>57 (28.2%)</b>	<b>114(56.4%)</b>	<b>31(15.3%)</b>	

\* The test result is significant at P<0.05.

### Discussion

Skin diseases can affect virtually all aspects of patient's lives. Apart from causing physical discomfort to the acne sufferers, it has been demonstrated that, acne influence the patient's both social as well as personal life [11].

There are several published studies regarding acne and quality of life. Previous studies have shown that acne is related with significant morbidity and decrement in health-related quality of life. Acne has a considerable psychological impact on affected individuals [12]. Both general practitioners and dermatologists were reported to have poor comprehension of the psychological implications of skin diseases on patient's personal and social circle; being insensitive to their patient's emotional sufferings, and trivializing participant's condition [13].

Magin P et al found out that depression was two to three times more prevalent in acne patients than that of the general population, with a reported 8.8% of acne patients having

clinical depression and females were twice more common than males [14].

In our study, there was no significant difference between the sexes in the CADI score and impact on quality of life. Contradictory to this, Pawin H found out that adolescent girls were more vulnerable than boys to the negative psychological effects of acne [15]. Krowchuk DP et al found out that acne affected significantly on 11% of teenagers [16]. However in our study, impairment of life and CADI score was not significant with age.

Jones-Caballero M et al and Walker N et al illustrated positive correlation between Cardiff acne disability index, impact on quality of life and clinical severity [17,18]. This match with our results as we found that quality of life was associated with grading of acne. In contrast to our result, Aush Gupta et al didn't find any association between severity of acne and quality of life [19].

No significant correlations were noted between the level of education obtained and scores of CADI. This might be the fact that

patients experience certain level of anxiety and impairment may not only depend on the peer's exploitation but rather patient's own conscience.

### Conclusions

Acne is a common disease with significant adverse effect on the patient's health related quality of life. Patients are affected both physically and mentally with this condition.

### Limitation

Since this study was done on a tertiary referral centre, the impact on patient's quality of life might be overestimated. A population based survey would help to identify more accurately the disease's impact on general population.

### References:

- [1] Thomas DR, Psychosocial effect of acne, *J Cutan Med Surg* 8: 4 (2004) 3–5.
- [2] Halder RM, Holmes YC, Bridgeman-Shah S, A clinicopathological study of acne vulgaris in black females. *J Invest Dermatol* 106 (1996) 888-10.
- [3] Witkowski JA, Parish LC, The assessment of acne: An evaluation of grading and lesion counting in the measurement of acne. *Clin Dermatol* 22 (2004) 394 -7.
- [4] Rademaker M, Garioch JJ, Simpson NB, Acne in school children: No longer a concern for dermatologists. *Br Med J* 298(1989) 1217-9.
- [5] Hendon J. Acne: A patients' point of view. *J Am Acad Dermatol* 51 (2004) S39.
- [6] Pearl A, Arrol B, Lello J, Birchall NM, The impact of acne: a study of adolescents' attitudes, perception and knowledge. *NZ Med J* 111:1070 (1998) 269-71.
- [7] Finlay AY. Quality of life assessments in dermatology, *Semin Cutan Med Surg* 17 (1998) 291–296.
- [8] Finlay AY, Quality of life measurements in dermatology: a practical guide. *Br J Dermatol* 136 (1997) 305–314.
- [9] Mulder MM, Psychological impact of acne Vulgaris, *Dermatology* 203 (2001) 124–130
- [10] Motley RJ, Finlay AY. Practical use of a disability index in the routine management of acne, *Clinical and Experimental Dermatology* 17 (1992) 1-3.
- [11] Jayaprakasam A, Darvay A Osborne G, McGibbon D, Comparison of assessment of severity and quality of life in cutaneous disease. *Clin Exp Dermatol* 27 (2002) 306-08.
- [12] J. Khoo, "The psychological impact of acne: patient's perceptions." *Journal of the American Academy of Dermatology* 32:5 (1995) S26–S30.
- [13] Magin PJ, Adams J., Heading GS and Pond CD, Patients with skin disease and their relationships with their doctors: a qualitative study of patients with acne, psoriasis and eczema. *Medical Journal of Australia* 190:2 (2009) 190:62–64.
- [14] Magin P, Adams J, Heading G. Psychological sequelae of acne vulgaris: results of a qualitative study, *Can Fam Physician* 52 (2006) 978-9.
- [15] Pawin H, Chivot M, Beylot C. Living with acne. A study of adolescents' personal experiences. *Dermatology* 215:4 (2007) 308-14.
- [16] Krowchuk DP, Stancint T, Keskinen R, Wakjer R, Bass J, Anglin TM, The psychosocial effects of acne on adolescents, *Pediatric Dermatol.* 8 (1991) 332.
- [17] Jones-Caballero M, Chren MM, Soler B, Pedrosa E, Peñas PF. Quality of life in mild to moderate acne: Relationship to clinical severity and factors influencing change with treatment. *J Eur Acad Dermatol Venereol* 21 (2007) 219-26.
- [18] Walker N, Lewis-Jones MS. Quality of life and acne in Scottish adolescent schoolchildren: Use of the Children's Dermatology Life Quality Index (CDLQI) and the Cardiff Acne Disability Index (CADI). *J Eur Acad Dermatol Venereol* 20 (2006) 45-50.
- [19] Gupta A, Sharma YK, Dash KN, Chaudhari ND, Jethani S. Quality of life in acne vulgaris: Relationship to clinical severity and demographic data. *Indian J Dermatol Venereol Leprol* 82 (2016) 292-7.

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### Original Article

## Prevalence and Associated Risk Factors for Diabetic Retinopathy among in-patients Diagnosed with Diabetes Mellitus: A Retrospective Study Conducted in Nobel Medical College and Teaching Hospital, Biratnagar.

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### ABSTRACT

**Background:** Diabetes mellitus (DM) being disease of modern world occurrence of Diabetic retinopathy (DR) has become more frequent. Knowledge on the prevalence and associated risk factors of diabetic retinopathy helps to detect the disease in its early course. The objective of the study was to establish the prevalence and to analyze the associated risk factors and help to screen the disease as early as possible so as to prevent and /or to delay the onset as well as progression of DR.

**Materials and Methods:** A hospital based retrospective study conducted among 213 in-patients of Nobel Medical College, Biratnagar diagnosed with DM.

**Result:** The prevalence of diabetic retinopathy was 32.39% and prevalence of mild NPDR, moderate NPDR, severe NPDR, very severe NPDR, proliferative diabetic retinopathy and clinically significant macular edema was 12.7%, 8.9%, 6.1%, 5%, 1.9% & 2.3% respectively. There was statistically significant relation of diabetic retinopathy with duration of diabetes (p value 0.004) and the mean duration was 8.704 years.

**Conclusions:** The prevalence of diabetic retinopathy among in-patients was 32.39%. Though there was no significant relation with occurrence of DR with type of diabetes, age, sex, alcoholism, smoking and drug intake history, the duration of diabetes and hyperlipidemia, poor hyperglycemic control were highly significantly associated with DR while high BP showed marginally insignificant relation with the same.

