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INFORMATION FOR AUTHORS

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- Paper should be submitted to the Chief Editor, Bangladesh Dental Journal, Bangladesh Dental Society. 8/2, Paribagh, 3rd Floor, Motaleb Tower, Hatirpool, Dhaka-1205. Papers should be written in English and two copies must be submitted with two sets of illustrations. Manuscripts should be typed on one side of white paper (size-A4) with margin of at least one inch. Double spacing should be used throughout. Manuscripts will be reviewed by the editorial board and are subject to editorial revision.

Paper should be accompanied by a soft copy preferably CD in Microsoft Word.

- Each of the following sections should begin on separate pages as: title, abstract/summary and key words, text (Introduction, Materials and methods, Result, Discussion, Conclusion, etc. for an Original article) acknowledgement, references, individual tables and legends. Page should be numbered consecutively beginnings with title pages. Manuscripts must be accompanied by a covering letter. This must include **(i)** A statement that the work has not been published or submitted for publication elsewhere. **(ii)** A statement that the manuscript has been read, approved and signed by all authors. **(iii)** Any work which has been carried out in part or fully abroad, must be accompanied by a letter from the head of the institution where the work was done stating that the work has been carried out in that institute and that there is no objection to its publication in this journal.

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- Summary/Abstract: Provide an abstract of 250 words or less. Briefly state the problem or purpose, the major observations, the methods and the principal conclusions.
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- Materials and Methods: Should include the selection criterion of the study population including controls (if any), the methods and the apparatus used in the research, the procedure of the study in such a detail so that other worker can reproduce the results.
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J Prosthet Dent 1992; 67(4): 41-45.

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- Each table should be typed double spaced on a separate sheet. A brief title of each table should be supplied. Figures should be professionally drawn and photographed. Photograph should be on glossy papers (usually 5 x 7 inch). These should not be inserted into the text but marked on the back with the figure numbers, title of the paper and name of author. The top of the figure should be indicated. All photographs, graphs, diagrams should be referred to an figure and numbered consecutively in the text in arabic numerical. The legends for figures should be typed on a separate sheet.

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CONTENTS

Editorial

There is a proverb in the health science that "mouth is the gateway of health". Good oral health is the most important part of human health. The incidence of oro-dental disease has become very common in our country. Teeth play very important role in eating, speaking and esthetics of individual. Unfortunately the growth of dental health care in our country is surprisingly neglected. Our people are not usually well conscious about their oro-dental health care.

Bangladesh dental journal is a mirror of dentistry including its special branches. It reflects the current advancement in treatment and research in dentistry. We believe that this journal will play an important role for education and communication for all levels dental surgeons in Bangladesh.

We have tried to include all the disciplines of dentistry so that the specialized of those subjects can enrich their knowledge. We always tried to ensure the quality of each article. An expert panel of reviewers was involved to standardize the quality of articles.

In addition, I would like to mention that the previous committee during the period of 2012-2015 did not publish any issues of Bangladesh dental journal. Newly elected executive of Bangladesh Dental Society has been formed this (current) new editorial board. It was very hard for us to publish the four volume of previous issues. But we tried hard and became successful to publish these issue.

This issue has original articles 08, case reports 03 and review articles 02 of different fields of dentistry.

I am grateful to the panel of reviewers, all the executive members of Bangladesh Dental Society and my colleges who gave me guidance and idea in editing and publishing the journal successfully.

Dr. Md. Humayun Kabir
Editor-in-Chief
Bangladesh Dental Journal

Maxillofacial trauma of psychiatric magnitudes and role of post-traumatic stress symptoms

Amin MR[1], Moula SM [2], Kabir MH [3], Uddin MW [4], Chowdhury MAP [5], Chowdhury KP [6]

Abstract:

It has been assessed the prevalence of acute symptoms of stress in patients who experienced a maxillofacial injury in psychiatric magnitudes and their related surgical intervention. Fifty patient's ages between 18 and 65 have been considered; it has been assigned a score to each according to severity of trauma by mean of Injury Severity Scale (ISS). Within 48 hours after surgery (T0) and at the three months (T1) we have administered Davidson Trauma Scale (DTS) for post traumatic symptoms. 44% of evaluated subjects (22 patients at T0) showed acute symptoms of stress and 26% (13 patients as T1) post-traumatic stress symptoms. Statistical association between demographic variables resulted significant only with sex especially for women. Significant correlation was seen between psychologic variables and symptoms specific of trauma both at T0 and T1, the same also for ISS at T0. Of the 13 patients positive at DTS at 3 months. The aim of the study was to identify the presence of post-traumatic stress disorder (PTSD) in patients who had sustained facial injuries, additionally, we aimed to identify other variables that may modify the psychological response to trauma that include gender, age and presence of disfigurement post-treatment and visible scars injuries. It is therefore necessity not only to restore anatomy and physiology in full but also to provide psychiatric support to those patient's suffering from general or specific psychiatric symptoms caused by traumatic injury.

Keywords: *Maxillofacial trauma, psychology*

(Bangladesh Dental Journal 2013; 29: 1-4)

Introduction:

The psychological magnitude following on the traumatic events, little attention is still being paid to the emotional and psychological distress that these traumas may cause. Following on to facial injury, for instances those produced in a road traffic accident or by an assault, aesthetic or functional damages may still remain after surgery, with magnitude psychological and behavior problems due to poor adaptation, often prolong over time. Many studies [1,2] have attempted to measure psychiatric post-traumatic morbidity which may take the form of depressive disorder and anxiety, psychotropic substance abuse or addiction and lastly post-traumatic stress disorder. The aim of the study was to identify the presence of post-traumatic stress disorder (PTSD) in patients who had sustained facial injuries, additionally, we aimed to identify other variables that may modify the psychological response to trauma that include gender, age and presence of disfigurement post-treatment and visible scars/orthopedic injuries. Trauma is a major health care problem in present day society. The face or countenance plays an important part in the formation of initial social relationships, and the appearance or "attractiveness" of a person is greatly contributed by the face[3].

The disfigurement of the face is secondarily by numerous causes; however trauma to the face is the major cause for disfigurement. This study sought to determine; 1. The prevalence of psychological distress in a series of subjects who sustained maxillofacial injuries and 2. Temporal changes in psychological functioning over 12 weeks compared with baseline values.

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Bony and soft tissue injuries that are extensive can lead to scarring and/or disfigurement of the face. A common sequelae of trauma to the facial injury patients are the psychological distress it causes, hospital care of the facial trauma patients has progressed significantly over the last few decades and recent research has focused on the psychological aspects of the traumatic events.

Military veterans and disaster survivors are our primary knowledge of the psychological impact of traumatic events[4]. Maxillofacial trauma was recognized as important for research because of its potential for both physical and psychological disability.[5]

Poor documentation in routine clinical practice of the psychological impact of facial trauma patient leads to under-recognition and non-treatment of an important morbidity that arises post-trauma and can become chronic.

There has been published literature suggesting post-traumatic stress disorder (PTSD) may develop, the PTSD of facial trauma patients documented range between 26% and 41%.[4,5,6]

Anxiety is an emotion characterized by an state of unpleasantness and of inner turmoil, it is accompanied by nervous behavior, such as pacing back and forth, somatic complaints and rumination[7]. There are subjective unpleasant feelings of dread over anticipated events, such as the feeling of imminent death[8]. Anxiety is not the same as fear that is a response to a real or perceived immediate threat, whereas anxiety is the expectation of future threat[9]. Anxiety is a feeling of fear, worry, and uneasiness, usually generalized and unfocused as an overreaction to a situation that is only subjectively seen as menacing. There are muscular tension, restlessness, fatigue and problems in concentration. Anxiety can be appropriate, but when experienced regularly the individual may suffer from an anxiety disorder.

In spite of the high rates of morbidity and mortality associated with trauma, it is still not regarded as a major disease. Oral and maxillofacial (OMF) trauma has become a major point in focus, owing to its increasing incidence and the multispecialty management, which it dictates. OMF injuries, either with or without associated systemic injuries, account for a large number of hospital admissions, especially through the emergency department. While the specialty of OMF surgery is most commonly involved in diagnosis and treatment of maxillofacial traumatic injuries, comprehensive management often involves several other specialties. A clear understanding of the maxillofacial anatomy and pattern of injuries is required not only to diagnose, but also to assess injury severity following maxillofacial trauma. Injury severity is regarded as an indicator of the nature and intensity of treatment required by the patient, and helps predict treatment outcomes when quantified.

This study evaluate the prevalence of immediate and delayed psychiatric magnitude in victims of maxillofacial trauma, in particular the onset and evolution of post-traumatic stress disorder (PTSD), to determine the predisposing factors that may acts as concomitant cause of the outcome and maintenance of the disorder and to verify whether the severity of trauma influences post-traumatic stress symptoms. The development of screening mechanism to evaluate post-traumatic psychiatric risk will make it possible to intervene appropriately with psycho-social support, educational treatment and/or pharmacological treatment[3].

Materials and method:

This descriptive study was done by the Department of Oral & Maxillofacial Surgery, Dhaka Medical College Hospital, Dhaka. 50 consecutive patients who had undergone trauma to the maxillofacial region were admitted to the study; they were assigned a score for the severity of the trauma, using the Injury Severity Scale (ISS)[10], limited to the maxillofacial area, with score between 1 (minor injury) and 4 (severe injury). All patients were between 15 and 55 years. All patients were to surgery under general anesthesia. Those presenting positive histories for psychiatric disease and/or use of psychotropic substances were excluded from the study. For each patient, age, sex, marital status, education, etiology and type of fracture.

Within 48 hours after surgery and at 3 months follow up, the following questionnaires were administered to all subjects: the Davidson Trauma Scale (DTS)[11], specific for the measurement of post-traumatic stress symptoms. The DTS is a self-administered questionnaire, which evaluate symptoms of PTDS in subjects who have undergone physical and/or psychic trauma. The DTS is a 17-item self-report measure that assesses the 17 DSM-IV symptoms of PTSD. Items are rated on 5-point frequency (0 = “not at all” to 4 = “every day”) and severity scales (0 = “not at all distressing” to 4 = “extremely distressing”). Respondents are asked to identify the trauma that is most disturbing to them and to rate, in the past week, how much trouble they have had with each symptom.

The DTS yields a frequency score (ranging from 0 to 68), severity score (ranging from 0 to 68), and total score (ranging from 0 to 136). It can be used to make a preliminary

determination about whether the symptoms meet DSM criteria for PTSD. Scores can also be calculated for each of the 3 PTSD symptom clusters (i.e., B, C, and D). In this test we took into account both the total score and that of the sub-scales: IT(total intrusive re-experience), AT(total avoidance) and HT(total hyperarousal).

Injury severity scores for three maxillofacial functional parameters, malocclusion (ISS-1) limited mouth opening (ISS-2) and facial deformity (ISS-3).

Results:

The study group comprised 50 patients (44 male and 6 female), mean age 32.4+13.6 years treated surgically, all whom completed the questionnaires administered to them. Demographic characteristics were as follows: marital status: 32 married and 18 unmarried; educational qualifications: 12 illiterate, 10 primary schooling, 20 secondary schooling, 8 university degree;

Etiology, location of fracture and ISS are reported in Tables I, II and III. Table 1 shows about 60% causes of maxillofacial trauma by road traffic accident followed by assault which was 22% and fall were 18%. Urban citizen are depends on vehicle so road traffic accident is most common cause.

Table-I

Etiology of Maxillofacial trauma

Etiology	No of cases	%
Road Traffic AccidentFallAssault	30911	601822
Total	50	100

Table-II

Location of fracture

Location	No of cases
Dentoalveolar	6
Mandible	24
Zygomatic arch	2
Naso-orbital-ethmoid	4
Nasal bone	3
Lefort-1,2,3	11

Table-III

Injury Severity Scale

ISS	No of cases	%
1234	511304	1022608
Total	50	100

Table III shows Injury Severity Scale (ISS) 60% of case were ISS-3 followed by ISS-2.

With the help of the descriptive analysis, the following results were obtained: at the time of trauma (T0) 22 subjects (44%) were above the threshold value (cut-off >40) at total DTS, with a mean value of 49.45± 7.39. The IT, AT and HT , were also elevated in 14, 20 and 20 patients. After 3 months of trauma (T1) 13 subjects (26%) were above the threshold value at total DTS, with a mean value of 53.23±8.81. Also in the respective sub-scales, 14 patients were above the threshold at IT and HT, and 16 patients were above the threshold at AT (Fig,1). One-way analysis of variance (one-way ANOVA) correlation to be determined between demographic variables in the study group and the mean total scores at DTS at T0 and T1 and the corresponding sub-scales.

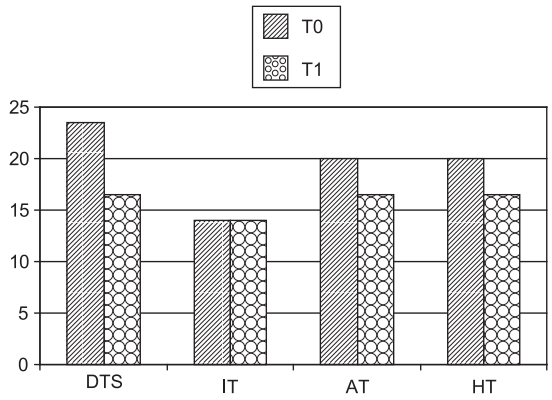

Fig.-1: *Prevalence of post-traumatic stress symptoms*

The χ^2 test was then used to correlate the ISS scores with the mean total DTS, abd a significant correlation ($p<0.05$) was only found at T0. Nor was the correlation between the etiology of trauma and total DTS found to be significant.

Discussion:

Post-traumatic stress disorder is classified among anxiety disorder (DSM-4)[12], from which it differs in that its onset requires exposure to an "extreme" event compared to the normal stimuli produced by human experience. Traumatic events like road traffic accident, assault and fall produces a series of characteristics symptoms, such as reliving the moment that produced the trauma (nightmares, stressful dreams, flashbacks), a reduced response to the outside world, avoidance of stimuli associated with the trauma and increased sympathetic activity[13]. The criterion of duration is relevant for diagnosis, since the symptoms must last for at least 1 month[14]. If this condition is not met

in full, the condition is classified as acute stress disorder. Research dealing with psychiatric consequences in patients after maxillofacial trauma, on the contrary, is relatively scarse[15,16], percentages of PTSD at T1 reported in these studies varies from 10 to 27%, closely comparable to the results of the present study, 26% at 3 months after the traumatic event (44% at T0).As has been widely reported in the literature, maxillofacial trauma chiefly affects subjects in the second and third decades of life, and men are more frequently affected than women; this is also confirmed by the present study, in which 88% of the subjects were male, with mean age 34.45±13.57 years.

Conclusion:

Maxillofacial trauma often becomes a problem of general health, and may give rise to psychiatric disorders that are more serious than the physical sequelae. Sometimes the patient experiences even small defects as narcissistic wounds, which the maxillofacial surgeon must know when facing the patient. It is not always enough to master valid surgical techniques and exercise careful judgement in selecting surgical treatment; the specialist must have knowledge of the psychiatric aspects that a trauma involves, and the possible problems of body image that may derive from it. It is useful to know and be able to communicate both the limits of reconstructive surgery and specific limit of the surgery. Patients with disfiguring facial injuries had significantly higher PTSD levels compared to patients with no disfiguring facial injuries, patients with orthopedic/visible injuries had statistically significant lower IES scores which could not be strictly termed PTSD when compared to patients with disfiguring facial injuries who had high scores of IES corresponding to high levels of PTSD and these results were observed at all three study intervals (DOD, 1 and 6 months postoperatively). Female patients with disfiguring facial injuries had significantly higher PTSD levels compared to male patients (at all the study intervals) and patients younger than 50 years of age had significantly higher PTSD levels compared to older patients.

The majority of studies of patients who have sustained facial injuries have focused on evaluating surgical interventions and medical outcomes[17]. Although it is well recognized that changes in facial appearance due to injury can cause problems with adjustment and adaptation, relatively few studies have evaluated psychological status following maxillofacial trauma[18]. The present study showed that a significant number of patients achieved scores suggestive of either depression or anxiety state. 30% of the patients achieved scores that was suggestive of depressive disorders and 29% had scores suggestive of anxiety state. The management of facial injuries should integrate a multidisciplinary approach that addresses the psychological needs of the patients in both the short term and the long term.