### Key words:

diabetic retinopathy, In-patients, CSME, Hyperlipidemia

### Introduction

Diabetes mellitus is the emerging disease in the modern world. Diabetic retinopathy the most common micro vascular complication of DM is predicted to be principle reason of new blindness among working populations [1]. 425 million people have diabetes mellitus in the world, out of which 82 million people were from the South-East Asia only and it is estimated that this will rise to 151 million by the year 2045. There

were 657,200 cases of diabetes mellitus reported in 2017 in Nepal [2]. Several epidemiological studies have reported a high prevalence of DR ranging from 11.9% to 43.1% [3]. There are multiple risk factors for the development and progression of diabetic retinopathy. Relationship of DM with factors like age of onset of diabetes, gender preponderance, Hyperglycemic control, duration of diabetes, type of diabetes, systolic BP,

smoking, alcoholism, BMI, anemia, hyperlipidemia, heart rate, BUN and serum creatinine(Sr. Cr.) were studied in various literatures [3,8,9,11-16]. There is 29 times higher risk to develop blindness due to diabetic retinopathy than non-diabetic of similar age and gender<sup>4</sup>.

The aim of the study was to find the prevalence and to establish the associated risk factors for diabetic retinopathy among in-patients diagnosed with diabetes mellitus in Nobel Medical College and Teaching Hospital, Biratnagar so as to take measures to prevent and/or to delay the progression of potentially blinding diabetic retinopathy.

#### **Materials and Methods**

This is a retrospective study in which all the in-patients (213 patients) admitted by department of Internal Medicine of Nobel Medical College and Teaching Hospital, Biratnagar from November 2017 to March 2018 diagnosed with diabetes mellitus were included. Verbal informed consent was obtained from the patient before enrollment in the study. The patients with hazy ocular media where fundus examination was not possible were excluded in this study.

A proforma was prepared that includes demographic data of the patients, type and duration of diabetes, drug history, family history, history of smoking and alcoholism. Laboratory investigations considered are measuring blood HbA1C, fasting blood glucose and lipid profile including Triglyceride (TG), total cholesterol (TC) low density lipoprotein (LDL) and Sr. Cr. HbA1C was measured using Nycocard Reader and Fasting Blood Glucose was measured by glucose-peroxidase colorimetric enzymatic method (Biodiagnosis), lipid profile was measured by RANDOX fully automatic biochemistry analyzer. Visual acuity was assessed with Snellen's chart but those who were unable to come to OPD were assessed grossly at the bed side with counting of fingers at

different distances. The anterior segment was evaluated by torch light and a slit lamp of APAASAMY ASSOCIATES Model no: Acc002. The fundus evaluation was done under mydriasis (tropicamide 0.5%) by direct Ophthalmoscopy (HEINE Beta 200) and indirect ophthalmoscopy (HEINE SIGMA 150 KC). Baseline blood pressure was recorded at the time of presentation with mercury sphygmomanometer applying auscultatory method technique and blood pressure <140/90 mmHg is considered normal and blood pressure ≥140/90 mmHg considered high blood pressure according to JNC classification of blood pressure. TG level <250 mg/dl was taken as normal and ≥250mg/dl was taken as high. TC <200 mg/dl considered as normal and ≥200 as high and LDL <130mg/dl as normal and ≥130mg/dl as taken as abnormal. Similarly, serum creatinine ≤1.2 mg/dl considered as normal and >1.2mg/dl taken as high according to Harrison's principle of internal medicine, 19<sup>th</sup> edition<sup>5,6</sup>.

Diabetic retinopathy was classified as no retinopathy, mild non-proliferative diabetic retinopathy (NPDR), moderate NPDR, severe NPDR, very severe NPDR, proliferative diabetic retinopathy (PDR) and clinically significant macular edema (CSME)<sup>7</sup>.

The data was entered and then analyzed with SPSS program version 22. The associations of diabetic retinopathy with other factors were assessed using Chi-square test.

#### **Result**

Out of 213 diabetic patients, 144 (67.6%) were found to have no diabetic retinopathy whereas 12.7% had mild NPDR, 8.9% had moderate NPDR, 6.1% had severe NPDR, 0.5% had very severe NPDR, 1.9% had PDR and 2.3% had CSME<sup>[Table 1]</sup>. Most of them (74.6%) have normal or mild visual impairments, whereas 21.6% had moderate visual impairment, 2.8% had severe visual impairment and 0.9% was



blind according to WHO blindness classification [Table2].

Among total patients, 32.9% have multiple associated conditions followed by 21.6% with only cardiac and 11.3% with only renal problems while 18.3% patients have no other associated conditions with DM with/without DR [Table6].

Age of the patients varied from 19 years to 87 years with mean age of 56.51(± 12.73) with majority of patients were in age group of (50 – 59) years (34.7%) and minority of patients in the age group of ≥80 years (3.8%) and <40 years (9.4%). Diabetic retinopathy was found in highest frequency in the age group of (50 – 59) years (34.8%) and in lowest frequency in age group of <40 years (8.7%). Of total diabetic patients with DR, 60.9% were male. [Table3,4]

Age was not found to be a significant risk factor for development of diabetic retinopathy (p=0.804). Similarly, other factors viz. sex, fasting blood sugar blood Triglyceride level, Blood pressure, family history, alcohol intake, smoking and drug intake (in the form of oral hypoglycemic agents or S/C insulin) were not found as statistically significant associated factors for development of diabetic retinopathy [Table7].

Among studied patients, 2.3% had type 1 DM while 97.7% had type 2 DM and its association with development of diabetic retinopathy was found statistically insignificant (p = 0.095) [Table5].

However, the duration of diabetes was found highly statistically significant associated risk factor for development of retinopathy in diabetics (p=0.004). Majority of Diabetic patients with retinopathy had duration of 5-9 years (43.5%), and minority them had duration of <5 years (10.1%) [Table7]. Mean duration to develop diabetic retinopathy was found to be 8.7(±4.64) years. Similarly, poor glycemic control in diabetic patients as

represented by high HbA1c was found statistically highly significant (p=0.002) as well as serum total cholesterol level and LDL level also found to be highly significant associated risk factors for development of diabetic retinopathy with p – value of 0.001 each [Table7].