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A study to compare the retention between cast post and prefabricated threaded post

Osmani MSA[1], Sultana A[2], Pathan IRU[3], Rahman MM[4], Kumar S[5]

Abstract:

The purpose of this study was to compare the retention between cast post and prefabricated threaded post. A prospective study was conducted in the Department of Prosthodontics, BSMMU, Dhaka, 40 patients were selected who attended in this Department for treatment of extensively damaged natural crown of teeth as the subject of this study and divided equally in to 2 groups. In group A, 20 patients treated with dowel crown using cast post and in group-B, 20 patients treated with prefabricated threaded post. After 12 months, patients clinical sign and symptoms were recorded. A detailed clinical and radiological examination were done. Recorded data were compiled on a master sheet and statistically analyzed. Significant differences were found among two groups by retention of post and crown. Retention of the post and crown was highest in group A (95%) and lowest in group B (70%) respectively. From this study after assessing all findings it may be concluded that cast post is better retention alternative to prefabricated threaded post.

(Bangladesh Dental Journal 2013; 29: 5-8)

Introduction:

Endodontically treated teeth have significantly different physical and mechanical properties compared to vital teeth. It is assumed that endonontically treated teeth are weaker and more prone to fracture because of desiccation car premature loss of moisture supplied by a vital pulp. Post have been advocated to strengthen weakened endodontically treated teeth against infra oral forces. The post distributed torquing forces within the radicular dentin to the supporting tissue along their roots.[1]

When an endodontically treated tooth is prepared for a full veneer crown, substantial amount of tooth structure is lost. In order to increase its resistance and support the crown, a dowel core can be inserted. A dowel core has two parts namely a dowel and a core. The dowel is the screw component, that is inserted into the root canal and core is the retentive component which behaves like a prepared crown for the placement of a retainer. A dowel/post provides the necessary amount of retention and acts as a substitute for the lost tooth strtructuree[2] If a substantial amount of coronal structures are missing, a cast post and core is indicated. A metal post is used which provides the necessary retention for the core. Retention of post is affected by post length, design, diameter, shape, surface texture etc. The length of the post should be 2/3 of the length of the root or 1/2 of the root. Otherwise retention will be lost & also fracture of the metal post may occur. For longivity of a dowel post affect the root fracture. Post design and ferrule effect have a direct relation to the root fracture. Studies revealed that Tapered free fabricated threaded post. Increased root fracture than cast post. The post replaces any lost coronal tooth structures of the tooth preparation. The shape of the residual coronal tooth structures combined with the core, should results in an ideal shape for the preparation.

Cast posts are usually fabricated as tapered design for convenience of canal preparation to conform to the shape of natural root canal. For this reasons, these types of posts are more conservative of tooth structure and minimize the chance of perforation of apical root during canal preparation. Cast post core has a high strength and better adaptation with prepared surface of root so chance of micro leakage is also less than prefabricated threaded post.[3]

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Prefabricated threaded post are made by metal, carbon fibre, ceramic and glass fibre etc. Ceramic and glass fibre provides esthetic alternatives to metal post. The prefabricated dowels are extensively used in multirooted teeth to support amalgam and composite core buildup. The base metal prefabricated post & core causes vertical/ oblique root fracture as they electrolytic action of dissimilar metals due to lack of corrosive resistance properties.

To achieve better retention and fracture resistance of restored teeth, the cast post is preferred in damaged or broken teeth alternative to prefabricated threaded post.

Objective:

To evaluate the retention of post and crown by horizontal and vertical pressure.

Materials and methods:

A prospective comparative study was conducted in the Department of Prosthodonctics, Faculty of Dentistry, Bangbandhu Sheikh Mujib Medical University. The total duration of study was from January 2005 to December 2006. Patients attending in the Out Patient Department of Prosthodontics of BSMMU for the treatment of extensively broken or damaged natural crown of teeth were included in the study. The sample size was 40 and selected them by random sampling. Total 40 patients were divided into 2 groups. Group-A consisted of 20 patients and treated with dowel crown using Cast post and Group-B consisted of 20 patients and treated with dowel crown using pre fabricated threaded post.

Study Procedure

The patients were selected and evaluated by dental, medical, clinical and radiographical examination The paramater observed, studied and compared between two groups of patients under the reference of standard measure:

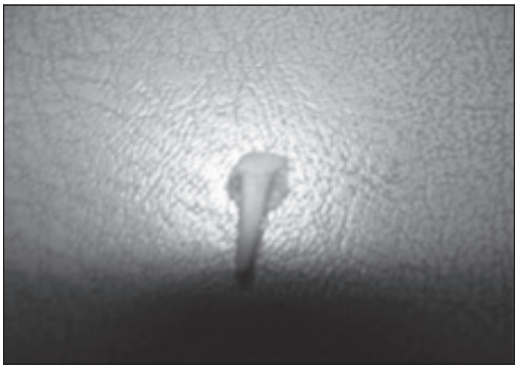
Retention of Post and crown evaluated by history and clinical examination. It is also evaluated by horizontal and vertical pressure on the margin of the crown with explorer. No movement was observed with vertical and horizontal pressure on the post core.

Results:

Results were expressed by means of table, graded and coded results, on basis of condition of prosthesis and development of diseases, were distributed in groups by number and percentages. The observed result of a table was also tested for statistical significant.

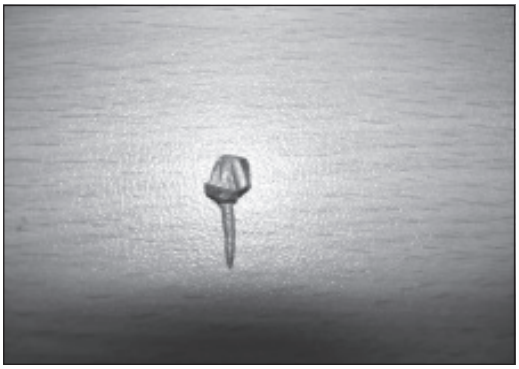
Retention of the post	Group A (n=20)		Group B (n=20)		Chi-square/ p-value
	No.	%	No.	%	
After 3 months					
Excellent	20	100.0	20	100.0	
Good	0	0.0	0	0.0	
Poor	0	0.0	0	0.0	
Total	20	100.0	20	100.0	
After 6 months					
Excellent	20	100.0	18	90.0	
Good	0	0.0	2	10.0	
Poor	0	0.0	0	0.0	
Total	20	100.0	20	100.0	1.03/0.311'
After 12 months					
Excellent	19	95.0	14	70.0	
Good	1	5.0	0	0.0	
Poor	0	0.0	6	30.0	
Total	20	100.0	20	100.0	4.33/0.037*

Case No. 1



Intraoral periapical

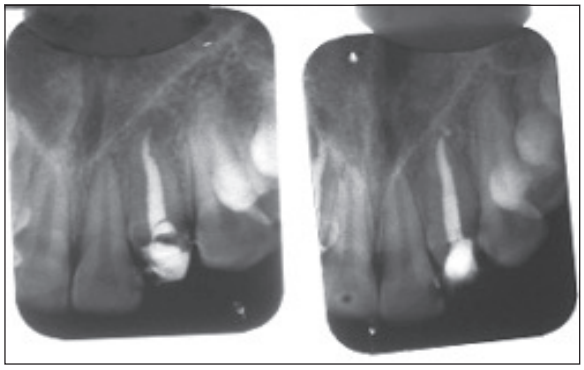
Cementation of post and core



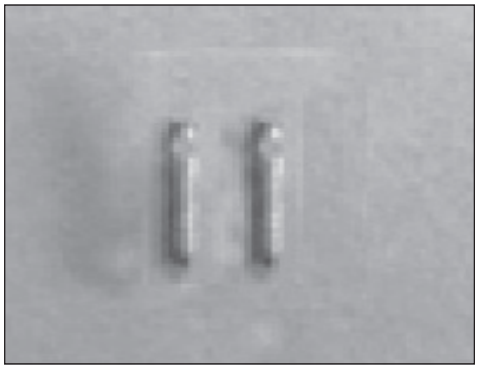
Cast metal post & core

Finally cementation of crown in patient's mouth.

Case No. 2



Radiograph after root canal completion



Pre-fabricated threaded post

Cast metal crown trial

Finally cementation of crown in patient's mouth

Discussion:

Study population was divided into two groups. Total number of selected patients was 40. Two groups of patients were treated with two types of post. In group-A 20 patients were treated by dowel crown with cast post and in group-B, 20 patients were treated by prefabricated threaded post. Evaluation was done after 3 months, 6 months and 1 year. Both groups were compared in every follow-up visits according to the selected parameter. Regarding retention criteria of post, in both the groups of patients (100%) had excellent retention of the post during insertion, whereas after 12 months of follow up 95.05% and 70% had excellent retention of post in group-A, and B respectively, which was statistically significant.

Conclusion:

In this study two groups of patients were treated by dowel crown with cast post and prefabricated threaded post. It can be concluded after the completion of this study, that cast post is an advantageous restoration for endodontically treated teeth than prefabricated threaded post. After retention of post so, it can be concluded that in endodontically treated teeth with extensively damaged natural crown, cast post is the better acceptable alternative to prefabricated threaded post.

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Comparative study of Soft-liners and conventional acrylic hard denture in removable dentures

Haque MR[1], Osmani MSA[2], Kabir MH[3]

Abstract:

The objective of this study was to observed patient response to the soft lined dentures. A total sixty-six (66) patients were taken in this prospective study. MOLLOPLAST- B®, a silicone based soft-lining material have been tried in 51 patients and 15 patients were treated by conventional acrylic hard denture bases. 47 patients had discomfort with their previous dentures and relined by soft-liner. 4 patients had maxillary defects and they were treated by maxillofacial prosthesis lined by soft-liner. Data were collected and analyzed using student's 't' test and 'p'-value was measured. Results showed that mean percentage of comfortness, chewing efficacy improved 45.8% and 41.2% in soft lined dentures and 30%, 15.6% in conventional method. The Molloplast – B lined dentures offered comfort to a significant number of patients in this study who had a history of chronic discomfort with wearing of conventional acrylic resin dentures. Their Masticatory function was markedly improved. Mucosa soreness was relieved cent percent in case of soft lined denture and reduce tissue irritation. Esthetics, retention and stability of dentures also improved in soft lined denture. In case of maxillofacial prostheses the problem of retentions and stability was solved by using Molloplast – B.

(Bangladesh Dental Journal 2013; 29: 9-13)

Introduction:

A soft lining materials may be defined as an elastic or viscolelastic materials applied to the fitting surface of a denture for the purpose of reducing and more evenly distributing occlusal loads on the underlying oral tissues.[1] It is designed to act as a cushion between the hard denture base and soft tissues in order to reduce to masticatory forces transmitted by Prostheses to the underlying tissues.[1] On the other hand, natural teeth are attached by a periodontal ligament to the bone of the jaw and masticatory loads successfully bypass the oral mucosa and are transmitted directly to the bone. Resilient liners may be regarded as analogues of the periodontal ligament and compressible healthy mucoperiosteum in denture and edentulous persons respectively.[2]

Some investigators studied the mechanical and physical properties of soft liners while others have described their uses and manipulation. The use of Soft Denture liners has come into favour for various applications in prosthetic dentistry.[3]

It is well known that hard acrylic denture bases is an established method for the restoration of edentulous jaw, missing teeth, relining and rebasing of the denture bases. But some denture wearer suffer from discomfort with their hard dentures despite all possible adjustment. Relining or rebasing of the denture bases with hard acrylic material is time consuming and causes certain changed in the underlying tissue. Whereas dentures relined with soft liner is less time consuming, comfortable, less tissue irritant as well as improves the function. In this study soft liner is used in removal dentures for the patient betterment which justify the present study.

Materials and Methods:

The present study was a prospective type of study. The study was conducted in the department of prosthodontics, Faculty of Dentistry, Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka from January 2003 to December 2004. Study population included the patients attended in the department of prosthodontics for the treatment of the missing teeth as well as complaints of dentures. Total 66 patients were selected and treated in this study. 51 of them were selected in group I and treated with soft-lined dentures. Another 15 patients were selected in group II and treated with conventional acrylic dentures. Patients were recall

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and follow up after 2 weeks, 4 weeks, 6 weeks and 6 months to observe the condition of their prosthesis. Patient feeling on to the prosthesis and clinical findings were recorded such demographic data comfort, chewing efficiency, esthetics, phonation, soreness of mucosa, retention, stability in pre-designed data collection sheet.

Data were analyzed by using computer based programme statistical package for social science (SPPS) for windows version 12. Unpaired student 't' test were done. P value <0.05 was considered as significant.

Results:

Table-I

Age and sex distribution of the study patients (n=66)

Age in years	Study subjects				Total		p value
	Male		Female				
	No.	%	No.	%	No.	%	
<39	8	17.4	1	5.0	9	13.6	
40-49	8	17.4	9	45.0	17	25.8	
50-59	11	23.9	5	25.0	16	24.2	
60-69	10	21.7	4	20.0	14	21.2	
³70	9	19.6	1	5.0	10	15.2	
Total	46	100.0	20	100.0	66	100.0	
Mean±SD (Age in years)	55.4±14.2		52.5±10.6		54.5±13.2		0.402^{ns}

p value reached from un paired student's t test (p>0.05).
ns= not significant

Table-II

Distribution of patients by type of prosthesis worn (n=66)

Type of prosthesis	Study subjects				Total (N=66)		p value
	Group I (n=51)		Group II (n=15)				
	No.	%	No.	%	No.	%	
Complete denture	34	66.7	8	53.3	42	63.6	0.616^{ns}
Partial denture	13	25.5	5	33.3	18	27.3	
Maxillary prosthesis	4	7.8	2	13.3	6	9.1	
Total	51	100.0	15	100.0	66	100.0	

Group I= Patients treated with soft liner
Group II= Patients treated with conventional method
p value reached from chi square test (p>0.05)
ns= not significant

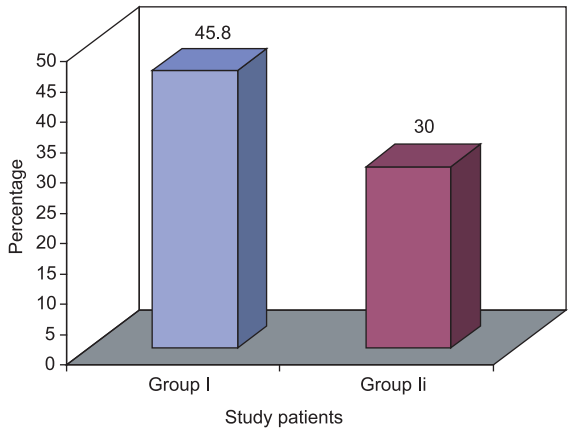

Fig.-1: *Percentage of improvement of feeling of comfortness*

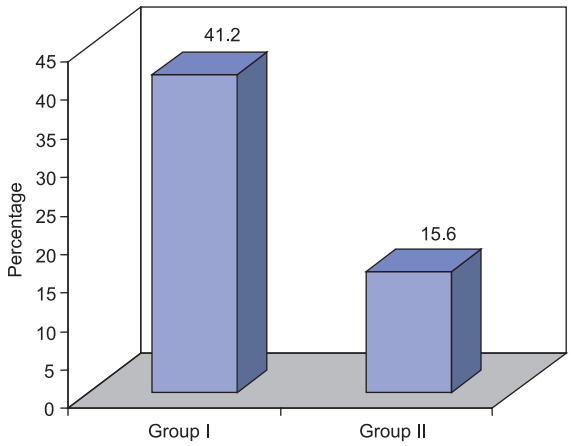

Fig.- 2: *Percentage of improvement of chewing efficiency*

Table-III

Distribution of patients by pre and post treatment follow up (Soreness of mucosa)

Follow up	Soreness of mucosa	Study subjects				p value
		Group I (n=51)		Group II (n=15)		
		No.	%	No.	%	
Baseline						
	Present	19	37.3	12	80.0	0.007**
	Absent	32	62.7	3	20.0	
2nd wk						
	Present	2	3.9	11	73.3	0.001***
	Absent	49	96.1	4	26.7	
4th wk						
	Present	0	.0	10	66.7	0.001***
	Absent	51	100.0	5	33.3	
6th wk						
	Present	0	.0	10	66.7	0.001***
	Absent	51	100.0	5	33.3	
6 months						
	Present	0	.0	4	26.7	0.001***
	Absent	51	100.0	11	73.3	

Group I= Patients treated with soft liner
Group II= Patients treated with conventional method
p value reached from chi square test
**= significant
***= highly significant

Table-IV

Distribution of patients by pre and post treatment follow up (Retention and stability)

Follow up	Retention and stability	Study subjects				p value
		Group I (n=51)		Group II (n=15)		
		No.	%	No.	%	
Pretreatment	Present	2	3.9	1	6.7	0.545ns
	Absent	49	96.1	14	93.3	
Post-treatment	Present	0	0.0	5	33.3	0.005**
	Absent	51	100.0	10	66.7	

Group I= Patients treated with soft liner
Group II= Patients treated with conventional method
p value reached from chi square test
ns= not significant
**= significant

Table-V

Distribution of patients by overall assessment

Assessment	Study subjects				Total		p value
	Group I		Group II				
	No.	%	No.	%	No.	%	
Poor	0	0.0	9	60.0	9	13.6	0.001***
Average	30	58.8	6	40.0	36	54.5	
Excellent	21	41.2	0	0.0	21	31.8	
Total	51	100.0	15	100.0	66	100.0	

Group I= Patients treated with soft liner
Group II= Patients treated with conventional method
P value reached from chi square test
***= highly significant

Discussion:

In this study a total number patients were 66. Out of them 51 cases were in group- I and 15 cases were in group-II. Their average age range were from 39-70 years. Male were 46 and female were 20 Edentulism was more in 55-70 years of age group. Treatment was taken more in male patient than female.

This study showed soft lined denture was much more comfortable in 88.2% of the patients than their conventional acrylic resin dentures in group- I. In this study initially no statistically significant difference was found between two groups of patients, however, during subsequent period, the feeling of comfortness was improved significantly in group I patients compared to group II patients. The percentage of improvement was 45.8% in group I patients and it was 30.0% in group II patients and the difference was statistically significant. Previous study[4] showed dentures lined by Molloplast- B were comfortable in 93% patients.

In this study denture lined with Molloplast- B chewing or masticatory function were improved in 86.3%. Baseline data showed that chewing efficiency had no statistically significant difference between two groups of patient. After treatment, the chewing efficiency increased more in patients treated with soft line than conventional treatment. Percentage of changes indicated that the chewing efficiency increased 41.2% in group I patients and it was only 15.6% in group II patients and the difference was statistically significant. Because soft liner act as a shock absorber during mastication and reduces discomfort, soreness of tissue and increase retention and stability.

In this study had found the average tissue health of the patients examined in this study was fair to good. Pressure soreness of tissue was relieved (100%) by using Molloplast-B soft-liner. It was observed that initially 37.3% patients in group I patients had soreness in mucosa. At the 2nd week follow up only 3.9% had complaints of soreness of mucosa and subsequent follow up no patients complaints of soreness of mucosa, whereas among the group II patients, 80.0% had complaints of soreness of mucosa and following treatment the soreness of mucosa decrease to 26.7% at the end of 6 months. These indicated that the rate of healing was very slow in conventional treatment to treatment by soft liner. And the difference was statistically significant.

In this study most of the cases retention and stability was good. William et al. evaluated 24 complete denture lined by soft liners and showed good retention and stability was less satisfactory.

The problem of reduced tissue tolerance to denture is due to reduced denture surface area occurring with the bone loss of alveolar bone. Many patients experience pain and difficulty using dentures constructed with hard denture bases. The resilient materials have been used in the tissue surface of the denture to increase resilience during function and under pressure.[6]

Wilson et al. [7] evaluated the soft resilient silicone rubber, silastic 390. Heat – cured silicones such as Molloplast – B and Silastic- 390 emerged as the most suitable for clinical use. The comprehensive evaluation of resilient denture liners reported by laney (1964) also pinpointed Molloplast– B and Silastic- 390 as the effective base for patient who exhibit dehydration, mucosal irritation, and bone loss.

Haris, in 1961 said, "If there were a material for cushioning dentures that would retain those soft, compatible properties as long as one year, most of chronic complaints in denture service would be eliminated". Some believed that this had been attained in the use of silicone rubber.[8]

The use of resilient lining materials for denture prosthesis in selected clinical situation has long been recognized. Gonzales listed numerous indications for their use and Masella reported that they are most advantageous in treating the patient with sharp, thin or badly resorbed residual alveolar ridges.

Bernard and Segal[9] observed 36 patients with Molloplast-B lined dentures for up-to 3 years. These patients were chosen because they had demonstrated that chronic soreness present under their conventional acrylic dentures. In their study the show sixty percent of the patient said that they were more comfortable with the Molloplast- B lined dentures than previous acrylic resin dentures.

Hiroki et al.[10] followed up 18 patient with Molloplast- B lined denture for up-to 3 years. These patient had previous complained of chronic tissue soreness with conventional acrylic resin dentures. Two weeks after insertion situation were better than before with soft lining in all patient.

John L[11] examined dentures lined by silicone, soft relining material and found improved masticatory function. They suggest that the use of materials with higher 'ten delta and G' provides the most optimum masticatory function.

In case of maxillofacial prosthesis we have found an extra retention facility by the use of soft liners as it engage the tissue undercuts without harmful effect to the tissue.

In case of maxillofacial prosthesis lined by Molloplast – B nasal regurgitation was absent in most cases. It is due to

viscoelasticity of these materials and it blocks the aperture like a valve.

Conclusion:

Molloplast – B lined denture offered comfort and masticatory efficiency to a significant number of patients in this study who had a history of chronic discomfort with the wearing of conventional acrylic resin dentures. The problems of retention and stability in removable maxillofacial prosthesis can be also managed by using Molloplast – B. So, it is recommended to use Molloplast – B in removable prosthesis for the betterment of patients. Further studies with a large sample required to demonstrate this hypothesis tested in this study.

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A comparative study of oral health system between Japan and Bangladesh

Banik AK[1], Shinsho F[2], Uddin H[3]

Abstract:

Objectives: *To compare the oral health system between Japan and Bangladesh by the oral health condition and the factor related to it.* ***Methods:*** *Studies on the prevalence of dental caries and periodontal diseases reported during the period since 1981 of the two countries were collected. Data of Bangladesh were obtained from Bangladesh Dental Journal (BDJ), Journal of Oral Health (JOH), different international publication, data supplied by W.H.O. and statistical year book of Bangladesh. Data of Japan obtained from publication by ministry of health and welfare, Japan (report on the survey of dental diseases). From these report the prevalence of dental caries and the DMFT of the 12 years old children was abstracted and tabulated.The percentage changes for DMFT were calculated by comparing studies conducted between the year 1981 to 2000. Sugar consumption in Kilograms per capita was obtained from statistical year book (United Nations). The data was related graphically within the DMFT of the 12 years old children of each country.* ***Results:*** *caries reduction rate is near about 2 times higher in Japan than Bangladesh, in case of Japan it is 56% (5.4 to 2.4) in the period of 1981-1999. In case of Bangladesh it is 33% (1.5- 1.0) .in the period of 1981-2000. In Bangladesh & Japan deep periodontal pockets in the age group of 30-44 is most prevalent. In Japan the causes of permanent teeth extraction are caries 55.4%, periodontal diseases 38.0% and others 6.6%. In Bangladesh, caries 60.6%, periodontal diseases 27.2% and others 12.2%. Caries incidence in 12 years old children are less prevalent in Bangladesh than in Japan. In Bangladesh it is 46.4% whereas in Japan it is 57.5%.* ***Conclusion:*** *Having a great socio and economical discrepancies between these two countries, Bangladesh should try to adopt the programs in their health policy that are available in Japanese dental services.*

Key words: *Dental caries, periodontal disease, DMFT, Fluoride.*

(Bangladesh Dental Journal 2013; 29: 14-20)

Introduction:

To assess the demands of advanced Dentistry all over the world and it's unique globalization and to evaluate the endemic & epidemic causes of different oral diseases a comparative study between region to region, developed country to developing country & with in the country is very essential. Bangladesh is one of developing countries of south Asia region. Day by day it runs and faces the distressing path of progress. On the other hand Japan is one of a few developed countries for a long time, representing the East Asia, by it's diligent and talented people. In case of Bangladesh total population 146,736000. GDP $1734 per capita. Life expectancy 63 years for both male and female. Health expenditure 3.1% of GDP. On the other hand in Japan total population 127,478000, GDP $26652 life expectancy male 78.4 years and female 85.3 years. Health expenditure 8% of GDP[1].

According to the world health report 2001 and 2003 Dental caries is still a major oral health problem affecting 60-90% of school children and the majority of adults in most developed countries. Bangladesh and Japan belongs to the 20% countries of the world whose periodontal condition is the worst among all the countries.[2,3]

Several comparative studies between Japan and other developed countries were performed for example, a comparision of national dental surveys between Japan and England and Wales, showed that below the age of 11 years caries experience was higher in Japan but above this age it was higher in England and wales.[4] Another comparative study of the oral health status between Scottish and Japanese primary school children, Where it was observed that decay experience were higher in

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Motoyashi (Japan) than in Fife (Scotland) [5]. Kawaguchi et,al compared the dental health condition and system in Japan and Australia. The study shows that Japan's ability to rapidly change its oral health outcomes rapidly, its dental educational system and its traditional workforce structure and service-mix, is more constrained than appears to be the case in the Australian dental system. It also shows that in Australia the low priority to financing public dental services due to its constraints are related to its federal system. The barriers to Japan ability is its traditional cultural decision making process and in a series of health and educational structures [6].

A few study were also done between Bangladesh and other south Asian countries. These study shows that periodontal diseases & caries is more prevalent in India & Srilanka than Bangladesh[7,8].

In Bangladesh the study of Undergraduate level in Medicine and Dentistry and the research work is in English. Whereas in Japan, all of study, research and most of publication are in Japanese language. It is a considerable barrier for the researcher to exchange the acquired knowledge. This paper is initiative to compare oral health system between Japan and Bangladesh by the oral health condition and the factor related to it.

Methodology:

Studies on the prevalence of dental caries and periodontal diseases reported during the period since 1981 of the two countries were collected. Data of Bangladesh were obtained from Bangladesh Dental Journal (BDJ), Journal of Oral Health (JOH), different international publication, data supplied by W.H.O. and statistical year book of Bangladesh. Data of Japan obtained from publication by ministry of health and welfare, Japan (report on the survey of dental diseases). From these report the prevalence of dental caries and the DMFT of the 12 years old children was abstracted and tabulated.

The percentage changes for DMFT were calculated by comparing studies conducted between the year 1981 to 2000. Sugar consumption in Kilograms per capita was obtained from statistical year book (united nations). The data was related graphically within the DMFT of the 12 years old children of each country.

Information referring to utilization of fluoride, organization of dental health services, dental manpower, dental education and preventive programs for dental diseases of Bangladesh were obtained from the BDJ, JOH and other different source. Similar data of Japan were obtained from the publications and study of social medical services 2001 (sakai Iryo shinryo koi-betsu chosa, journal of health & welfare statistics 2003 and scientific journals).

Results:

Oral health situation:

Caries: table :1 shows the average DMF-T level for 12 years old children in the two population in different time. It also shows the gradual change and percentage reduction in dental decay in Japanese & Bangladeshi children. In the two countries it showed that percentage of caries reduction rate is near about 2 times higher in Japan than Bangladesh. For example in case of Japan it is 56% (5.4 to 2.4) in the period of 1981-1999. In case of Bangladesh it is 33% (1.5- 1.0) .in the period of 1981-2000 [9-14].

Table-I

Evolution of DMFT index in 12 years old children & their percentage reduction

Country	1981	1984	1987	1993	1999	2000	% Reduction
Bangladesh	1.5	1.4	-	-	-	1.00	33% (1981-2000)
Japan	5.4	-	4.9	3.6	2.4		56% (1981-2000)

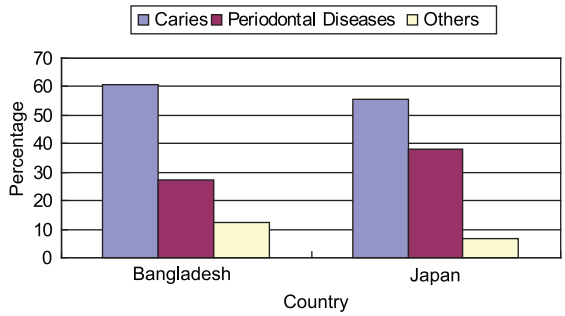

Fig.-1: *Causes of permanent teeth extraction in Bangladesh and Japan.*

Periodontal diseases:

Table-II & Figure 1 shows the severity of periodontal condition & the cause of permanent tooth extraction in both countries. It shows that Bangladesh & Japan would rank as 20 % of the countries in the world where deep periodontal pockets in the age group of 30-44 is most prevalent. In Japan the causes of permanent teeth extraction are caries 55.4%, periodontal diseases 38.0% and others 6.6%. In Bangladesh caries 60.6% periodontal diseases 27.2% and others 12.2% [15-18].

Table-II

Periodontal condition measured by CPITN of the 30-44 years age group

Country	Year of Examination	Age Range	Number of Respondents (n)	Criteria of samples	Percentage of Pocketmore than 4 mm
Bangladesh	1990	35-44	163	Urban&Village	34%
Japan	1989	30-44	12832	Urban&Village	37%

Table-III

Percentage of caries prevalence & DMFT component in 12 years old children

Country	% of Caries Prevalence	Year of Examination	DMFT Index	D	M	F
Bangladesh	46.4%	2000	1.0	0.9	0.01	0.04
Japan	57.5%	1999	2.4	0.7	-	1.8

Table-III shows the Percentage of Caries incidence in 12 years old children are less prevalent in Bangladesh than in Japan. In Bangladesh it is 46.4% whereas in Japan it is 57.5%. In Japan there is notable percentage of filled teeth and having no incidence of tooth loss in 12 years of child (may be due to highly scope of restorative treatment). In case of Bangladesh only a minimum percentage of restoration with case of extraction of teeth [9 11 19].

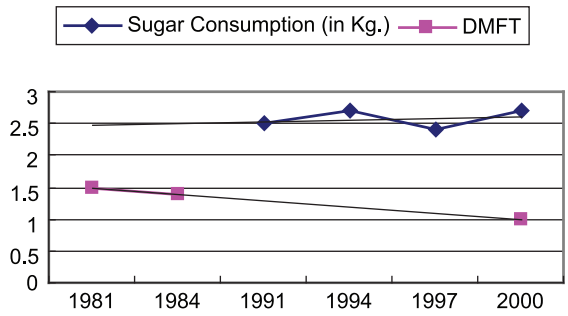

Fig.-2: *DMFT index in relation to Sugar consumption in Japan*

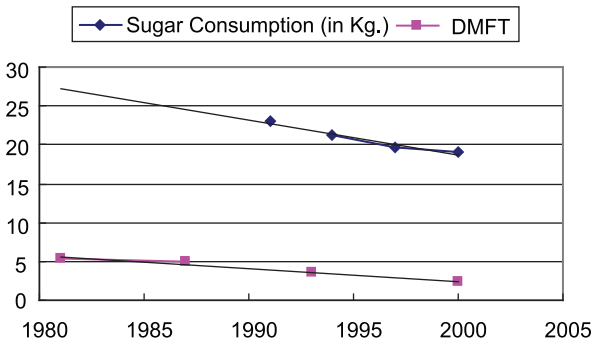

Fig.-3: *DMFT index in relation to Sugar consumption in Bangladesh*

Sugar consumption and oral health:

Sugar consumption in Japan per capita is gradually declining. Since 1970 it was a pick amount 29-30 Kg. In 1991 it was 23 kg and then 19 kg in 2000. In case of Bangladesh it was 2.5 kg in 1991 and it was 2.7 kg in 2000.In Japan DMFT index is decreasing in relation to its sugar consumption. In Bangladesh DMFT index & sugar consumption is in a static level for a long time [20-21].

Oral Health and fluoride.

In Japan the fluoride level in surface water is very low (0.05-0.2 mg/l) than the optimum level for human health (1 mg/l). Besides that there is no area with water fluoridation or dietary fluoride supplement. The availability of fluoride toothpaste and mouth rinse at Japanese market started from 1980 and in 2002 fluoride toothpaste comprised 86% of the total market [22-23].

In 1999, 163 tube well water samples were taken from 19 districts of Bangladesh and fluoride level was determined by using the proton induced gamma emission (PIGE) method. The samples contain the fluoride level with a mean range of 0.56±0.48 mg/l. There is no additional fluoride supplement in diet or water supply in Bangladesh. Recently fluoride containing toothpaste is manufactured and available in market [24].

Organization for Dental service providation:

In Bangladesh, Ministry of Health and Family welfare is responsible for making national health policies & strategies, observation, execution and recruitment. People

get their dental services from public hospital as well as from private Dental clinic.

Public sector is the most effective for the network of the services all over the Bangladesh. Upa zilla health complex (UHC) and District hospital is the basic unit of health service system.(460 UHC and 64 district hospital). Each UHC and District hospital consists a post of Dental Surgeon and a Dental Technologist (auxiliary). They provide extraction, temporary restoration and preventive programs for the Dental patient. They also refer the patients to the Dental college hospital and Dental department of medical colleges (3 dental colleges, 13 Medical colleges) in where specialized position & treatment is available. Surgical treatment of Oro-facial field under general and local Anesthesia, endodontics, orthodontics, partial & complete denture except crown and bridgework treatment is available here. But due to lack of subsidy the facilities is for limited person.