**Table 1: Types of DR**

DR types	Frequency	Percent
No DR	144	67.6
Mild NPDR	27	12.7
Moderate NPDR	19	8.9
Severe NPDR	13	6.1
Very severe NPDR	1	.5
PDR	4	1.9
CSME	5	2.3
Total	213	100.0

**Table 2: Vision in diabetic patients**

Visual acuity	Frequency	Percent
6/6-6/18	159	74.6
< 6/18-6/60	46	21.6
< 6/60-3/60	6	2.8
3/60-PL	2	.9
Total	213	100.0

**Table 3: Age wise distribution of DR**

Age (years)	NO DR	DR	p-value
< 40	14(9.7%)	6(8.7%)	0.804
40-49	21(14.6%)	12(17.4%)	
50-59	50(34.7%)	24(34.8%)	
60-69	34(23.6%)	12(17.4%)	
70-79	21(14.6%)	11(15.9%)	
≥80	4(2.8%)	4(5.8%)	
Total	144(100%)	69(100%)	

**Table 4: Association of DR with duration of disease**

Duration of diabetes (years)	NO DR	DR	p-value
< 5	34(23.6%)	7(10.1%)	0.004
5 – 9	68(47.2%)	30(43.5%)	
10 – 14	32(22.2%)	17(24.6%)	
≥ 15	10(6.9%)	15(21.7%)	
Total	144(100%)	69(100%)	

**Table 5: Relationship of diabetes type with duration of disease**

DM Type	<5	5-9	10-14	≥15	P value
1.00	3	1	0	1	0.095
2.00	38	97	49	24	
	41	98	49	25	

**Table 6: Associated conditions with diabetes**

Associated conditions	Frequency	Percent
Neurological	7	3.3
Cardiac	46	21.6
Respiratory	10	4.7
Renal	24	11.3
Multiple	70	32.9
Others	17	8.0
No conditions	39	18.3
Total	213	100.0

**Table 7: Association of different factors with DR**

Sr cr.			
≤1.2mg/dl	94(65.3%)	45(65.2%)	0.993
> 1.2mg/dl	50(34.7%)	24(34.8%)	
Total	144(100%)	69(100%)	
TG			0.246
≤250mg/dl	107(74.3%)	46(66.7%)	
> 250mg/dl	37(25.7%)	23 (33.3%)	
Total	144(100%)	69(100%)	
Total cholesterol			0.001

< 200mg/dl	108(75%)	36(52.2%)	
≥200mg/dl	36(25%)	33(47.8%)	
Total	144(100%)	69(100%)	
LDL			0.001
≤130mg/dl	112(77.8%)	38(55.1%)	
> 130mg/dl	32(22.2%)	31(44.9%)	
Total	144(100%)	69(100%)	

Factors analyzed	NO DR	DR	P – value
Sex			0.309
MALE	77(53.5%)	42(60.9%)	
FEMALE	67(46.5%)	27(39.1%)	
Total	144(100%)	69(100%)	
FBS			0.585
< 100	22(15.3%)	8(11.6%)	
100 – 125	53(36.8%)	30(43.5%)	
≥ 126	69(47.9%)	31(44.9%)	
Total	144(100%)	69(100%)	
HbA1c			0.941
< 6.5	66(45.8%)	32(46.4%)	
≥ 6.5	78(54.2%)	37(53.6%)	
Total	144(100%)	69(100%)	
BP			0.062
< 140/90	21(14.6%)	4(5.8%)	
≥140/90	123(85.4%)	65(94.2%)	
Total	144(100%)	69(100%)	
Family hx			0.693
Yes	129(89.6%)	63(91.3%)	
No	15(14.4%)	6(8.7%)	
Total	144(100%)	69(100%)	
Alcohol hx			0.284
Yes	59(41.0%)	23(33.3%)	
No	85(59.0%)	46(66.7%)	
Total	144(100%)	69(100%)	
Smoking hx			0.657
Yes	58(40.3%)	30(43.5%)	
No	86(59.7%)	39(56.5%)	
Total	144(100%)	69(100%)	
Drug hx			0.480
Yes	16(11.1%)	10(14.5%)	
No	128(88.9%)	59(85.5%)	
Total	144(100%)	69(100%)	

### Discussion

The prevalence of diabetic retinopathy in our study was 32.39% that is found to be lower than worldwide prevalence (34.6%) but much higher than its prevalence in Asians in general (19.9%) [8]. But some studies have suggested that South Asians are more likely to have DR as compared to white Europeans, but Asians with DR are younger, the course of disease is short, blood pressure and plasma sugar level are higher [9]. Although there is no ethnic

difference among Asian countries, [10] the prevalence observed in our study is far higher than in other Asian countries such as India (21.7%) [11] and Bangladesh (21.6%)[12] but lower than Singapore(35%) [13]. These differences among studies may be caused by the type of study population, the sample size, age of the patients, different methods of fundus evaluation and the average levels of various variables.

Our study also confirms commonly accepted risk factor for DR i.e. duration of diabetes.

The glycemic control as indicated by HbA1C level was found to be insignificant for association with DR. The high BP was found to be only marginally insignificant associated factor for DR.

However, the present study showed that blood lipids were strongly associated with occurrence of DR that is also supported by American studies which found that occurrence of hard infiltration in the fundus of the population with high TC and LDL was twice as much as that found in normal population [14] but other studies could not establish this association [15]. Hence further studies are needed for the relationship between serum lipid profile and DR.

Although some studies indicated that Sr. Cr. was an independent risk factor for DR [10], the result of this study did not reveal any association between Sr. Cr. and DR.

As the prevalence of diabetes in developing countries is growing higher than that in developed countries, the prevalence of diabetes in Nepal is also steadily increasing and diabetes is diagnosed at younger age [16]. Our study, in the similar way, found that the prevalence of diabetes and DR had the most important growth in younger age i.e. 60.9% diabetic patients with DR are younger than 60 years. The mean age of diabetics was found to be 56.51 years with

majority of patients were in age group of (50 – 59) years for both diabetes and DR.

Though the selection criteria and the limitations of the study could limit the generalization of our study, the screening programmes for patients with diabetes in general population and DR in diabetic patients should be implemented especially in individuals who have risk factors for diabetes and diabetic complications like retinopathy (eg. high BP, dyslipidemia and diabetes of longer duration).

### Conclusion

At last, in conclusion, we found that the prevalence of DR was 32.39% among inpatients diagnosed with diabetes in our study. And the disease duration and dyslipidemia were strongly associated factors while BP was marginally insignificant factor as associated risk for DR in diabetic patients.

### References

- [1] Aiello LM, Perspectives on diabetic retinopathy, *Am J Ophthalmol.* 136 (2003)122–135.
- [2] Nepal - International Diabetes Federation, IDF Diabetes Atlas 8th edition. (Available from <https://www.idf.org/our.../97-nepal.html>)
- [3] Guihua Zhang, Haoyu chen, Weiqi Chen, Mngzhi Zhang, Prevalence and risk factor for diabetic retinopathy in China: a multi-hospital-based cross-sectional study, *Br J Ophthalmol.* 101:12 (2017)1591-1595.
- [4] Klein R, Klein BE, Moss SE, Visual impairments in diabetes, *Ophthalmology.* 91:1(1984)1-9.
- [5] Harrison's principle of Internal medicine 19th edition, page number 2401, table 417 – 3, table 2.
- [6] Harrison's principle of Internal medicine 19th edition, page number 480 e - 3, table 480 e – 2.
- [7] Early Treatment Diabetic Retinopathy Study Research Group (ETDRS) Report, *Ophthalmology.* 98 (1991)786-806.
- [8] Yau JW, Rogers SL, Kawasaki R, et al, Global prevalence and major risk factors of diabetic retinopathy, *Diabetes Care.* 35 (2012)556-64.
- [9] Raymond NT, Varadhan L, Reynold DR, et al, Higher prevalence of retinopathy in diabetic patients of South Asian ethnic compared with white Europeans in the community: A cross-sectional study, *Diabetes Care.* 32 (2009) 410-5.