The term of treatment in public level is free. Most of people get their dental services from here. The facilities of private dental clinics is available in town and city area. This type of treatment is costly but it consists specialized treatment for all purpose. Due to it's high cost it is out of reach of poor people. Besides that there are plenty of quake (illegal) dentist all over the country. Usually they provide treatment to the village and poor people. There is no facilities or coverage of health insurance system for dental treatment at the government or private level. All government employee get a negligible medical allowance every month with their salary. Few of private company provide medical allowance for their employee.

Health system in Japan is governed by the ministry of health and welfare which predominant policies, administration & evaluation.0Japan's health insurance system, which covers medical and dental care, was made obligatory to all citizens in 1961 and is operated by either the national or local government. 0While there are several official for health insurance systems, all citizens must be covered by one of them. Peoples feel freedom to choose whether or not to take advantage of health insurance treatment.

Japan's health insurance system is broadly divided into two categories; employees and national. The employee covers the groups of workers :and the national covers residents of the same area, who are insured by the local government.

The system operates with the insurer collecting insurance payments from the insured person. Under the present health insurance system patients make partial payments of the actual medical charges to the hospital or clinic, and the Social Insurance Medical Care Fee Payment Fund reimburses the hospital or clinic for the medical treatment given. Thus, medical expenses are shared by the patient and the review/reimbursement organization.

All surgical and conservative treatments and certain prosthetic treatments are included in the scope of benefits under the health insurance program. Certain prosthetic, implants and orthodontic treatments are not covered. In such cases, dental fees are negotiated between the dentist and patient, with the patient paying the entire sum directly to the practitioner [19, 25-26].

Dental Manpower:

During the period of 2000 the total number of Dentist in Japan was 90,857 and the ratio of dentist/ people was 1:1397. Out of them 97.3% were engaged in private practice and rest were doing research work, education, administration and others work. Besides that three types of auxiliaries are engaged in dental services with their distinguished course and activities. They are Dental hygienist (shika-eiseishi),Dental assistant (shika-joshu) and Dental technician(shika-gikoshi). After completion of study to be a general practitioner Dentist have to pass the licensure examination but there is no mandatory internship training.

In Bangladesh the number of dentist were rising rapidly from the period of 1996, when the newly established 2 government Dental College and most of private Dental colleges (6 in number) started to provide dentists in the services with the increased number of Dentist from Dhaka Dental College.. For example in1992, the number of Dentists were only 448, in 1997 near about 1000 and in the recent council of Bangladesh Dental Society in 2005 it was about 2500. Besides that Dental technician are working as a auxiliary in the service. In 1992 the number of dental technician were 450. Now the number is near about 1000. No dental assistant and dental hygienist is available . But the private practitioner dentist create their own assistant by teaching them by himself. After completion of study to be practitioner no need of licensure examination. Registration from Bangladesh Medical and Dental council and internship training certificate is needed [26-29].

Dental Education:

In Bangladesh Graduate Dental education consists of 5 years education. Out of them 4 years is for Graduation program (Bachelor of Dental Surgery) and 1 year for internship training. 9 Dental colleges (3 public and 6

private). Every year about 500 students get admission in first year course by a nationwide competitive examination after completion of their 12 years higher secondary education. The facilities, syllabus and curriculum of all the Dental colleges are maintained and supervised by University Grant Commission, Bangladesh Medical and Dental Council. And Ministry of Health and Family welfare. respectively.

In Japan, Dental education is given through 29 dental colleges.. Out of them 11 national public, 17 are private and 1 is prefectural . Total academic year is 6 years including 2 years of pre Dentistry course (liberal arts and science) No internship training program is included. Every year 2647 students get admission in the course by a nationwide competitive examination after completion of high school education and must be at the age of 17. Dental schools of Japan follow according to the code of requirements stated in the university standards for Dental school issued by the Ministry of Education [29].

Different Preventive program for enhancing oral health condition:

In Japan, preventive oral health program includes conducting oral health promotion campaigns, school based fluoride mouth rinse and professional topical application of fluoride for preschool children [26, 30].

It is sorry to say that like other developing countries primary oral health care(POHC) is not included in primary health care(PHC) policy in Bangladesh. Recently proposal to include it launching. Bangladesh Dental Society and few of social organization arrange community based preventive program routinely which includes Atraumatic Restorative Treatment (ART), promotion of oral hygiene instruction, distribution of fluoride containing toothpaste and even some curative treatment [31].

Discussion:

Bangladesh & Japan, though representing two corners of the world in different angle but in between them there is some similarities and at the same time dissimilarities also. We can consider several predisposing factors that worsen the condition of oral health such as Sugar consumption, food habits, use of fluoride, organization & utilization of dental services, dental manpower, dental education and preventive program.

Bangladesh and Japan, the DMFT index of these 2 countries is gradually declining. In case of Japan the favorable point is it's declining sugar consumption rate, use of fluorides in dentifrices, organization and utilization of dental services, adequate dental manpower, time adapted dental education & modernized equipments.

Takeuchi (1960-1961) and Miyazaki (1996) showed that the close relationship of DMFT level with the sugar consumption rate in 12 years old Japanese children. Sugar consumption was assumed to have a direct influence on decreasing dental caries in Japan. In addition in take of fluoride in dentifrices has direct affect on caries declining. Now in Japan (2002) 86% of market available dentifrices are composed of fluoride.

Now Japan has a DMFT index of 2.4, which is considerable high compared to other industrialized and developing countries (USA 1.6, UK 0.9 Netherlands 0.8, Australia 0.8, France 1.9, Germany 1.2, Italy 1.2, China 1.03, Finland 1.2).This is possibly due to for a long time in past Japan had not no water fluoridation and no fluoride supplement in food. Besides that frequent use of soft and sticky foods, less intake of chewing and deterosive food and less maintaintainence of oral hygiene care are also factors for high DMFT index.

Bangladeshi people usually take increased amount of deterosive food in their meal and according to the WHO sugar consumption chart Bangladeshi people take the lowest amount of Sugar per year (though the report of the statistics is confused, might be they did not count the traditional Bangladeshi sugar products 'Gur' in the estimation). The fluoride level of Tube well drinking water is near at the optimum fluoride level for human being. The data of fluoride level in natural food source is not available. All of these make Bangladesh a lowest DMFT index country among the south Asian countries except India.

Bangladesh and Japan both countries belongs the 20% of the countries where periodontal condition is worst is in the world. Excessive intake of betel-nut, lime & betel leaf, poor scope of dental treatment are the predisposing factors for the Bangladesh. Data of any systemic diseases is not available. Poor oral hygiene care is also responsible for severe Periodontitis in Bangladesh. Village people use sort of powder s, wood stick to clean their mouth. All of these could hurt their gingival & causes ulceration.

The reasons for the poor periodontal condition in Japan is not clear. Recently '80—20 ' movement is running in Japan to preserve at least 20 teeth present at the age of 80 years. Excessive intake of sugar containing sticky foods, different type of alcohol, less intake of water & systemic diseases might be the responsible cause. Further study should be done in this field.

The analysis of contribution of each DMFT component reveals the type of treatment the population is receiving.

Population with access to restorative treatment showed high percentage of filled teeth and low percentage of untreated decayed or missing teeth. Table-III contrast the DMFT index between Japan & Bangladesh. The filled component (F- teeth) was higher in Japan than Bangladesh (1.8 vs 0.04) and decayed tooth is higher in Bangladesh(0.9 vs 0.7). Even Bangladesh has a experienced of extraction (0.01) against Japan where there was no extraction in case of 12 years of children. This is due to total unawarness and lack of treatment facilities in Bangladesh.

However, in Japan, the national insurance provides Japanese citizens with access to highly subsidized dental care, and the services are as much restorative as surgical. But they exclude the expensive items such as gold crowns, bridges, orthodontics care and also excludes cheap items such as sealants and fluoride application. The interesting is that the system of Japan (national health insurance) does not cover any type of preventive dental care.

In Bangladesh each Upa-zilla health & district hospital consists of a post of Dental Surgeon. In a district total population is more or less 2 million and in a upazilla near about 500000. So it is impossible to render total dental treatment for all the people with that minimum quantity of dental manpower in a public hospital. Moreover insufficiency of dental equipment & instruments make the treatment improper & incomplete So very often extraction of permanent teeth occur without trying for conservation.

The number of dentists in Bangladesh is increasing rapidly in number for a recent few years back. Dentistry is a choice of specialty for students but limited number of seats in public colleges & highly education cost in private institution make them to abandon their wish. Only students from higher class & higher middle class get the admission in private dental colleges with that high educational expenses. The education cost in public dental college is negligible. Students only have to pay negligible money as a monthly tuition fees.

There is same discrepancies between public and private schools in tuition fees in Japan. The average first year tuition & fees are USD 85000 (10,170,000 Japanese Yen) for private dental schools. Whereas USD 9200 (1,100,000) for public & local government dental school.

The distribution of dentists in both countries is uneven. For example, in Bangladesh only a few percentage of total dentists working in public sector. Majority are private practitioner and working in city and town areas. Recently ministry of health and family welfare made a decree that the newly appointed dentists in public sector must work in Upazilla health complex at least 3 years from his joining date of service. Another considering matter that every year a countable portion of dentists go abroad and settle there permanently.

Same uneven distribution exists in Japan. Such as 118.6 dentists for 100000 people in Tokyo. Where as 43.3 dentists for 100000 people in Fukui.

A very important difference of the two countries is that the dentists engaged in public sector also work in their private practice in evening in Bangladesh. On the other hand in Japan dentists in the public sector are employed in education, research 6 administration and other activities. They are not engaged in providing dental treatment to patients.

In Japan the post of dental hygienist is predominantly from female person, provides dental health education services, dental assisting services and some direct preventive services such as prophylaxis, topical fluoride application & fissure sealant instructed by dentist.

In Bangladesh dental technologist provide assistant to the dentist in public hospital. I n rural area or even in town area some person of dental technologists provide dental treatment for the patient in their private dental clinic.

Conclusion:

Having a great socio and economical discrepancies between these two countries, Bangladesh should try to adopt the following programs in their health policy that are available in Japanese dental services such as (1) the health insurance system for all the population including dental services (2) epidemiological studies of dental diseases of all ages for a regular & certain period of time, it's documentation and publication. This program should be financed and monitored by ministry of health and family welfare. (3) To incorporate the post and services of dental hygienist to improve the preventive care of oral diseases. (4) Control and record of fluoride containing products such as toothpaste, mouth rinse etc in the market. (5) Compare to other countries in the world the curriculum, syllabus & academic year should be revised such as at least 6 years education including internship training. In addition medical & health statistics, dietetics, clinical psychology, health economics, computer education and management of a office should be include in the course of dental education.(6) community based preventive program should be emphasized (7) establishment of facilities of dental instruments and equipments that dental personnel could serve the rural people.

Some consideration for Japan also that (1) Internship training program should include in their academic year (mandatory internship will start from coming 2006) (2) preventive dental treatment program should include in the coverage of health insurance program. (3) as per as possible research work & graduate education should be start in English media for communicating it with other nations.

In this study, we compared the organization of health care systems, dental manpower, dental education and some factors that influences the oral health in two countries. Further studies should be done regarding the factors such as the social level, economical, political, geographical, cultural and other factors related to the health and illness. Because these factors could be influencing the predominance of poor oral health.

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A study on Periodontitis and its relation with nutritional status among the high school going girls

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Abstract:

A descriptive type of cross sectional study was carried out to assess the prevalence of periodontal diseases among high school going adolescent girls and to find out their nutritional status. The aim of the study was also to find out the relationship between periodontal diseases and nutritional status among high school girls.

Oral examination was done to identify periodontal diseases for a sample of 222 high school girls between 10 and 17 years of age. They were also interviewed through a structured questionnaire for collecting other relevant information.

Result show that mean age of the study girls was 13.15±1.42 years, with 46% in the age group of 12 to 13 years, and about 47% of them were from poor families with monthly family income of <Tk 4000. In this study periodontitis were found among 22.1 percent girls.

Nutritional status according to BMI, 56.3 percent subjects were malnourished suffering from chronic energy deficiency, while according to Z-score 5.9 percent were underweight and 18.5 percent girls were stunted. Family income was found to be significantly associated with periodontitis. Periodontitis were found to be increased with the increase of age as well as with the increase in family income. On the other hand, periodontitis decreased with the increase in the number of tooth brushing.

Since dental plaque causes gingivitis and may later develop periodontitis. So control of microbial plaque accumulation is the means by which preventive program can be made effective. Efficient tooth cleaning irrespective of method used has been demonstrated repeatedly to important in maintaining periodontal health and reducing dental disease prevalence. It would appear that efficiency rather than the frequency of brushing is more important in removing plaque.

(Bangladesh Dental Journal 2013; 29: 21-23)

Introduction:

Periodontal disease has been reported to be one of the most prevalent diseases worldwide[1]. According to a recent CDC report, nearly one-half of adults aged 30 yr. had signs of periodontal disease in the United States[2] and a majority of children and adolescents had some form of gingivitis, which may initiate severe periodontal diseases[3]. Dental diseases are getting more prevalent among the population of Bangladesh. After liberation the prevalence of Periodontal diseases have been increasing day by day. It was observed that in Bangladesh the number of dental patients have been increased in the Govt. hospitals & private dental clinics[4].

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In Bangladesh, gingivitis is most common and periodontal diseases are the most common factors for tooth extraction. In rural areas periodontal diseases have been responsible for the majority of extractions. This assumption is based on the number of patients attending the outpatient departments of government hospitals and private dental clinics. The increased number of dental patients may be due to the lack of awareness of the necessity of dental health and care. Children and adolescents are vulnerable to periodontal diseases.

Descriptive epidemiological studies have been shown periodontal disease to be more prevalent in blacks than white in rural than urban in habitants, poorly educated than in the well-educated, in the poor than in the wealthy, in man than in women & in persons with poor oral hygiene[5].

A number of epidemiological studies indicate that the periodontal disease is more prevalent & severe in the area of India & Sri-Lanka[6]. The general impression from current literature remains that exceptionally insufficient oral hygiene measures appear to constitute the main reason

for higher prevalence & severity of periodontal in India, Bangladesh geographically being the part of India & politically independent country, is a land with 140 million of its population & one of the under developed countries of the world. About 90% of its population is the in habitants of rural areas where they received very minimum health service facilities more especially they are quite ignorant about oral hygiene. It has been observed that the prevalence & severity of periodontal disease has been increasing anxiously higher among this population than the urban.

Multiple factors, are proposed as a cause of the periodontal disease, poor oral hygiene malposition of tooth, restoration, host deffence, smoking. Nutritional status is also linked to immune response. When a periodontal infection is present the ability of oral tissues to utilize nutrients is altered, thus interfering with the body's normal ability to heal itself.

About 12% of the whole population is adolescent girls in Bangladesh[6] and 22.6 per cent of the girls suffer from severe malnutrition (Parveen, 1994). A large number of adolescent girls suffer from various degrees of nutritional disorders that result from inadequate or inappropriate intake of specific nutrients[7]. So it is thought that the prevalence of dental diseases and nutritional status of the adolescent high school girl is needed to be studied, so that an appropriate measure can be recommended for main family oral health.

Materials and methods:

The study was carried in high school going girls attending in Kuliarchar pilot girls high school, Kishorgonj. Purposive sample & the number of subjects were 222. The school going girls were interviewed for the information necessary according to the questionnaire. On an average of 20 - 22 girls were interviewed during working hours of assigned working class. Study period was 2003-2004.

Examination of oral cavity & teeth of high school going girls were done by using a probe & mirror in the day light where the patients sat on an ordinary wooden chair, clinical evaluation were made for periodontitis, including methods of maintaining oral health. Nutritional status of the girls were obtained by measuring anthropometry (BMI, MAC,).

After completion of necessary coding and editing data were computed and analysis was done by using SPSS software package. Appropriate statistical tests were done to find out the significance of the results.

Table-I

Age distribution of the subjects

Age in year	Frequency	Percent
10-11	30	13.5
12-13	102	46.0
14-15	84	37.8
16-17	6	2.7
Total	222	100.0

Average age = 13.15 ± 1.42

Table-I shows that majority of the patients are between 12 and 15 years of age.with highest number in the age group of 12 - 13 years (46.0%) followed by the age group of 14 - 15 years (37.8%).

Table-II

Cross classification between Income and Periodontitis

Income	Periodontitis					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Tk. <4000	8	3.60	97	43.70	105	47.3
Tk. >4000	41	18.47	76	34.23	117	52.7
Total	49	22.07	173	77.93	222	100.0

Chi-square = 6.95 P=0.01 OR = 5.39 RR=1.13

Table-II shows that only 22.07% of the subjects had periodontitis of whom 18.47% were from higher income group (Tk>4000), while 77.93% had no calculus where equal proportion of the subject were from both low and high income groups.

Table-III

Association between nutritional status and Periodontitis

BMI	Periodontitis					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Malnourished	11	5.0	114	51.4	125	56.3
Not Malnourished	8	3.6	89	40.1	97	43.7
Total	19	8.6	203	91.4	222	100.0

Chi-square = 0.01 P=0.92 OR = 0.93 RR = 0.99

Table-III based on chi-square test it was found that income and periodontitis was significantly associated (chi-square 0.01, p=0.92). Odds ratio (OR=0.93) showed that exposure (Income <4000) was positively associated with periodontitis.

Discussion:

The prevalence of periodontitis is high in Bangladesh and is being raising with time. Different studies have reported

a prevalence of deep pocket in 35 - 44 years old ranging between 14-65 per cent. Bangladesh is still among the 33% countries of the world with the worst periodontal conditions[13]. In this present study the prevalence of periodontitis was found 22 percent. In a study Mahmood J.U. found that 51 percent of female subject has periodontitis which is also higher than our study[14].

Another study shows, that among 500 patients 112 persons (22.4%) had periodontitis with varying degree of pocket depth which is about similar to our study.[15]

More than half of the study population was found malnourished. According to BMI 56.3% subjects were malnourished as they had BMI < 18.5, whereas subjects with normal nutritional status (BMI 18.5 - 24.99) were 41.9 percent. In a study among the family members of Bangladesh marginal peasants showed that 38.8 percent of adolescent girls were malnourished as their BMI was less than 18.5 percent. Regarding weight for age 5.9% were found under weight according while to the height for age 18.5 percent were stunted.

In respect of mid arm circumference (MAC) 54.5% were malnourished (MAC <22), while 45.5% were normal (MAC>22).

The present study shows that age and disease has a close relationship. It shows that disease tend to increase with increase in age. Based on chi-square test it was found that income and periodototitis was significantly associated.This study has described and summarized the evidence regarding the association between nutritional status and periodontal health status in school going girls. However, the causal relation between anthropometric measurements (nutritional status) and periodontal diseases in school going girls remains unknown and has become an emerging public concern. There is a strong need for conducting a more careful longitudinal study.

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Single step border molding and final impression with Silicone

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Abstract:

The history of complete denture impression procedures has been influenced largely by the development of impression materials from which new techniques and ideas arose. Border molding is the process by which the shape of the border of the an impression tray is made to conform accurately to the contours of the buccal and labial vestibules. It is an important step in fabrication of complete denture. It can be done in two methods, incremental or sectional, and single or one step. The objective of this study was to evaluate the retention and stability of complete denture fabricated by using addition silicone putty as single step border molding impression material and final impression with same material(light bodied silicone). Patients were selected from prosthodontic department of Dhaka Dental College and Hospital. Ten patients were studied, completely edentulous only in upper jaw, having well formed alveolar ridges. Dislodgement test of custom tray was accomplished after border molding. Clinical tests for retention were performed after fabrication of complete denture. All were satisfactory. Good result was obtained with less difficulty and less expenditure of time by an impression technique with one step border molding using addition silicone putty.

Key words: *Border molding, addition silicone putty, thixotropicity, complete denture.*

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Introduction:

Border molding is an important procedure in fabrication of complete denture. It promotes the development of border seal; maintain the contact of the denture border with the adjacent vestibular tissues during rest as well as in functional activity. Materials like light polymerized resin[1], cold cure resin[2], periopack[3], tissue conditioner and elastomers[4], are reported to be used for single step border molding. Low fusing compound impression material is commonly used border molding impression material. It requires separate applications of material to different sections of the tray borders, is a time consuming procedure. There is a risk of burn or scald of patient's mouth. Patient may become irritated for lengthy procedure.

Elastomeric impression materials are most commonly used as a substitute for low fusing compound as they meet all of the requirements. Heavy body putty silicone has been used for border molding instead of low fusing compound. Light body silicone has been used as final impression material. It can be placed continuously along the entire border of an individual tray, and the border of the tray can be molded at a single stage. In addition, it also had high degree of accequracy, dimensional stability and ease of manipulation.

Materials and methods:

Patients were selected from prosthodontic department of Dhaka dental college and hospital. Ten patients completely edentulous only in upper jaw, having well formed alveolar ridges, including proper height and thickness, no severe undercuts or bony exostosis, firm mucosa of moderate thickness all over the denture bearing areas and with no signs of inflammation, ulceration or hyperplasia were selected.

In clinical procedure at first primary impression was taken with alginate impression material. Primary cast was poured. A custom tray was fabricated over the primary cast. Periphery of the tray was reduced 2mm short of the vestibular reflection. The posterior palatal border contained both hamular notches and extended approximately 2mm posterior to the vibrating line. Adhesive for silicone impression was painted on the borders of the tray 3mm inside and outside the borders. One scoop of silicone putty was thoroughly mixed by hands with its catalyst for 30-45 seconds then rolled and applied to all the borders of

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the upper tray and across the post palatal seal area[5]. The tray was then inserted by a rotating motion in the patient's mouth, oriented in position and centered over the residual ridge by finger pressure applied bilaterally in the premolar region. Border molding was carried out. The tray was removed from the mouth when the impression material has set. After removal of the border molded impression tray, all peripheral borders were inspected to assure appropriate anatomic and functional detail and the rounded contours of the borders[6]. Any deficient sites were corrected with a small mix of material added to the appropriate area. Overextensions were readily detected because the tray was protrude through the putty material and adjusted with scalpel as necessary. Also excess material that has flowed onto the external portions of the tray was removed. The tray was then subjected to dislodgement tests[7]. The tray was inserted, and the buccal and labial mucosa was allowed to drape passively over the flanges of the impression tray. The operator, from behind and to the side of the patient, the tray seal was checked on the opposite side by rolling pressure of the index finger away from the side being checked. A finger was placed in a protective position just below the tray of side being tested. So further border molding was done until an effective seal was attained. When the tray resisted dislodgement, the same testing procedure was used on the opposite side. Retention tests of the trimmed tray were performed.[8] The tray was refined then for final impression. Adhesive was once more painted on the tissue surface of the tray and equal amounts of base and catalyst light body silicone were mixed and placed on the tray to cover the basal surface of the tray and the borders. The loaded tray was then seated in the patient's mouth and molding was performed in the usual manner. The completed impression was removed from the patient's mouth and inspected for acceptability. The impression was poured into dental stone to obtain master casts on which heat cured acrylic trial denture bases were constructed. Clinical evaluation of retention of trial bases was done and the patients were requested to comment on the retention of each trial denture base. Over this base, denture was fabricated and inserted to the patient's mouth and clinical evaluation of retention was done. Retention of the denture was checked by seating the denture with a finger on the vault of the palate and the tissues of the cheek and lip was allowed to settle around the denture then attempting to remove the denture at right angles to the occlusal plane, gripping the buccal surface between the thumb and forefinger in the premolar region. Load was then applied upwards and outwards in canine region to check the retentive force in the contra lateral corner of the denture, i.e. in the region of the tuberosity vestibular space and pterygomaxillary notch. Other side was tested in the same way.

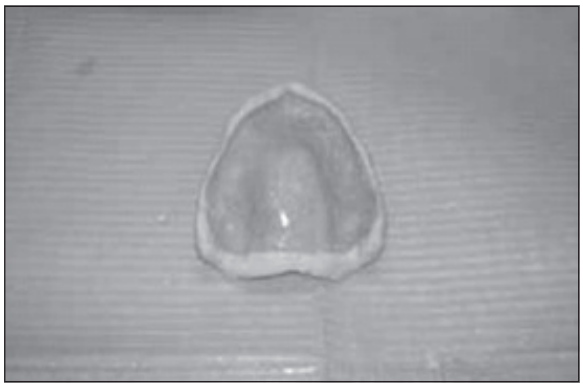

Fig.-1: *Border molded with silicone putty*

Fig.-2: *Final impression with light body silicone*

Result:

Putty silicone as border molding material and final impression with light body silicone showed acceptable retention. In dislodgement test of the tray resistance was felt. Clinical evaluation received by the denture base and completed denture was also satisfactory.

Discussion:

Construction of a retentive complete denture for various edentulous patients is one of the goals of the prosthodontists. An irretentive denture disturbs all other goals as speech, mastication and in turn affects patient's psychology. One of the limitations of using low fusing compound impression material for border molding is its short manipulation time. This is not truly possible with low fusing compound to have uniform consistency. It is difficult to complete border molding in one step. Woelfel et al.[9] reported that seven prosthodontic instructors required an average of 17 placements to obtain a maxillary final impression on the same patient using modeling plastic

as border molding material. It is also lacks thixotropicity, this material when unsupported for more than 2mm cannot maintain its height when bulk is added along the borders. During manipulation it is softened on an open flame, and later tempered in warm water before it is placed in patient's mouth. Inexperienced operator may burn the tissue, and patients had anxiety and fear of being burnt, so they cannot remain relaxed during molding process. The softening and hardening of low fusing compound varies from one portion of special tray to another depending on the application of external heat. Thus viscosity of softened low fusing compound may differ from one area to another. As a result, that part of the tray having compound of higher viscosity may offer greater resistance to displacement by the tissues that part having low viscosity material. Polyether is an elastic type of impression material useful as a border molding material. But it is not compatible with the addition silicone impression material. So cannot be used to border mold custom trays when the silicone impression materials are to be used as the final impression material. Setting and working time is shorter. Putty and light body silicone impression material showed desirable retention in clinical examination. This evaluation supports the findings of Appelbaun and Mehera[10], Mitchener and Omori[11] and Massad and Cagna[12] who recommended the use of rubber base as a material for border molding and final wash impression.

The advantages of this approach are simplicity, ease of manipulation, decreased discomfort to the patient, short chair time and accurate reproduction of undercut areas. In the typical edentulous maxilla characterized as having average ridge dimensions, high viscosity silicone works well as a border molding material. The material has clinically acceptable tear strength and sufficient elasticity. When soft and hard tissue undercuts are encountered during impression making, the impression can be retrieved from the mouth with clinically acceptable elastic recovery. Sequential additions of new impression material to existing, cured material in the tray will effectively adhere when polymerized. This permits a layering or build up approach to impression making .[12] Thus it is clear that the recent advances in impression materials has resulted in simplified approaches to impression making in removable prosthodontics. Working time is 3-5 mines, which can be easily modified with use of retarders and temperature control. No smell , no taste. Addition silicone impression material is available both hydrophilic and hydrophobic variety. The addition of nonionic surfactants produces hydrophilized addition silicone. These more hydrophilic materials wet soft and hard tissue better, facilitate the gypsum products, and result in improved dental cast surface properties.[13] They are most accurate of elastic impression material, less polymerization shrinkage, low distortion, fast recovery from deformation and moderately high tear strength and biocompatible.

Conclusion:

Within the limitation of this study, the following conclusion was drawn. Same type of material was used for border molding and final impression for better adhesion. Dentures made using putty silicone for border molding and light body final wash showed acceptable complete denture retention stability on clinical examination. The above material can be recommended in view of its ideal physical properties, improved hydrophilic, tray adhesives, disinfection, glove induced polymerization inhibition, simplicity, accuracy and convenience to the patient and clinician.

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A clinical study of Sarcoma of jaw and orofacial region

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Abstract:

Background: *Sarcoma of jaw and orofacial soft tissue is rare, constituting between 4-8% of all malignancies in the region. A few case reports of individual tumors are available while reviews of significant series is lacking. An observational descriptive study (March' 2007 to Feb' 2011) was performed at Oral and Maxillofacial Surgery department, Dhaka Dental College and Hospital. This study presents 20 cases of sarcoma collected over 4 years at a tertiary oral care centre in Dhaka, Bangladesh.* ***Objectives:*** *To find out the distribution & pattern of Sarcoma among all oral malignancy and to find out the age, sex, site, clinical presentation and the histological types of these tumors* ***Method:*** *Histopathological types of the sarcomas were analyzed to indicate the numbers that occurred and also the pattern of occurrence according to age, gender, site and clinical presentation.* ***Result:*** *There were 138 maxillofacial malignancies of which 20 (14%) were sarcomas. Seven histopathologic types were found of which osteosarcoma (30%), fibrosarcoma (20%), Ewing's sarcoma (20%), malignant fibrous histocytoma (15%) were predominant. The male to female ratio was 1.86:1. Patients with sarcoma were between 3.5 years and 70 years (mean age 34.3±20.3 years) with most patients (35%) in 35 to 45 years of life. Case presented with symptoms such as swelling (100%), pain (70%) and tissue ulceration (30%). Surgery was performed for 70% of cases treated while chemotherapy was used for 50%.* ***Conclusion:*** *In Dhaka Dental College Hospital, sarcomas account for 14% of all maxillofacial malignancies with the osteosarcoma as the predominant type. Most affected were people in the fourth decade of life. Surgery was the main modality used for treatment while some patients had no treatment due to self discharge and late presentation.*

Keywords: *Oral Malignancy, Sarcoma, Osteosarcoma*

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Introduction:

Sarcomas are malignant neoplasm derived from cells of mesenchymal origin. The originating tissue is diverse and includes bone, cartilage, muscular, fibrous, vascular, fatty and neural tissue. In the oral and maxillofacial region, sarcomas are uncommon. Compared to carcinomas, sarcomas are rare. Incidence of sarcoma in jaw and orofacial soft tissue area varied depending upon different population reported by researchers. Sadat et al[2] reviewed 139 cases of oral malignancies from Bangladeshi population among which sarcomas were 12.9% , Budhy et al[1] found 4% sarcoma while squamous cell carcinoma made up 70% from East Java, Indonesia . Adebayo et al[3] examined 406 maxillofacial malignancies from Kaduna, Nigeria of which 80 (20%) were sarcoma. Sarcomas may appear at any age, the earliest reported being Gallagher et al[30] in a 16 months old baby, Adebayo et al[3] reported in one 24 months old baby, while Hoffman et al[28] reported one in patient 84 years old. It tends to affect considerably younger group than that of carcinomas. Male are slightly more affected than female by jaw and orofacial soft tissue sarcoma. According to Yamaguchi et al[5] mean age was 42 years; male to female ratio was 3:1. The median age was 46 years and male to female ratio was 2:1 in 36 head and neck soft tissue sarcoma reviewed by Rabindra.[12] 31.3 ±14.1 years were mean age and male to female ratio were 2.3:1, reported by Pandey.[26] Clinical presentation of orofacial sarcoma depends upon the histological types and location of the tumor. Adebyao et al[3] reported that orofacial sarcoma presented with symptoms such as swelling (100%), pain (54%), and tissue ulceration (26%). Pandey et al[27] reported that symptoms of their patients were progressive swelling

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or mass which was present in all cases, painful in three (13.6%), painless in the rest, facial nerve palsy was present in one case and bleeding was present in another. The median tumor size was 5.5cm (range 0.6-13cm) according to Robindra et al.[12] Any type of sarcoma can affect the oral tissue. Sarcoma in the maxillofacial area has wide variety of histological types. Weber et al[21] reported that the most common soft tissue sarcoma occurring in the head and neck area is rhabdomyoasarcoma (RMS), followed by malignant fibrous histocytoma (MFH), fibrosarcoma and neurofibrosarcoma. Osteosarcoma is regarded as the tumor most frequently manifested in the bones and the lower jaw[6] , chondrosarcoma one half as frequent as the osteosarcoma but twice as common as Ewing's tumor.[29] Adebayo et al[3] found maxillofacial sarcoma as osteosarcoma (28%),chondrosarcoma (17%), rhabdomyosarcoma (12%) and fibrosarcoma (12%). Hard tissues are more affected (72%) than soft tissue (11%) by sarcoma in maxillofacial region.[3] The primary sites of sarcoma according to Yamaguchi[5] included the maxilla, maxillary sinus, mandible, buccal mucosa, temporomandibular fossa and submandibular region. Sarcomas grow rapidly, are invasive destroy surrounding tissues and usually spread by the blood stream. Their occurrence result in considerable morbidity and mortality. Head and neck sarcomas have high mortality rate with a high risk of recurrence. According to Penel et al[25] 2 years overall survival was 71% and the 5-year overall survival was 52.3%. Rabindra et al[12] reported overall survival was 49% at 5 year. In Bangladesh, few reports of maxillofacial sarcoma have been published but detailed studies are lacking. So this present study was designed to evaluate the clinicopathologic characteristics of sarcoma in maxillofacial region which would shed some more light on this lesion .