- [10] Chiang PP, Lamoureux EL, Cheung CY, et al, Racial differences in the prevalence of diabetes but not Diabetic Retinopathy in a multi-ethnic Asian population, *Invest Ophthalmol Vis Sci.* 52 (2011) 7586-92.
- [11] Gadkari SS, Maskati QB, Nayak BK, Prevalence of diabetic retinopathy in India: the all India Ophthalmological Society Diabetic Retinopathy Eye Screening Study 2014, *Indian Ophthalmol.* 64 (2016)38-44.
- [12] Akhter A, Fatema K, Ahmeed SF, et al, Prevalence and associated risk indicators of retinopathy in a rural Bangladeshi population with and without diabetes, *Ophthalmic Epidemiol.* 20 (2013) 220-7.
- [13] Wong TY, Cheung N, Tay WT, et al, Prevalence and risk factors for diabetic retinopathy: the Singapore Malay Eye Study, *Ophthalmology.* 115 (2008) 1869-75.
- [14] Lui L, Wu J, Yue S, et al, Incidence density and risk factors of diabetic retinopathy within type 2 diabetes: a five-year cohort study in China (Report 1), *Int Environ Res Pblc Health.* 12 (2015) 7899-909.
- [15] Jing C, Ji-Ping, Dong-Ning C, et al, Prevalence and associated factors of diabetic retinopathy in Beijing, China: a cross-sectional study, *BMJ Open* 7 (2017) e015473.
- [16] Proofyeva E, Zrenner E, Epidemiology of major eye diseases leading to blindness in Europe: a literature review, *Ophthalmic Res.* 47 (2012) 171-88.

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### Original Article

## A Randomized Control Trial for conservative management of parotid abscess in children

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### Abstract

**Background:** The optimal conservative treatment protocol of parotid abscess in children is evaluated.

**Material and Methods:** This is a randomized, prospective, cross-sectional study conducted between 1<sup>st</sup> February 2016 to 31<sup>st</sup> January 2018 in Nobel Medical College and Teaching Hospital. Thirty children (below 14 years age) suffering from parotid abscess diagnosed by ultrasonography were included in this study. Recurrent parotid abscess cases were excluded. The children were divided into 2 groups by computer assisted randomization into 15 patients each. Group A were treated with intravenous Clindamycin while group B were given intravenous Ampicillin + Cloxacillin combination.

**Results:** Five patients of group B did not respond to treatment and were then put on intravenous Clindamycin. Three of these patients responded to treatment but 2 developed multi-lobulated fluctuation and required incision + drainage. Remaining 10 patients in group B and all patients in Group A responded to medical treatment without recurrence. Five patients in group B developed severe diarrhea during antibiotic treatment but none of the patients in group A had this complaint. No patient developed any complications like parapharyngeal abscess or septicemia.

**Conclusion:** Parotid abscess in children can be managed conservatively with intravenous Clindamycin without the need for incision and drainage.

### Key Words

*Parotid abscess, children, conservative management*

### Introduction

Acute suppurative parotitis is rare in children but may occur frequently in premature newborn. Acute suppurative parotitis in adults is related to poor hygiene, long term debility and reduction in salivary flow [1]. In children however, a parotid abscess can occur even with no history of oral pathology<sup>2</sup>. Untreated or delayed presentation usually complicates as parapharyngeal abscess or even septicemia. This study has been conducted to evaluate the etiopathology and optimal treatment protocol of parotid abscess in children.

### Material and Methods

This is a randomized, prospective, cross-sectional study conducted between 1<sup>st</sup> February 2016 to 31<sup>st</sup> January 2018 at Nobel Medical College and Teaching Hospital, Biratnagar Nepal, involving 30 children below 14 years age. All patients had presented with painful parotid swelling and erythema of overlying skin. Pus was collected by milking the Stenson's parotid duct and sent for culture + sensitivity test. A combination of parotid swelling, purulent exudation from the parotid duct and growth of pathogenic bacteria in culture of the pus was taken as the diagnostic criteria for suppurative parotitis. However, only 19 patients had pus

exuding from parotid duct so the diagnosis of parotid abscess was confirmed by ultrasonography in all cases. Recurrent parotid abscess cases were excluded from this study.

Parotid abscess in children being an emergency condition, prevented the prescription of antibiotics according to the culture and sensitivity report. The children were thus divided into 2 groups of 15 patients each by computerized assisted randomization. Group A were treated with intravenous Clindamycin (10mg/kg TID) while group B with Ampicillin + Cloxacillin combination (100 mg/kg/day were given by intravenous route for about 7 days). The two groups were then evaluated for treatment outcome, development of complications of parotid abscess and side-effects of treatment like diarrhea.

Informed consent was taken from the patient's guardian. Ethical clearance was taken from the ethical review board of the hospital.

**Results**

The age incidence ranged from 2 months to 11 years with a mean age was 7 years. Out of the 30 patients only 5 were infants. Twenty patients were male and 10 were female. The right parotid gland (19 cases) was affected more than the left side (11 cases). The presenting clinical features are summarized in Table 1.

**Table 1: presenting features**

Presenting feature	Number of patients		Percentage (%)	
	No.	%	No.	%
Fever	30	100		
Painful parotid swelling	30	100		
Erythema over parotid area	30	100		
Pain on chewing	22	73		
Pus from Stenson's duct	19	63		
Referred pain to ear	17	57		
Dehydration	13	43		
Halitosis	7	23		
Trismus	0	0		

No congenital anomalies of parotid gland were seen in ultrasonography. No systemic

illness were also found in the patients that could lead to parotid abscess. Ten patients in group B and all patients in Group A responded to medical treatment without recurrence. Five patients in group B did not respond to medical treatment as confirmed by:

1. Pain and erythema not decreasing even after 48 hours of intravenous antibiotics.
2. Fluctuation appeared in parotid area even after 48 hours of antibiotics.

Wide bore needle aspiration of pus was done in these 5 patients and they were then started on intravenous Clindamycin. Pus collected from these patients were also sent for culture and sensitivity test. Three of these patients responded to treatment but 2 developed multi-lobulated fluctuation and required incision + drainage by modified Blair's incision. They were also given intravenous Gentamycin (5 mg/kg/day) for 7 days. These patients also responded to treatment without any recurrence.

In group B, 5 patients who only received Ampicillin + Cloxacillin, developed severe diarrhea during antibiotic treatment but none of the patients in group A had this complaint. No patient developed any other complications. These results are summarized in Table 2.

**Table 2: response to treatment + complications**

Presenting feature	Group A (Clindamycin)		Group B (Ampicillin + Cloxacillin)	
	No.	%	No.	%
Complete resolution of symptoms	15	100	10	66.7
Requirement for needle aspiration	0	0	3	20
Requirement for incision + drainage	0	0	2	13.3
Severe diarrhea	0	0	5	33.3
Parapharyngeal abscess	0	0	0	0
Septicemia	0	0	0	0

The culture and sensitivity reports in 24 patients (19 from pus collected via parotid

duct and 5 from failure cases by needle aspiration) were analyzed. Staphylococcus aureus (12 cases) was the commonest pathogen isolated, followed by streptococcus pneumoniae (6 cases). All organisms were found to be sensitive to Clindamycin and most of them resistant to Penicillin. The sensitivity results are summarized in Table 3.

**Table 3: sensitivity results**

Causative organism	Sensitive to	Resistant to
Staphylococcus aureus	Erythromycin, Gentamicin, Ciprofloxacin, Clindamycin	Penicillin, Cefixime
Streptococcus pneumoniae	Erythromycin, Gentamicin, Ceftazidime, Clindamycin	Penicillin, Cefixime, Ceftriaxone
Haemophilus influenza	Amoxicillin, Ceftazidime, Clindamycin	Ciprofloxacin, Vancomycin
Escherichia coli	Gentamicin, Ciprofloxacin, Clindamycin, Metronidazole	Amoxicillin, Coamoxyclav, Cefipime

### Discussion

Juvenile recurrent parotitis is characterized by recurrent episodes of swelling and pain in parotid gland. This condition is usually misdiagnosed as mumps but in contrast, the swelling is recurrent and affects the parotid gland unilaterally and when bilateral, one gland is affected less than the other [3]. The onset of disease is early in life with a peak during 3-5 years of age. It is usually accompanied by pain, fever and malaise and the frequency of exacerbations can be quite variable, though the disease disappears completely in adult life [4]. The disease is more common in males as seen in this study and also reported by Chitre et al [5].

Pus culture of parotid duct discharge is usually positive for Staphylococcus aureus [2,4,6, 7] and also seen in this study. Other bacteria have also been reported to be involved like anaerobic bacteria [8], Streptococcus pneumonia and Haemophilus

influenza [9]. The right side was affected more often. No patient had bilateral symptoms nor any oral pathology in this study. Similar findings were reported by Spiegel et al [10].

Five patients in group B of this study did not respond to medical treatment. Wide bore needle aspiration of pus was done under the ultrasonography guidance and pus sent for culture sensitivity. Since the culture was sensitive to Clindamycin, these patients were then started on intravenous Clindamycin. 3 of these patients responded to this treatment but 2 patients developed multi-lobulated fluctuation and required incision + drainage by modified Blair's incision. Only 32 cases of neonatal suppurative parotitis have been described in the English literature in the last 35 years. Recovery was achieved in 78% of these patients with antibiotic therapy while 22% cases required surgical drainage [10].

The most serious complication of parotitis and parotid abscess include facial nerve palsy, severe neck swelling with airway obstruction [11]. None of the patients in this study developed any of these complications. In group B of this study, 5 patients who only received Ampicillin + Cloxacillin, developed severe diarrhea during antibiotic treatment but none of the patients in group A had this complaint. Historically, the principal reason for the restricted use of clindamycin in dentistry has been a concern regarding potential adverse events, in particular, the development of Clostridium difficile diarrhea or pseudomembranous colitis. Incidence of Clostridium difficile infection with clindamycin is no greater than that with amoxicillin or amoxicillin/clavulanate [12].

Clindamycin works by inhibiting protein synthesis at the bacterial 50S ribosomal subunit, thus interfering with the process of peptide-chain formation in bacteria. Clindamycin has a high level of in vitro

activity against a variety of gram-positive organisms and strictly anaerobic bacteria. Of specific interest is the extremely low incidence of resistance to clindamycin, even in countries such as Germany and Japan, where this agent is used frequently to treat acute dental infections<sup>13</sup>.

Clindamycin reaches high concentrations in saliva, gingival crevicular fluid, and bone. Studies have shown that the concentration of clindamycin in these tissues is approximately 40% to 50% of the concentration in serum [14]. The high intracellular concentration of clindamycin and extended activity inside the bacterium yield a post-antibiotic effect by which the antimicrobial remains active although serum concentration levels are subinhibitory [15].

### Conclusions

Parotid abscess is an emergency condition in children. It can be managed conservatively with intravenous Clindamycin without the need for incision and drainage. On this basis, Clindamycin should be considered as a first-line antimicrobial for all parotid infections.

### References

- [1] Brook I. Acute bacterial suppurative parotitis: microbiology and management, *J. Craniofac. Surg.* 14 (2003) 37-40.
- [2] Ganesh R, Leese T, Parotid abscess in Singapore, *Singapore Med. J.* 46 (2005) 553-556.
- [3] Geterud A, Lindvall AM, Nysten O, Follow up study of recurrent parotitis in children. *Ann Otol Rhinol Laryngol.* 97 (1988) 341-346.
- [4] Ericson S, Zetterlund B, Ohmas J. Recurrent parotitis and sialiectasis in childhood: Clinical, radiologic, immunologic, bacteriologic and histologic study. *Ann Otol Rhinol Laryngol.* 100 (1991) 527-535.
- [5] Chitre V, Premachandra DJ, Recurrent parotitis. *Arch Dis Child.* 77 (1997) 359-363.
- [6] Fawehinmi Y. Acute Suppurative Parotitis and Parotid Abscess in Young Children. *Nigerian.J.Pediatr.* 29:1 (2002) 17-19
- [7] Stoesser N et al. Pediatric Suppurative Parotitis in Cambodia 2007-2011. *Pediatr. Infect Dis J.* 31:8 (2012) 865-868.
- [8] Brook I. Suppurative parotitis caused by anaerobic bacteria in newborns. *Pediatr Infect Dis J.* 21:1 (2002) 81-2.
- [9] Giglio MS, Landaeta M, Pinto ME. Microbiology of recurrent parotitis. *Pediatr Infect Dis J.* 16:4 (1997) 386-90.
- [10] Spiegel R, Miron D, Sakran W, Horovitz Y. Acute neonatal suppurative parotitis: case reports and review. *Pediatr. Infect. Dis. J.* 23:1(2004) 76-8.
- [11] Stong BC, Sipp JA, Sobol SE. Pediatric parotitis: A 5-year review at a tertiary care pediatric institution. *Int J Pediatr Otorhinolaryngol.* 70:3 (2006) 541-4.
- [12] Bignardi GE. Risk factors for *Clostridium difficile* infection. *J Hosp Infect.* 40:1 (1998) 15.
- [13] Kuriyama T, Karasawa T, Nakagawa K, Saiki Y, Yamamoto E, Nakamura S. Bacteriologic features and antimicrobial susceptibility in isolates from orofacial odontogenic infections. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 90 (2000) 600-8.
- [14] LeFrock JL, Molavi A, Prince RA. Clindamycin. *Med Clin North Am.* 66 (1982) 103-20.
- [15] McDonald PJ, Wetherall BL, Pruehl H, Postantibiotic leukocyte enhancement: increased susceptibility of bacteria pretreated with antibiotics to activity of leukocytes. *Rev Infect Dis.* 3 (1981) 38-44.



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### Original Article

## Oral Cancer: Awareness Among People of Biratnagar

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### Abstract

**Background:** Increased use of tobacco and tobacco products result into increment of patients with oral cancer. Many people are still unaware of the consequences of chewing tobacco. Approximately 19% of participants had adequate knowledge of awareness, large number of participants, i.e., 73% had moderate knowledge of awareness and 8% of the participants had inadequate level of awareness about oral cancer.