Materials & Methods:

The study was carried out in the department of Oral and Maxillofacial Surgery, Dhaka Dental College Hospital from March 2007 to February 2011. Patients admitted with maxillofacial sarcoma irrespective of age and sex were selected for the study. Sample size of the study was 20, of them 13 were male and 7 cases were female. Histopathological types of the sarcomas were analyzed to indicate the numbers that occurred; and also the pattern of occurrence according to age, gender, site and clinical presentation. A standardized structured data collection sheet was used to collect necessary information of the subject group. Data sheet included all of the variables regarding to the study. Data were screened and cleaned for any discrepancy. After cleaning data were entered into template of SPSS@16 software. Descriptive statistics were generated to see the distribution of baseline characteristics of the patient.

Results:

Table-I

Distribution of orofacial sarcoma in maxillofacial Region.

Type	Number	Percentage (%)
Squamous Cell Carcinoma	110	79.71
Maxillofacial Sarcoma	20	14.49
Other Malignancies	8	5.79
Total	138	100

There were 138 cases of malignant neoplasm of the oral and maxillofacial region within the study period of which 20 (14%) were sarcoma as compared to 110 (80%) cases of squamous cell carcinoma.

Table-II

Distribution of the respondents by Age

Age in group	Frequency	Percent
Less than 15 years	4	20.0
15 to 30 years	5	25.0
30 to 45 years	7	35.0
45 to 60 years	1	5.0
More than 60 years	3	15.0
Total	20	100

Mean 34.3±20.3, Min-3.50 and Max-70.00

Majority of the respondents (35%) were in the age between 30 to 45 years, 5(25%) were aged between 15 to 30 years, 4(20%) were less than 15 years of age 3 (15%) were more than 60 years of age and only 1(5%) were found at the age between 45 to 60 years. Mean age was 34.3±20.3, min-3.5 years and max-70 years.

Table-III

Distribution of the respondents by sex

Histopathological diagnosis	Male	Female	Total
Osteosarcoma	4(20%)	2(10%)	6(30%)
Malignant-fibrous histocytoma	2(10%)	1(5%)	3(15%)
Fibrosarcoma	3(15%)	1(5%)	4(20%)
Chondrosarcoma	1(5%)	-	1(5%)
Ewing's sarcoma	2(10%)	2(10%)	4(20%)
Rhabdomyosarcoma	-	1(5%)	1(5%)
Others	1(5%)	-	1(5%)
Total	13(65%)	7(35%)	20(100%)

Among the 20 respondents 13(65%) were male and rest 35% were female.

*Others- Ameloblastic fibrosarcoma

By the site, most 14(70%) of the lesion were found at mandible, 2(10%) at maxilla and 1(5%) each at the site of buccal mucosa, oral cavity, sinus and TM joint.

The above table shows that 12(60%) diameter of the lesion were < 25 sq.cm, 6(30%) were size between 25 - 50 sq.c.m and only 10% were found > 50 sq.c.m in diameter. Mean diameter was 28.4±27.0 and min-5 sq. cm and max- 120 sq. cm.

Among the 20 respondents majority 6 (30%) were diagnosed as Osteosarcoma, 3(15.0%) were found Malignant fibrous histocytoma, 4(20%) were diagnosed as fibrosarcoma, 1(5%) was chondrosarcoma, 4(20%) were Ewing's sarcoma, 1(5%) rhabdomyosarcoma and 1(5%) was other and all 20(100.0%) had a complaint of swelling, 14(70.0%) were presented with pain, 1(5.0%) with nasal bleeding, 6(30.0%) with ulceration, 2(10.0%) had paresthesia, 3(15.0%) had toothache, 3(15.0%) were presented with loose tooth, 4(20.0%) were limitation of mouth opening and 1(5%) had other clinical feature.

Table-IV

Distribution of the Lesion in Maxillofacial region

Histopathological diagnosis	Mandible	Maxilla	Buccal mucosa	Oral cavity	Sinus	TM joint
Osteosarcoma	4	2	-	-	-	-
Malignent fibrous histocytoma	3	-	-	-	-	-
Fibrosarcoma	3	-	1	-	-	-
Chondrosarcoma	-	-	-	-	-	1
Ewing's sarcoma	3	-	-	-	1	-
Rhabdomyosarcoma	-	-	-	1	-	-
Ameloblastic fibrosarcoma	1	-	-	-	-	-
Total (20)	14(70%)	2 (10%)	1(5%)	1(5%)	1(5%)	1(5%)

Table-V

Distribution of the respondents by Diameter of the lesion

Diameter of the lesion (Sq.cm)	Frequency	Percent
< 25 sq.c.m	12	60.0
25 - 50 sq.c.m	6	30.0
> 50 sq.c.m	2	10.0
Total	20	100.0

Mean 28.4±27.0, Mini-5 sq. cm and Max-120 sq. cm

Table-VI

Distribution of the lesion by Histopathological findings and Clinical features

Clinical feature	Osteosarcoma	Malignent fibrous histocytoma	Fibro sarcoma	Chondro sarcoma	Ewing's sarcoma	Rhabdomyo sarcoma	Others	Total
Swelling	6(100%)	3(100%)	4(100%)	1(100%)	4(100%)	1(100%)	1(100%)	20
Pain	5(63.3%)	3(100%)	2(50.0%)	1(100%)	3(75.0%)	0(.0%)	0(.0%)	14
Ulceration	1(6.7%)	1(33.3%)	2(50.0%)	1(100%)	0(.0%)	1(100%)	1(100%)	06
Paresthesia	1(6.7%)	0(.0%)	1(25.0%)	0(.0%)	0(.0%)	0(.0%)	0(.0%)	02
Nasal Bleeding	0(.0%)	0(.0%)	0(.0%)	0(.0%)	1(25.0%)	0(.0%)	0(.0%)	01
Toothache	0(.0%)	1(33.3%)	2(50.0%)	0(.0%)	0(.0%)	0(.0%)	0(.0%)	03
Loose tooth	0(.0%)	1(33.3%)	0(.0%)	0(.0%)	1(25.0%)	0(.0%)	1(100%)	03
Limitation of mouth opening	1(6.7%)	0(.0%)	1(25.0%)	1(100%)	0(.0%)	1(100%)	0(.0%)	04
Others	0(.0%)	0(.0%)	1(25.0%)	0(.0%)	0(.0%)	0(.0%)	0(.0%)	01
Total	6 (30%)	3(15%)	4(20%)	1(5.0%)	4(20%)	1(5.0%)	1(5.0%)	20(100%)

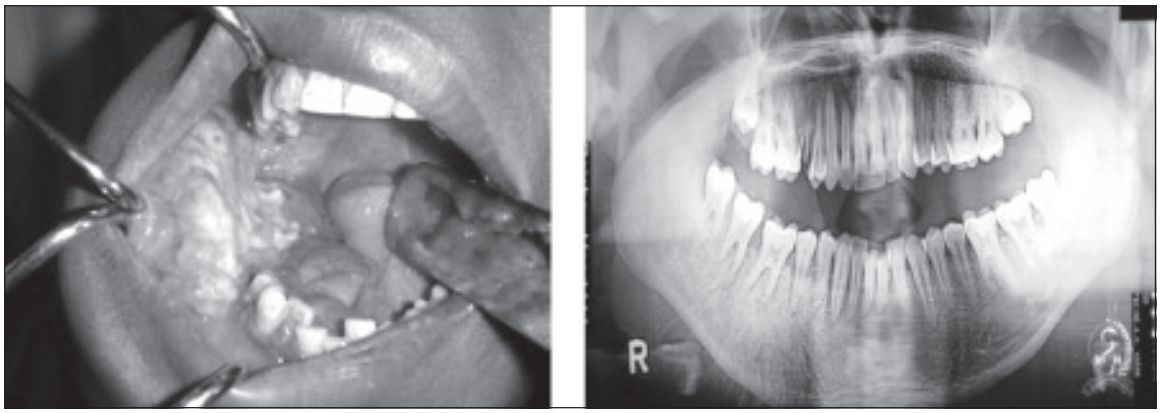

Fig: *Clinical & Radiological image of a case of Osteosarcoma.*

Discussion:

The incidence of maxillofacial sarcoma is unknown. Budhy et al[1] examined 994 histopathological specimens of maxillofacial malignancies from East Java, Indonesia. They found 42 (4%) sarcomas in their sample. Adebayo et al[3] examined 406 maxillofacial malignancies from Kaduna, Nigeria of which 80(20%) were sarcoma. Sadat et al[2] reviewed 139 cases of oral malignancies from Bangladeshi population among which sarcoma were 12.9%. In this study out of 138 maxillofacial malignancies seen at our centre within the last 4 years, 20 (14%) were sarcomas. However we believe that a yearly sarcoma incidence of 5 cases in the estimated population served by our center shows rarity of this lesion in the population.

The most common sarcoma is controversial. It depends on age group, site and possibly racial factors. According to Soule et al[14] rhabdomyosarcoma is the commonest oral and maxillofacial sarcoma of childhood while in adults; osteogenic sarcoma (osteosarcoma) is predominant.[7] It is the belief of Miller and Dalager[16] that rhabdomyosarcomas are commoner among Caucasians than Negroes speculating a genetic factor in the Caucasoid stock.

In Ibadan, Nigeria, osteosarcoma accounts for 37% of sarcomas over a 15 years period from the report of Daramola et al.[15] Yamagychi et al[5] reviewed 32 cases sarcomas involving the oral and maxillofacial region of them 9 (28%) cases of osteosarecoma. As with other reports, the most common sarcoma in our series was osteosarcoma (30%) (Table-VI). This is similar to the 30% incidence from Pretoria, South Africa.[17] Among 6 cases of osteosarcoma found in our series, there were fewer females than males, ratio was 1:2. This is slightly higher than male to female ratio of 5:3 found from 8 cases.[8]

Unlike in the rest of the human body where osteosarcoma occurs mostly in the 2nd decade, that of the maxillofacial region occurs in older persons (mean age 38years) from the study of Harrison and Lund.[22] Six patients (30%) in our series with osteosarcoma were between 18-60 years old showing its bias for occurrence in adults (Table-II).

Sarcomas can originate in any part of the body but certain types show a predilection for some parts of the maxillofacial region. Considering specific neoplasm's, osteosarcoma occurs more in the maxilla 8(58%) than the mandible 6 (42%) from the work of Mardinger et al.[23] Though soft tissue involvement by the tumor can occur it is rare. Table 4 showed that among 6 cases of osteosarcoma more occurred in the mandible (66%) than maxilla (34%).

Sarcomas could be detected during routine examination for other conditions or due to non-specific symptoms. Since cure of orofacial malignancies is enhanced by early detection and initiation of adequate treatment, the dental surgeon or medical practitioner has a vital role to play in early detection particularly at the asymptomatic stage through opportunistic screening.[18] The presenting features of sarcomas are non-specific and depend on tumor location, size, rate of growth, duration and the level of cancer awareness of the individual.[18] Cases of osteosarcoma reported by Doval et al[8], presented as swellings of the jaws while a few had pain, tooth loosening, derangement of teeth and ulceration. In our 6 patients main features encountered were swellings (100%), pain (83%), ulceration (16.7%), paresthesia (16.7%) and limitation of mouth opening (16.7%) (Table-VI).

Chondrosarcoma is less common than osteosarcoma from reports, Rafindadi and Ayuba[7], had 12% incidence of chondrosarcoma. This is found higher (5%) than our study (Table-VI). The lesion occurs more in males than females, ratio 2:1,[31, 32] but in our study only one case was found out of 20 maxillofacial sarcomas (Table-VI). In the mouth and jaws, the lesion afflicts younger persons than in other

parts of the body.[22] In this study, one chondrosarcoma male patient was 65 years old. Primary chondrosarcoma affects the maxilla more than the mandible (Adekeye et al and Arlen et al). The site of the lesion in our patient was mandible and presented with painful swelling and limitation of mouth opening. Larger series are needed to ascertain the actual site predisposition for chondrosarcoma among our population.

Among three forms of sarcoma reported by Rafindadi and Ayuba[7], fibrosarcoma accounted for 38%. This is much higher than our result. There was sexual bias in 4 fibrosarcomas of the maxillofacial region found in our series which contrasts with the slight female predominance by a ratio of 1.3:1 in the Dutch report.[9] Fibrosarcomas occur in the soft tissues of the maxillofacial region followed by the maxillary sinus, other paranasal sinuses and the nasopharynx.[19] Slootweg and Müller[9] considered the lesion in the jaws of Dutch population and found more in mandible (n=5) than maxilla (n=2). Our 4 cases were distributed between the mandible 75% and buccal mucosa 25%. Harrison and Lund[22] noted that difficulties occur in distinguishing maxillary lesions on the basis of origin from soft tissues such as periosteum or intraosseuos. The large sizes of tumors seen in this series emphasize this problem. Slootweg and Müller[9] found that out of seven cases of fibrosarcoma, painful swelling occurred in 3 persons with tooth loosening, pathological fracture, trismus and paraesthesia of the lower lip in one case each. Out of four cases in our study all are presented with swelling with or without pain, ulceration, toothache, paresthesia and limitation of mouth opening.

Tumor rarity makes incidence of malignant fibrous histiocytoma among other oral and maxillofacial sarcomas difficult to find. It accounted for 15% of sarcomas in this study. There are slightly more males than females with malignant fibrous histiocytoma in the maxillofacial region.[20] We had three patients among them two were male and one were female. Harrison and Lund[22] stated that the lesion occurs mostly in the 6th decade. Cases of malignant fibrous histiocytoma were between 13 and 54 years old (mean 34).[27] In our series, one patient was 9 years, one was 45 years and another was 70 years old (mean 41) demonstrating its predilection for older people unlike rhabdomyosarcoma. Malignant fibrous histiocytoma was found more in the hard tissues such as bone than in soft tissues.[26] Out of three lesions they reported, two were in the jaws while one occurred in the scalp. Our three cases were in the mandible (n=3) (Table-IV). In this series, the lesion presented with swelling, pain, ulceration, and derangement of teeth. These are not dissimilar to features of malignant fibrous histiocytoma in another report.

Ewing's sarcoma is a highly malignant tumor which develops from medullary tissue of bone. It accounts for 4 to 5 percent of all primary bone tumors.[29] Ewing's sarcoma is the second most common malignant bone tumor of childhood and adolescent, yet it is a rare tumor. Less than 3% of all Ewing's sarcoma originates in the maxillofacial region, usually involving the mandible, 90% occur in the first three decades of life and males are more often affected than females. Clinical symptoms such as swelling, pain and sensory disturbances are rather unspecific and sometimes be misleading.[10] We had 4 cases of Ewing's sarcoma patients of them 2 cases were male and 2 cases were female. Three cases were involved in the mandible and rest was in the sinus. Patients age range was 3.5 years to 45 years (mean age was 25 years), we had two patients those age were above 40 years which is similar to Proamate et al[13] study. Our Ewing's sarcoma patient's main clinical presentation was swelling and pain with ulceration, nasal bleeding and loose tooth.

Rhabdomyosarcomas can occur at any age but the lesion is commonest in the first decade of life making it the commonest maxillofacial sarcoma of childhood.[14] Five cases were recorded in India by Pandey et al[27], whose mean age was 16 years (range 4-33years) with 80% in the 1st and 2nd decades. We had one case of rhabdomyosarcoma which involved in the oral cavity and patient age was 12 years, clinical presentation was swelling, ulceration and limitation of mouth opening.

Muller Susan et al[24] reported five cases of ameloblastic fibrosarcoma, the malignant counterpart of the ameloblastic fibroma, is a rare odontogenic tumor characterized by benign epithelium and malignant fibrous stroma. The mean age of the patients was 14.6 to 22 years. Park Hae Ryoun[11] reported a highly malignant ameloblastic fibrosarcoma located in the right retromolar region. The patient was 17-years old male and his complaint was painful mass in this region. Clinically, the patient had an exophytic strawberry-appearing mass in the right retromolar area with loosen the lower right second molar. We had a male case of ameloblastic fibrosarcoma that was involved in the right retromolar area, presented with painless swelling with loose tooth; size was about 3×3cm.

Especially in developing countries such as Bangladesh, poverty, ignorance about medical problems and poorly developed medical infrastructure contribute to morbidity and mortality from malignant conditions such as sarcomas and carcinomas. While patient management is improved

with adequate diagnostic and treatment facilities, health care must be accessible for the population to benefit. To improve the patient survival and freedom from recurrence, there is need for increased cancer awareness and funding for the health sector in Bangladesh. Also, regional cancer treatment centers are necessary to cope with the prevalence of malignancies in our environment.