**Methods and materials:** Analytical cross-sectional research design was used for the study. Samples were selected by non-probability purposive sampling technique. Structured questionnaire was used to collect data from respondents. Frequencies, mean and standard deviations were used to describe the socio-demographic variables. Independent t-test and one-way ANOVA test were used to find the main difference of awareness scores by socio-demographic variables.

**Results :** Among 90 participants, 18% had adequate level of awareness, 73% had moderate and 7.8% of participants had inadequate level of awareness regarding oral cancer.

**Conclusion:** The study showed that awareness regarding oral cancer among the people of Biratnagar Metropolitan City is moderate. The study emphasizes that the effects must be made to make people aware of oral cancer.

### Key-words

*Awareness, Oral cancer, Oral cavity*

### Introduction

Cancer is an abnormal, excessive and disorganized growth of cells. The abnormal growth of cells destroys the normal structure and functions of affected tissues. Oral cancer is the cancer of the oral cavity which includes, tongue, floor of mouth, buccal mucosa, hard and soft palates, pharynx, and tonsils. The most common hazards with low prognosis disease which still remains as cause of concern to medical and common society is oral cancer which is one of the fatal diseases. [1]

According to National Health Policy, oral cancer is one of the most leading causes of

mortality and morbidity and is the most common forms of cancer in men and the third most common cancer in females in Nepal. [2]

Oral cancers are the part of a group of cancers commonly referred to as head and neck cancers, and of all head and neck cancers, they comprise about 85% of that category. Death rate associated with oral cancer is high due to the cancer being discovered late in its development. Oral cancer is discovered late when the cancer has metastasised to another location, mostly the lymph nodes of neck. Prognosis at this stage is very poor. Oral cancer is

dangerous because it may not be noticeable by the patient in early stage, as it can prosper without producing symptoms.

Worldwide in 2013, oral cancer resulted in 135,000 deaths up from 84,000 deaths in 1990. The American Cancer Society, USA, has estimated that 49,750 Americans had been diagnosed with oral cancer in 2017. It caused over 9,750 deaths killing roughly 1 person/hour. Of those newly diagnosed 49,750 individuals, only half of them will live up to 5 years. [3]

The rampant and excessive use of tobacco and tobacco products and chewing of tobacco are the causes of oral cancer. Knowingly and unknowingly, people are consuming tobacco and putting their lives in risk.

Oral cancer is the 16<sup>th</sup> most common cancer in the UK and it is 19<sup>th</sup> most common cause of death due to cancer. [4] According to WHO Report 2005, cancer is the second leading cause of death globally and was responsible for 8.8 million deaths in 2015. Globally, mostly 1 in 6 deaths is due to cancer. Approximately, 70% of deaths from cancer occur in low or medium income countries. Around one-third of deaths from cancer are due to 5 leading behavioural and dietary risks; high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use and alcohol use. Oral cancer is more common in developing rather than in developed countries and occurs more often in people from the lower end of the socio-economic scale. [5]

Oral cancer is one of the major burden of cancer. Consumption of tobacco and tobacco products and alcohol is regarded as a major risk factors for oral cancer. The population attributed to risk of smoking and alcohol consumption have been estimated to be 80% for males and 61% for females. The evidence that smokeless tobacco causes oral cancer was confirmed

recently by the international agency for research on cancer. [6]

Oral cancer ranks in the top three of all cancers in India, which accounts for over 30% of all cancers and oral cancer control is quickly becoming a national priority. [7] Various studies have been done in national and international level and have shown that oral cancer is significant component of the global burden of cancer. This study in a community provides information about level of awareness regarding oral cancer and avoid the habit of tobacco indulgence in any form.

#### **Materials and method**

Permission was obtained from Institutional Review Committee (IRC) of Nobel Medical College Teaching Hospital and concerned authority of Biratnagar Municipality. Verbal consent was taken from each participant and confidentiality was maintained throughout the study period.

Research was conducted in Biratnagar Metropolitan City from January 29, 2018 to February 27, 2018. All the people of above 16 years of age residing in a particular ward were selected and the number of respondents included in the study were 90. Non-probability purposive sampling technique was used for selection of both ward and sample. Data were collected by awareness-based questionnaire regarding oral cancer. Awareness questionnaire contained meaning, causes, risk factors, clinical features, management and prevention. It consisted of 25 questionnaires which were in terms of single response questions. One correct response carried one mark and wrong response carried zero mark. Awareness was measured in terms of awareness score to interpret the awareness; the scores were distributed as follows:

Adequate: 75%

Moderate: 50-75%

Inadequate: <50%

## Results

**Table I: Awareness percentage of oral cancer**

Characteristics	Response	Frequency N = 90	Percent (%) 100
Heard the term cancer	Yes	90	100
Heard of oral cancer	Yes	90	100
Meaning of oral cancer	Can occur in any part of oral cavity and throat	60	66.7
More prone gender	Male	78	86.7
More vulnerable age group	Above 45	30	33.33
Is oral cancer related to oral hygiene	Yes	54	60
	No	36	40
Occur only in tobacco users	Yes	42	36.7
	No	48	53.3
How long does it take to cause oral cancer among alcohol and tobacco users	Above 20 years	39	46.7

The above table depicts all the participants had heard the term, cancer and oral cancer. The majority of the participants said that oral cancer is more prone to males. Only 33.3% of participants said people above 45 years of age are more vulnerable to oral cancer and 60% of the participants said that oral cancer is reflected to oral hygiene.

**Table II: Percentage of respondents' knowledge of risk factors and clinical factors of oral cancer**

Characteristics	Response	Frequency N = 90	Percent (%) 100
Chronic mouth infection	Yes	59	65.6
	No	31	34.4
Which factor mostly increases the risk	Previous diagnosis of oral cancer	20	22.2
Most common tobacco product	<i>Paan, Guthka</i>	31	34.4
Chronic facial sun exposure is related to cancer of which part	Lip	24	26.7
Does risk increase with advancing age	Yes	63	70
	No	27	30
Early sign	Skin lesion,	61	67.8

	lump or ulcer that does not resolve in 14 days		
Advancing sign	A lump in the neck	17	18.9
White and red patches in the mouth are infection of oral cancer	Yes	34	37.8
	No	56	62.2
Weight loss	Yes	45	50
	No	45	50

The table depicts that many of the participants said chronic mouth infection is a risk factor for oral cancer. Only 34.4% of the respondents said *paan* and *guthka* are the most common tobacco products to cause oral cancer, but majority of the respondents said risk of oral cancer increases with age among tobacco consumers.