Conclusion:

In Dhaka Dental College Hospital, sarcomas account for 14% of all maxillofacial malignancies with the osteosarcoma as the predominant type. Most affected people were in the fourth decade of life. Surgery was the main modality used for treatment while some patients had no treatment due to self discharge and late presentation. The need for improved medical awareness and upgrading of infrastructure was stressed.

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The prospective observational study of exploratory laparotomy in polytrauma victims with abdominal injury

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Abstract:

Background: *Polytrauma have the highest incidence of mortality among trauma patients that is now posing a serious public health problem. Prompt diagnosis along with appropriate management is essential for better outcome.* ***Objective:*** *This study was aimed to evaluate pattern of abdominal injury and to investigate factors influencing the management of patients suffering from polytrauma with abdominal injury.* ***Methods:*** *This prospective observational study was conducted in the Department of Casualty and Department of Surgery in Bangabandhu Sheikh Mujib Medical University from January 2005 to January 2008.* ***Results:*** *40% of the patients were between ages 21 & 30 years while 85% were males. 60% trauma was caused by penetrating injury and 33% by non penetrating injury. 55% could reach the hospital within 6 hours and 55% did not receive any primary resuscitation before admission. 54% were haemodynamically unstable of which 37% were in shock when received. 95% presented with abdominal pain and indications for urgent laparotomy were present in more than half of the cases. 84% had associated injuries. 90% were offered operative management in the form of laparotomy. 55% had bowel injury. 33% of the operated patients had uneventful recovery while 66% had complications. Total mortality in the study was 12%.* ***Conclusion:*** *Abdominal injury inflicted by assailant penetrating injury is more severe which needs to be addressed promptly by urgent laparotomy. Both gunshot injury and blunt abdominal trauma from Road Traffic Accident (RTA) usually affect multiple regions of the body.*

Key words: *polytrauma , penetrating injury , laparotomy.*

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Introduction:

Trauma remains the most common cause of death for all individuals between the ages of 1 and 44 years and is the 3rd most common cause of death regardless of age and also the number one cause of years of productive life lost.[1] Traditionally, death from trauma has had a 'trimodal' distribution, with 50% of deaths occurring in the pre-hospital environment, 30% during the 'golden hours' and the remaining 20% occurring later. With the advent of better pre-hospital care at present some 50% of deaths occur in the early in-hospital environment.[2]

A central component to the statistical analysis of trauma care is the probability of survival model, which predicts outcome of the trauma event taking into account various anatomical and physiological factors.[3] One of the key input information to the survival model is the injury score which forms the cornerstone of trauma epidemiology. There are many scoring systems currently in use, and the Injury Severity Score (ISS) as the anatomical component of the injury in the probability of survival model is a widely used one.[3] Polytrauma is defined via an Injury Severity Score ISS >=17, describing a person being subjected to more than one traumatic injuries.[2]

In polytrauma patients, abdomen arguably presents the greatest diagnostic and therapeutic challenge as manifestations from injuries over other parts of the body are more obvious and early, that demands for accurate diagnosis and definitive therapy.[4] 39% of all trauma deaths can be attributed to major haemorrhage, usually from torso injury.[2] To date unrecognized abdominal injuries continue to be the prime cause of preventable deaths after truncal trauma[5].

Methods:

This prospective observational study was conducted in the Department of A&E in Bangabandhu Sheikh Mujib

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Medical University from January 2005 to January 2008 on consecutive 213 polytrauma victims who underwent exploratory laparotomy due to the severity of abdominal injury. 'Polytrauma' cases were diagnosed by definition as a person being subjected to more than one traumatic injuries with an Injury Severity Score ISS >=17. Patients dying preoperatively and with head injury were excluded. All patients received simultaneous assessment according to ATLS guideline and resuscitation after arriving in the hospital. Provisional diagnosis were made based on history of trauma, clinical presentation, and repeated physical examination, supplemented only by some baseline investigations as deemed necessary. Patients who needed massive transfusion and those who had poor haemodynamic conditions despite vigorous resuscitation were operated upon urgently. Decision and choice of operative treatment was offered on the basis of type of injury and clinical findings.

Out of all (247) polytrauma patients 80.28% (213) cases in total needed exploratory laparotomy that concluded our sample. Out of that 6.73% (15) cases failed to find any abdominal injury and thus were designated as 'negative laparotomy'.

The patients were carefully followed up in the post-operative period and if had any complication developed, were treated accordingly. Data was collected by structured data sheet, edited in tabulated format and was manually evaluated.

Results:

Table-I

Demographics of the Trauma Patients: (N=213)

Age	Number of Patients (%)
0-10	4 (1.80)
11-20	25 (11.21)
21-30	89 (39.91)
31-40	55 (24.66)
41-50	31 (13.90)
51-60	11 (4.93)
>60	8 (3.59)
Sex	
Male	185 (82.96)
Female	38 (17.04)

The male to female ratio was 4.87: 1

Table-II

Nature of trauma, causes, time elapsed and haemodynamic status during admission and preadmission resuscitation of the Trauma Patients: (N=213)

Nature of Trauma	Number of Patients (%)
Penetrating injury	133 (59.64)
Non penetrating injury	73 (32.74)
Blast injury	9(4.03)
Crush injury	8 (3.59)
Causes of Injury	
Assault	153 (68.61)
Road Traffic Accident	63 (28.25)
Compression	7 (3.14)
Time Lapsed (Hours)	
0 – 6	123 (55.16)
7 – 12	67 (30.04)
13 – 24	33 (14.8)
Hemodynamic Status	
Normal	14 (6.28)
Stable	90 (40.36)
Unstable	119 (53.36)
Resuscitation before admission	
Received	99 (44.39)
Did not receive	124 (55.61)

Table-III

Clinical presentation of polytrauma victims with abdominal injury (N=213)

Clinical Features	Number of Patients	(%)
Abdominal pain	212	95.07
Vomiting	28	12.56
Dysnpnoea	50	22.42
Dehydration	87	39.01
Hypotension	96	43.05
Anaemia	82	36.73
Haematuria	4	1.79
Abdominal distension	116	52.02
Abdominal rigidity	157	70.40
Abdominal tenderness	212	95.07
Obliteration of liver dullness	91	40.81
Absent bowel sound	100	44.84
Evisceration	38	17.04
Extra-abdominal injuries		
Thoracic Injury	49	21.97
Head injury & facial injury	100	44.84
Pelvic Fracture	5	2.24
Long Bone Fracture	13	5.83
Soft Tissue Injury	121	54.26

Table-IV

Nature of organ Injury types and operative procedure done (n=213)

Organ (Number of injury)	Operative Procedure	Number of Patients	%
Negative Laparotomy	-	15	6.73
Stomach (3)	Simple repair	4	1.79
	Partial Gastrectomy	2	0.89
Small intestine (37)	Simple repair	47	21.07
	Resection and anastomosis	36	16.14
Large intestine (18)	Simple repair	7	3.14
	Right hemicolectomy	15	6.73
	Left hemicolectomyHartmann's Procedure	611	2.694.93
The mesentery (3)	Simple repair	7	3.14
Liver (11)	Repair of laceration	22	9.87
Spleen (9)	Splenectomy	11	4.93
	Repair of laceration	8	
Pancreas (2)	A Roux loop with pancreas with gastrojejunostomy	2	3.59
	Drainage	2	3.59
Kidney (4)	Nephrectomy	3	1.35
Urinary bladder (2)	Primary repair with suprapubic drainage	4	1.79
RetroperitonealHaematoma (5)	Observation	12	5.38
Vascular injury (6)	Repair of Portal vein	3	1.35
	Resection & anastomosis for mesenteric vessel injury	7	3.14

Table-V

Outcome of the Patients following surgery (n=213)

Outcome	Number of Patients	(%)
Uneventful	89	39.91
Wound infection	31	13.90
Wound dehiscence	13	5.83
Intra-abdominal abscess	7	3.14
Anastomotic leakage	2	0.90
Enterocutaneous fistula	4	1.79
Intestinal obstruction	2	0.90
Colostomy related complications	4	1.79
Pulmonary complications	5	2.24
Pyrexia	20	8.97
Others e.g. phlebitis, jaundice, UTI etc.	17	7.62
Post operative bleeding	12	5.38
Death	27	12.11
Mode of Death (N=27)		
Major vessel injury	12	5.38
Liver injury	2	0.90
Post operative bleeding	2	0.90
DIC	2	0.90
Sepsis	7	3.14
Electrolyte imbalance	2	0.90

Table-VI

Time interval between trauma and operation with its outcome. (n=213)

80.28% of the Polytrauma victims with abdominal injury required laparotomy.				
Time interval (hrs)	Patients operated (%)	Uneventful recovery (%)	Morbidity (%)	Mortality (%)
0-6	22.2	65	25	05
7-12	38.8	28.57	65.7	11.4
13-24	38.8	5.71	74.28	20

Discussion:

In our series out of the 213 polytrauma victims who had exploratory laparotomy. The highest incidence (39.91%) was noted in the age group 21-30 years, the most active period of life then decreasing with age indicating that those who are most involved in outdoor activities and are much active in the working places are more subjected to trauma in their daily life. The sex predominance is also towards male (82.96%) with a Male: Female of 4.87: 1. This is due to the fact that males are more involved in outdoor activities hence are more vulnerable to road traffic accidents and occupational accidents and also are more prone to physical assaults.

In this series the majority (59.64%) of the patients had penetrating abdominal injury whether by sharp instruments or by gunshot injury. 32.74% patient had non penetrating abdominal injury. Majority (69%) of the cases of documented penetrating abdominal trauma were due to gunshot/ bullet injury (35%), followed by stab injury (29%). This indicates urgent need of law and order enforcement. Road Traffic Accident (RTA) was the next major cause of polytrauma with abdominal injury and most common cause of blunt abdominal trauma. Many investigators find RTA to be a major cause of non-penetrating abdominal injury in the developing countries[4].

In our study 55.16% of the patients reached A&E Department within 6 hours of the incident. This is quite different from the result in study by *Biswas N*[7] performed in Barisal, Bangladesh in 2004 where the percentage of people arriving before 6 hours was 19%. But *Quader F et al.*[6], who performed the study in DMCH, Dhaka showed that the average time lapse is 5 hours. Our finding has similarity with the study done by *Quader F et al.* in Dhaka as the two cities have similar kind of communication system available.

Transportation time has a direct impact on the outcome of management of traumatic abdominal injury.[9,10] The patients who were operated between 13-24 hours had the highest morbidity and mortality (74.28%, 20%) and the lowest in those who were operated within 6 hours of the incident (25%, 5%). The result clearly shows that the time taken to start the definitive treatment adversely influences the outcome of management. So, receiving surgical treatment without delay gives better outcome in terms of morbidity and mortality.

More than half of the patients (55.61%) did not receive any resuscitation before admission and as a result of this and lack of pre-hospital care 53.36% patients reaching A&E Department were haemodynamically unstable and 21.71% patients were in a state of shock. This is due to lack of operating 'trauma system' as in developed countries.

Haemodynamically unstable patients had worse outcome than those who were stable. 5.38% among who were in shock at the time of admission died during operation. The overall mortality in the series was 12.10%. The Massachusetts General Hospital series study by *Claude E.W. et al (1950)*[11] reported that shock is a grave finding and implies extensive concealed haemorrhage contaminated by gastrointestinal contents.

95.07% patients complained of abdominal pain except those (4.36%) that had altered consciousness owing to shocked status. The pain was diffuse and was moderate to severe in intensity.12.56% had vomiting and 7 patients had hematemesis and 4 patients had haematuria , all of whom had pelvic fracture with associated urinary bladder injury. 38 patients (17.04%) presented with evisceration of bowel, omentum or both. On examination 39.01% patients were dehydrated, 43.05% hypotensive and 36.73% were anemic. Majority of the patients had abdominal tenderness (95.07%), abdominal rigidity was present in 70.04% of cases and abdominal distension was present in 52.02% of patients; upper border of liver dullness was obliterated in 40.08% cases. Bowel sound was absent in 44.84% of patients. In a study by *Hall and Angels* [12], 100% of patients had abdominal pain, 89.3% had tenderness, obliteration of upper border of liver dullness was found in 23.30% of penetrating group and 60% of non-penetrating

group, and in all such cases on laparotomy, it was found to have intra-peritoneal gut injury; there were also a good number of cases without obliteration of upper border of liver dullness. These findings are very close to that of our study.

More than half of the patients had an associated extra-abdominal injury. This finding differs from that of the western series. *Fitzerald, Crawford and DeBakey*[13] found 97% cases to have associated other injuries. All of the RTA patients and bomb blast injury patients had associated injury which is supported by the previous study and also a recent study done by *Miklosh Bala et al*[14].

Out of all (247) polytrauma patients 80.28% (213) cases in total needed exploratory laparotomy and among the operated cases 6.73% was found without any abdominal injury and thus were designated as 'negative laparotomy'.

In our study 65.02% patients had gut injury whereas only 21.52% patients had solid organ injury. This indeed supports recent study by *Miklosh Bala et al*[14]. Among 213 patients in the study 37.21% had injury in small intestine. One case of duodenal injury had associated injury in ascending colon. Large bowel was injured in 17.49% cases. 4 sigmoid colon injury was associated with pelvic fracture. 21 patients had both small and large bowel injury. Liver was injured in 9.87% cases. Among other injuries urinary bladder was found to be injured in 4 cases and all of them had pelvic fracture. 4.93% patients had splenic injury. Only one was isolated splenic injury while others had associated rib fracture. 3 patients had renal injury.6 patients had stomach injury. Pancreas was found to be injured in 2 cases at its body with duodenal injury; another 2 at the tail. Retroperitoneal hematoma was noticed in 12 cases, 7 having only retroperitoneal hematoma and 5 having associated gut injury. 10 Patients had injury of the major vessel. 1 had injury in the abdominal aorta, 3 at the right renal artery, 6 patients had mesenteric vascular injury among which 3 had injury to the portal vein. It is evident that hollow viscus and liver among the solid organs are most commonly injured organs which shows similar pattern described by *Miklosh Bala et al*[14].

39.91% of operated patients had uneventful recovery. Wound infection and wound dehiscence (19.73%) comprised majority of the post operative complications related to surgical site. Poor nutritional status, absence of asepsis in the hospital environment, excessive handling during operation especially by trainee surgeons - all accounted for the high rate of infection and infective complications.

Mortality rate was high (12.02%). In a recent review article *H. Bonatti, and J. F. Calland*[15] showed the mortality among polytrauma victims to be the highest. In our study 6.28% patients died intraoperatively, 5 having injury of the major blood vessels (1 abdominal aorta injury, 1 renal artery injury, 2 hepatic vein injury, 1 inferior mesenteric artery injury) and 1 having a severely injured liver. Although these patients were taken as early possible for laparotomy but due to already compromised hemodynamic status, unavailability of huge amount of blood products and lack of needed facilities an unfavorable ending could not be avoided. Mortality and morbidity was also high in the patients with polytrauma cases described by *Miklosh Bala et al*[10].

Conclusion:

Better outcome of polytrauma patients warrants for a systemic multimodal approach that remains lacking in many developing countries like Bangladesh. Abdominal trauma is often missed and frequently under-estimated in patients with polytrauma as manifestations suffering from injuries over other parts of the body are more obvious and early. This unrecognized injury or uncontrolled bleeding from solid organs or injured vessels is the major cause of high mortality rate. Enforcing law and order to reduce assaults and homicidal injuries, strictly the traffic rules and regulations, ensuring fitness of vehicles, improving condition of the plying roads along with increasing awareness is a must to combat the condition.

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Repair of Furcal perforation with Mineral Trioxide Aggregate: A case report

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Abstract:

The presentation reports the management of an iatrogenic perforation of pulpal floor in the furcation of mandibular first molar, using Mineral Trioxide Aggregate (MTA). Unpredictable endodontic root/pulp chamber floor perforation resulting in unacceptable high rate of clinical failure has now been a lesser threat with the advent of new technologies and biocompatible materials that utilize the applications of basic research in clinical practice. Present case report illustrates the use of MTA for the repair of the perforation defect and regeneration of the lost periodontium in furcation area. Although, histologic events and reaction of MTA is not studied so far, however, the autologous and biocompatible nature of the component used for present treatment modalities seems to be beneficial for the long term clinical results obtained in our case.

Keywords: *Endodontic perforation, repair, mineral trioxide aggregate (MTA).*

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Introduction:

A major complication of endodontic and restorative treatments is accidental perforation of the roots or the pulp chamber floor. Such perforation may occur during nonsurgical root canal treatment or during preparation for a variety of restorative procedures. The result is a chronic inflammatory reaction of the periodontium (characterized by the formation of granulation tissue) that can lead to irreversible loss of attachment or loss of the tooth. Such perforations are managed surgically or non-surgically, depending on the particular characteristics of the case. The prognosis may be questionable if treatment involves a lesion occurring at the level of the radicular furcation, but the prognosis is usually good if the problem is diagnosed correctly and treated with a material having suitable sealing ability and biocompatibility. The prognosis also depends on the location, size and time of contamination of the lesion.