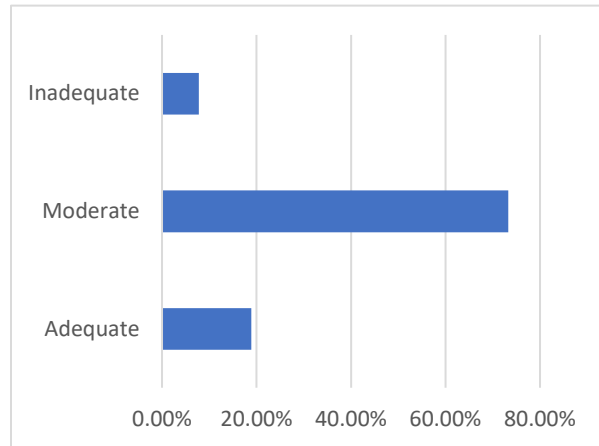
**Table III: Awareness percentage regarding prevention of oral cancer**

Characters	Response	Frequency N = 90	Percent (%) 100
Can oral cancer be prevented if detected early	Yes	60	66.7
	No	30	33.3
Most common measure to prevent oral cancer	Avoid tobacco consumption	59	65.6
Can consumption of fruits and vegetables prevent from oral cancer	Yes	56	62.2
	No	34	37.8
Overall prognosis	Bad	62	68.9

66.7% of the participants said that oral cancer is preventable if detected in earlier stage. 65.6% respondents said that avoidance of consumption of tobacco and tobacco products is the most important preventive measure. 62.2% of the respondents said consumption of fruits and vegetables prevent oral cancer and 68.9%

of the participants said prognosis of oral cancer is poor.

**Fig. I: Level of awareness among respondents**



The above table shows that 18.9% had adequate level of awareness, 73.3% had moderate level of awareness and 7.8% of the participants had inadequate level of awareness.

### Discussion

8.8 million people worldwide died of cancer in 2015 which is only 1 in 6 of all global deaths and \$1.16 trillion is the estimated total annual economic cost of cancer in 2010, and 30-50% of cancer could be prevented. [8]

Cancer is a genetic term for a large number of diseases showing growth of abnormal cells. Other terms commonly used to indicate cancer include malignant tumours and neoplasms. Cancer can affect any part of the body. It is the second leading cause of deaths globally. According to current evidences, half of the cancer deaths are preventable by avoiding risk factors including, consumption of tobacco, alcohol, maintaining healthy body weight, exercising regularly and by shifting towards healthy vegetables.

In order to decrease the significant disability, suffering and death due to cancer, early diagnosis, screening,

treatment and palliative cares are needed. [8]

Oral cancer may arise as a primary lesion, signatory in any of the tissues in the mouth by metastasis and by the extension from neighbouring structures such as, oral cavity. In the early stages, the oral cancer is unnoticeable, and painless. Around 75% of oral cancers are linked to tobacco use and excessive consumption of alcohol. Other factors include poor oral hygiene, ill fitting dentures, poor nutrition and some chronic infections. [9]

Chewing betel and *paan* is known to be a strong risk factor for developing oral cancer. In India where such practices are common, oral cancer accounts for 40% of all cancer compared to just 4% in the UK. Men are affected twice as often as women.

Tobacco contains over 60 known carcinogens. Use of chewing tobacco or sniffing causes irritation from direct contact with the mucous membranes. Tobacco use in any form by itself and even more so in combination with heavy alcohol consumption, continues to be an important risk factor for oral cancer. In a study of Europeans, smoking and other tobacco use was associated with 75% of oral cancer causes, caused by irritation of mucous membranes of mouth from smoke and heat of cigarettes, cigars and pipes. [10]

The above paragraph highlights the importance of awareness of causes of oral cancer. Despite the devastating consequences of oral cancer, 73.3% of participants had only moderate knowledge about oral cancer and 7.8% of the participants had inadequate knowledge about oral cancer. Similar descriptive study was conducted on "Awareness and knowledge on oral cancer among dental patients of Riyadh", which showed 62.4% of the participants were aware of oral cancer which is in contrast with the results of our study. [11]

Differences in level of education, nutritional status and standard of living conditions might have been the causes of discrepancies.

The majority of the participants in our study were aware of the cancer and people consuming way too much alcohol and tobacco products are more likely to suffer from oral cancer when their age begins to advance but they still continue to consume them despite of their adequate knowledge.

### **Conclusion**

The study reveals that majority of participants knew what cancer is and bad habits that drives a person to become a sufferer of oral cancer. Many of the respondents responded by signing that cancers can be prevented if identified earlier and avoidance of tobacco is the most important method of preventing oral cancer.

### **References**

- [1] Lewis (2013). *Cancer, India*, Elsevier, 253-254
- [2] Epidemiology of Oral Cancer in Nepal. National Oral Health Policy. (2001)
- [3] Key statistics of Oral Cancer, American Cancer Society, (2016)
- [4] Oral cancer prevention and control – The approach of the World Health Organization, Global Oral Health Programme, World Health Organization, (2008) 1-7
- [5] Petreson P, Strengthening the Prevention of Oral Cancer: The WHO Perspective, *Community Dentistry Oral Epidemiology*, (2005) 397-399
- [6] Peterson P, Oral cancer Prevention and Control- The Approach of World Health Organization, *Oral Oncology*, 5 (2008) 54-60
- [7] Coelho KR, Challenges of Oral Cancer Burden in India, *Journal of Cancer Epidemiology*, (2012)17-18
- [8] Early diagnosis and screening, *WHO Bulletin*, (2015)
- [9] Srinivas Prasad and et al, Liaison Between Microorganisms and Oral Cancer, *Journal of Pharmacy and Bio allied Sciences*, 7(2015) 5354-60
- [10] Rodriguez and Teresa and et al, Risk Factors for Oral Cancer and Pharyngeal Cancer in Young Adults, *Oral Oncology*, 2 (2004) 207-213
- [11] Al-Maweri SA, Al-Soneidar WA, Dhaifullah E, Halboub ES, Tarakji B , Oral Cancer: Awareness and Knowledge Among Dental Patients in Riyadh, *J Cancer Educ.* 2(2017) 308-313

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### Case Report

## Tubercular Prostatitis: A rare case of Genitourinary Tuberculosis.

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### Abstract

Genitourinary tuberculosis is the second most common type of extra-pulmonary tuberculosis after tubercular lymphadenitis. Tuberculosis of the prostate is a relatively rare condition and most cases are diagnosed on histology following prostatectomy or prostatic biopsy. Probably several cases of tubercular prostatitis remain undiagnosed. Therefore it requires a high index of suspicion. Here we report a rare case of tubercular prostatitis in a 49 years old man who presented with features of lower urinary tract symptoms.

### Key Words:

*Genitourinary, Prostate, Tuberculosis*

### Introduction

Tuberculosis is a contagious disease known from ancient times. Tuberculosis of the genitourinary tract and particularly of the prostate was first described by Willbolz in 1937 who demonstrated that it was a local manifestation of a systematic disease [1]. The kidneys, ureters, urinary bladder and the epididymis & testis are most commonly affected by genitourinary tuberculosis. This article reports a case that was found histologically to have tubercular prostatitis following transurethral prostatectomy.

### Case presentation

A 49 years old gentleman presented to us with features of dysuria, obstructive urinary flow, nocturnal frequency, swelling of the left testis and low grade fever typically evening rise for 6 weeks. Physical examination findings were otherwise normal except asymmetrically enlarged prostate of about 40 grams on digital rectal examination.

His CBC was within normal limits except the ESR was 46 mm in first hour. Routine

urine examination showed plenty of pus cells but culture yielded no growth of organisms. Ultrasonogram revealed a moderately enlarged prostate of about 52 grams with calcifications in the prostatic parenchyma, mildly thickened bladder wall (4.5 mm) with 125 ml of postvoid residual urine and right sided moderate pleural effusion. There was no ascites or abdominal lymphadenopathy but left epididymis was swollen & heterogenous in echotexture suggestive of chronic epididymitis. His serum creatinine was 1.4 mg/dl, PSA level was 28.6 ng/ml which dropped to 11.9 ng/ml after a course of antibiotics. Uroflowmetry was done and Qmax was 8 ml/sec. Retrograde and micturating urethrogram revealed a small segmental stricture at the proximal membranous urethra. Chest Xray showed mild pleural thickening with blunt costophrenic angle on the right side.

Depending upon his clinical presentation and investigations he was diagnosed as a case of obstructive variety of LUTS due to

stricture urethra with recurrent UTI. He was planned for urethrocystoscopy and to proceed accordingly. Urethrocystoscopy revealed that there was no stricture but prostate was enlarged. So TURP was performed and the prostatic chips were sent for histopathological examination.

Histopathology showed granulomas composed of epithelioid cells, Langhans' giant cells and caseation necrosis with the diagnosis of granulomatous inflammation consistent with tuberculosis. During discharge he was advised to take antitubercular therapy and to follow up after 6 weeks.

### Discussion

Genitourinary tuberculosis represents 10-14% of all locations of extra-pulmonary tuberculosis [2]. Tuberculosis of the prostate is a relatively rare condition. Tuberculosis of the prostate has mainly been described in immune-compromised patients. However, it can exceptionally be found as an isolated lesion in immune-competent patients. Tuberculosis involving the prostate gland, apart from being rare, can also mimic carcinoma of the prostate as well as chronic prostatitis and therefore requires a high index of suspicion [3]. In many cases, the diagnosis of tuberculous prostatitis is made incidentally after transurethral resection. Huang et al. in Taiwan conducted a study on 10 patients over a period of 10 years, who all presented with digital rectal examination findings suggestive of prostate cancer, but needle biopsy of the prostate revealed tuberculosis [4]. Kostakopoulos et al. also presented 5 cases of TB of the prostate, all of which were incidental histologic findings after transurethral resection of the prostate [5].

Primarily prostatic tubercular lesions are very rare [6]. The spread of the disease in the prostate is usually haematogenous [7]. There is no evidence to support the view that it may develop from direct inoculation

through contaminated urine [8]. Initially, patients are usually asymptomatic or present with non-specific irritative voiding symptoms or hemospermia. Hemospermia gives a strong suspicion of tubercular infection and its sequelae in the prostate [9]. Extension of the disease outside the prostate leads to the involvement of the epididymis and advanced cases may present as a perianal and scrotal abscesses [10].

On histology, the macroscopic appearance depends on two opposing processes: one of destruction and caseation, another defense by limiting the extension with fibrosis. It is this latter process that leads to obstructive phenomena. The histological appearance is a typical granuloma with caseous necrosis and giant cells. Prostatic lesions first take the appearance of yellowish streaks arranged in a "wheel spokes" as in figure 1. Thereafter, plates are formed with caseous softening which leads to a true secondary prostatic abscess. Natural evolution can lead to the appearance of perineal fistulas [11].

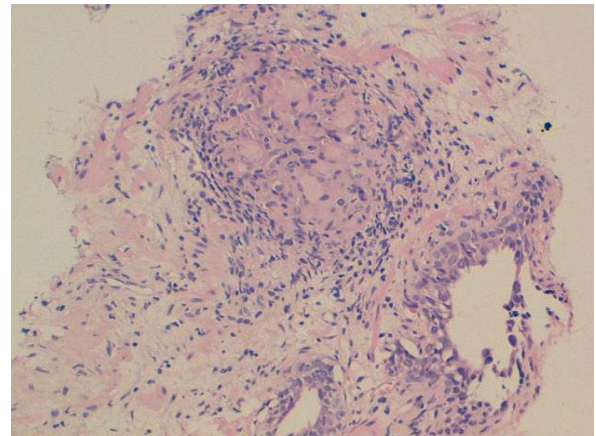


Figure 1: Histology of granulomatous infection with caseous necrosis and giant cells in prostatic parenchyma.

Prostatic tuberculosis may cause transient elevation of PSA levels that decreases with resolution of inflammation [12]. In our case, serum PSA came down to normal

range after 6 weeks of anti-tubercular therapy.

Treatment consists of administration of antitubercular drugs (isoniazid, rifampicin, pyrazinamide and ethambutol). Chemotherapy alone has been found effective and surgical treatment (endoscopic resection) is reserved for those with lower urinary tract obstruction.

### Conclusion

In this case, the primary diagnosis was stricture urethra being misguided by RGU & MCU reports. Carcinoma prostate was other diagnosis as serum PSA level was high. As tubercular prostatitis is an uncommon disease, pleural effusion and raised ESR was ignored, we thought this medical problem can be treated after correction of his urological problem. However, it should be kept in mind that though tubercular prostatitis is uncommon, it can present to us in our regular clinical practice.

### References

- [1] Sharma SK, Mohan A, Extrapulmonary tuberculosis, Indian J Med Res. 120:4 (2004) 316-353.
- [2] Gupta N, Mandal AK, Singh SK, Tuberculosis of the prostate and urethra: a review, Indian J Urol. 24:3 (2008) 388-91.
- [3] Aziz EM, Abdelhak K, Hassan FM, Tuberculous prostatitis: mimicking a cancer, Pan African Med J. 25 (2016) 130.
- [4] Huang K, Wu H, Hsu Y et al, Tuberculosis of the prostate, J. Urol. 12:3 (2001) 126-130.
- [5] Kostakopoulos A, Economou G, Picramenos D et al, Tuberculosis of the prostate, Int Urol Nephrol. 30:2 (1998) 153-157.
- [6] Pal DK, Tuberculosis of prostate, Indian J Urol. 18 (2002) 120-122.
- [7] Gebo KA, Prostatic tuberculosis in an HIV, Sex Trans Infect. 78:2 (2002) 147-148.
- [8] Tanagho EA, Specific infections of the tract, In Tanagho EA, McAninch JW (Eds), Smith's General Urology, 15th ed, McGraw-Hill, New York (2000) 265-81.
- [9] Singh J, Sharma P, Vijay MK, Kundu AK, Pal DK, Tuberculosis of the prostate: Four cases and a review of the literature, Urotoday Int J. 6:1 (2013) 44-48.
- [10] Sporer A, Auerbach O, Tuberculosis of prostate, J Urol. 11:4 (1978) 362-365.
- [11] Rabii R, Fekak H, El Manni A, Joual A, Benjelloun S, El Mrini M, Fistule prostatorectale tuberculeuse, Prog en Urol. 12:4 (2002) 684-686.
- [12] Speights VO, Brawn PN, Serum prostate specific antigen levels in non-specific granulomatous prostatitis, Br J Urol. 77:3 (1996) 408-410.