Various materials have been used in managing perforations, including zinc oxide–eugenol, amalgam, calcium hydroxide, composite resin, glass ionomer and resin modified glass ionomer. The ideal material for treating radicular perforations should be nontoxic, nonabsorbable, radiopaque, and bacteriostatic or bactericidal; it should also provide a seal against microleakage from the perforation. Mineral trioxide aggregate (MTA) has all of these characteristics and has been applied with good outcomes in root-end surgery, direct pulpal coverage, apexification, radicular resorption, and repair of lateral radicular and furcal perforation. Its suitability for managing all of these problems can be attributed to its biocompatibility, its low induction of inflammation, its solubility, its capacity for creating a seal between the pulpal chamber and periodontal tissues and its repair capacity. The last of these features can in turn be attributed to the antimicrobial properties and high pH (12.5) of MTA, which promote growth of the cementum and formation of bone, which in turn allow regeneration of the periodontal ligament around the site of injury.

Case report:

A 32-year-old man presented with accidental furcal perforation, which had occurred during access preparation for root canal treatment of mandibular left first molar tooth in our department. Previously he came here with the complaint of broken down restoration and pain during

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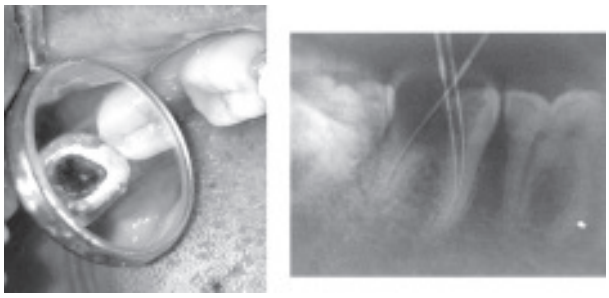
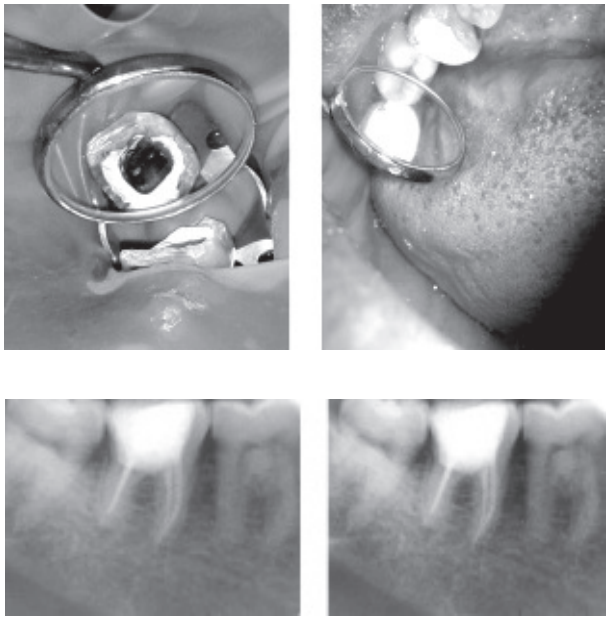
MTA, Angelus (Brazil)



Diagnostic view and Length measuring Radiograph

chewing food on the effected tooth and was attempted for endodontic treatment. The root canal treatment was completed but the obturation revealed unsatisfactory with the persistent complaint of pain. The furcal perforation was confirmed by periapical radiography of the tooth, which revealed osseous breakdown at the furcation. Several treatment options were discussed with the patient, who opted for re-root canal treatment along with repair of the perforation with MTA. A rubber dam was used for isolation, the caries was removed, and the perforation site was copiously irrigated with 0.9% NaCl solution to control hemorrhage and allow visualization of the perforation. The site was disinfected with 2% Chlorhexidine gel. Cotton pellets moistened in saline were placed in the root canals, and the perforation was sealed with white MTA (Angelus, Brazil) mixed with distilled water, as suggested and supplied by the manufacturer. One sachet of MTA was mixed with one drop of distilled water for thirty seconds on a sterile glass slab by a stainless steel spatula. It was placed on the perforation site with a sterilized amalgam gun and was condensed with the amalgam condenser.

The MTA was covered with a cotton pellet moistened with distilled water. The final radiograph obtained at the time of treatment showed evidence that the perforation had been sealed. Then the root canals were sealed again after finding of an additional canal at the disto-lingual aspect. The tooth was restored with a direct restorative material named miracle mix. The patient is now asymptomatic. He is asked to follow-up after one, three, six months and one, two and five years accordingly.



Baseline of repair 6 months follow up

Discussion:

Among the various materials used for perforation repair, MTA has been applied with good treatment outcomes owing to its properties of biocompatibility, low provocation of inflammation, good seal even in presence of moisture/ blood and a high pH (12.5) which promotes growth of cementum and regeneration of periodontal ligament. MTA is primarily composed of calcium and phosphate ions, which are also the main constituents of the dental hard tissues. This resemblance in chemical composition to the tooth structure, the ability of MTA to release Ca ions and its capacity to form hydroxyapatite are stated to be the factors responsible for its sealing ability, biocompatibility and dentino-genic activity. The highly biocompatible nature of MTA and its tendency to induce osteogenesis and cementogenesis makes it a suitable candidate for pulpal floor/root perforation repair and attaining regeneration of periodontal attachment.

Furcal perforation is an undesirable problem may occur during root canal treatment or post preparation. Similarly, a risk of perforation may arise during removal of affected tissue in a patient with caries involving the pulpal chamber. In either case, the situation can be quickly addressed, which is important, as immediate treatment will help ensure a positive prognosis. In the case presented here, the

problem was resolved promptly by application of MTA. Two major brands of MTA are available on the market: MTA-Angelus (used in the case described here) and Pro-Root MTA (Maillefer, Dentsply, Switzerland). Both products are available in grey or white. According to the manufacturer's material safety data sheet, Pro-Root MTA is composed of 75% Portland cement, 20% bismuth oxide and 5% dehydrated calcium sulfate. MTA Angelus is composed of 80% Portland cement and 20% bismuth oxide, with no calcium sulfate. The dominant compounds in both types of Pro-Root MTA are calcium oxide, silica and bismuth. However, the grey version has greater concentrations of aluminum oxide (122% higher), magnesium (130% higher) and iron (1000% increase). Although both the grey and the white versions of Pro-Root MTA perform similarly in terms of furcal sealing and antimicrobial effectiveness, the grey version has a more favorable behavior in vitro in terms of development of odontoblasts, whereas the white version is with development of cementoblasts and keratinocytes. The white version gives a better final appearance than the original grey MTA, which can create a shadow under thin tissue. Both the grey and the white versions of MTA-Angelus and Pro-Root MTA have numerous similarities: pH 9 after 168 hours, minimal concentration of arsenic (0.0002 ppm), overall composition, biocompatibility, inflammatory response, sealant ability, in vitro fibroblastic stimulation and antimicrobial activity. However, MTA-Angelus has greater release of calcium in the first 24 hours of activation and a lower concentration of bismuth.

MTA is difficult to manipulate because of its granular consistency, slow setting time and looseness. Pro-Root MTA contains fewer large particles and fewer small particles than MTA-Angelus. Generally speaking, white MTA contains smaller particles than grey MTA, with a narrower distribution of sizes. MTA-Angelus particles have relatively low sphericity and a wide size distribution, and they are less homogeneous than Pro-Root MTA. The main disadvantage of Pro-Root MTA may be its long setting time. MTA-Angelus contains no calcium sulphate, which reduces its setting time to 10 minutes. Contamination of the blood should be avoided when using this type of material, as such contamination can reduce the retention capacity of the MTA. Previously some authors have stated that contact with adjacent tissues may increase the sealant capacity of MTA, since an acidic environment (such as tissue) may increase this property. In the case presented here, sealing of the lesions could be observed, with some extrusion of the material. To prevent overfilling or underfilling, a resorbable collagen matrix can be applied before placing the MTA, but use of a matrix depends on the size of the lesion. Success has been reported both with and without the matrix. At present, there is no size classification for furcal lesions to determine appropriate treatment and prognosis; therefore, all options are considered to have a guarded prognosis. In the case presented here, the lesion affected almost the complete dimension of the furcal region, but did not affect the internal walls of the roots; this limited the lesion overall and indicated a lateral boundary against which to place the material. If the lesion had been larger, it would have been necessary to apply a matrix base before placing the MTA. In this case, the lesion was more circumscribed and had a vertical entrance, characteristic of accidental perforation with a diamond bur; osseous destruction was also greater. Although use of MTA has been reported for several different endodontic treatments, the literature on its success in cases of furcal perforation is limited. A common clinical presentation of furcal perforation has been described here.

Conclusion:

The prognosis of furcal perforation is better today than it was in the past, and this is due to the improved vision as well as the use of extreme biocompatible materials such as MTA. With this approach, perforations can be more predictably repaired without surgery, thus reducing the need for invasive procedures. Because it is hydrophilic, MTA can today be considered the ideal material seal perforations. In fact, cementum has been shown to grow over MTA, allowing for normal attachment of the periodontal ligament. Furthermore, MTA doesn't require a barrier, is not affected by moisture or blood contamination, and seals better than any other material. MTA is a very interesting and promising product in these purposes. More scientific studies on MTA are therefore absolutely necessary.

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Management of non carious cervical tooth lesion by Nano-Ionomer: A case report

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Abstract:

Many noncarious lesions are being considered since a long with etiology of tooth structure loss that includes attrition, abrasion, erosion and abfraction. In this case report, the patient presented with the complaint of moderate hypersensitivity on his lower right premolar teeth. On clinical examination, his cervical region with smooth shiny surfaces. On vitality test with ice stick, the offending teeth showed more sensitivity comparing to adjacent teeth. A diagnosis of multiple cervical abrasions was made and treated with nano-ionomer (Glass-ionomer with nano-technology) as a restorative material with a high level of patient satisfaction. However, a long term clinical observation is necessary.

Key words:Non carious cervical lesion, Abrasion, Nano-ionomer.

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Introduction:

Non carious cervical lesion (e.g. abrasion, erosion and abfraction) is a significant dental health problem. The areas of non carious cervical lesions are considered as one of the most difficult areas of restoration, because it usually occurs due to loss of hard tissues at the cement-enamel junction or its adjoining one third portion of the crown/root[1].

Furthermore, they are usually seen in the region of plaque accumulation such as near the gingival or under proximal contact. The lesions are characterized by the formation of smooth, polished surfaces, irrespective of their aetiology. Another characteristic of this lesion is many patients complaint of severe sensitivity and it may affect the vitality of the pulp tissue.

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There are many of this condition, including bruxism, clenching, dietary factors, habits and lifestyle, incorrect tooth brushing, abrasive dentifrices, the craniofacial complex and aging.

Non carious Tooth Surface Loss(TSL) may be physiological or pathological. Several factors however, including attrition, abrasion and erosion can render tooth surface loss pathological. As a result of this symptoms may develop and treatment may be indicated. Criteria of physiological TSL are change in the appearance of teeth, Pain or sensitivity, loss in occlusal vertical dimension, loss in post occlusal stability resulting in increased tooth wear, mechanical failure of teeth or restoration, hypermobility or drifting. The feature of pathological TSL is sensitivity to thermal stimuli, A loss in vertical height, A history of frequent fracture of teeth on restorations, hyper mobility and drifting.

Tooth wearing as a result of mechanical process involving exogenous made(foreign substance or objects). The exogenous materials are anything that is foreign (subject or object) to tooth substance included are sand, gritty substance and foreign material found in the food bolus, the natural abrasiveness of some foods and any solid material held by or forced against the teeth. Abrasion may therefore occur during mastication, when the teeth are being used as tools or during tooth cleaning[2].

A special form of abrasion is demastication, which means wear from chewing food(e.g. betel leaf chewing). In general the action of abrasion is not selective of the tooth surface. The abrasion influence of a bolus of food is felt on the whole occlusal surface, affecting cusp inclines and fissures as well as to a lesser degree the occlusal aspects of the

buccal and lingual surfaces. The resulting morphology of defects can be diffuse or localized depending on the predominant impact. An exception to lack of specificity may occur when the same two or three teeth are used repeatedly as tools for grasping an object. This may lead to more abrasion to these teeth. Examples of this type of abrasion may be related to a broad range of occupations and pursuits from hunter-gathering to pipe smoking.

In abrasion areas as distinct from as attrition facet, is generally not well defined, because abrasion tends to round off or blunt tooth cusps or cutting edged, in addition to tooth surfaces have a pitted appearance. Where dentin is exposed it may be scooped out because it is softer than enamel. Microscopically an abraded surface generally shows haphazardly oriented scratch marks, numerous pits and various gouge marks on occlusal surface[3].

Very rarely abrasive scratches will be almost parallel when abrasive material is forced one direction across the tooth surface. The length, depth and width of this micro detail vary depending on the abrasiveness of the food and pressure applied during mastication. The distribution and extent of the abrasive wear over the dentition is influenced by many variables including type of occlusion, diet, life style, age and oral hygiene.

According to literature it's not possible to determine unique etiological factor, but there is a concern that it is a multi factorial condition. Several preventive and restorative treatment modalities, such as occlusal adjustment, tooth brushing instructions, dietary advice, application of desensitization products and restorative procedures have been proposed for non carious cervical lesion. Clinicians have tried many restorative materials and techniques to obtain the best performance for these lesions. Therefore, a large variety of restorative materials having diverse aesthetic and bonding characteristics have been used. Conventional glass ionomers, resin modified glass ionomers, compomers and several types of resin composites have been used for cervical restorations. New materials are being introduced to address the need for restoring cervical lesions. Nano ionomer (Ketac™N 100 restorative) is one such category used in the present case based on nano-technology in glass isomer, which is a breakthrough in direct restoratives.

Case report:

A 38 year old male patient Mr.Abdur Rahim reported to the Department of Conservative Dentistry and Endodontics of this University with the complaints of moderate hypersensitivity on his lower right posterior teeth. He gave the history of using hard tooth brush with horizontal stroke. On examination his mandibularright first and second premolar teeth found having loss of enamel in the cervical region with smooth shiny surfaces. On vitality test, when ice stick was placed on the adjacent and the offending teeth, the offended teeth showed more sensitivity comparing to the adjacent teeth. A diagnosis of multiple cervical abrasions was made. After considering the above conditions, restoration of the lesions by nano-ionomer was planned to perform.

Before treatment

After treatment

At first the consent of the patient was taken. After proper mouth preparation,isolation of the tooth with cotton rolls then dentine walls were slightly roughened by diamond bur. After selection of the shade (A3), Ketac™ N100 primer was applied over the cervical lesions. The primed surface was air dried for 10 seconds and light cured for another 10 seconds. Ketac™ N100 restorative paste-paste material was mixed on a paper pad for 20 seconds and placed into the cavity with a cement lifter. The restoration was than cured with a light curing unit for 20 seconds. Finally the restoration was finished with diamond finishing bur with water coolant and then polished with super-snap finishing and polishing discs(Shofu). The patient was advised for follow-up after 3,6 and 12 months.

Discussion:

Since the introduction of glass ionomer cements (GIC) in 1972, they have widened the armamentarium of tooth-colored restorative materials and in particular, they have been successfully used for restoration of cervical lesions. However, some severe shortcomings such as aesthetic inadequacy, inconvenient setting characteristics like sensitivity to desiccation and moisture contact during the early setting stages and low wear resistance against abrasion resulting from tooth brushing have limited their acceptance for the restoration of cervical lesions. In addition, the prolonged setting time makes finishing relatively difficult in the first 24 hours.

Resin Modified glass ionomer cements (RMGIC) were introduced in 1990 to overcome the problems of moisture sensitivity and low early mechanical strengths associated with the conventional GIC, which contain hydroxyethylmethylacrylate (HEMA) or bisphenol-glycidyl methacrylate (BISGMA). The most important benefit of light curing glass ionomer is cure-on demand feature[4].

Retention in modern restorative materials is dependent on a materials adhesion to tooth structure using mechanical and chemical bonding. This makes retention one of the most important criteria often used to determine the longevity of the restoration. Different studies showed good retention of all RMGIC when used in non-carious cervical lesions.

Color stability and color match are other factors influencing the choice of restorative material. Flowaczny and Louguercio found in their respective studies of 3 years and 5 years that RMGIC has poor color stability over time. This could be related to changes within the materials manifested as water and loss of anatomic form[5].

To increase the longevity of the restoration recently (2007) nano-filled resin-modified glass-ionomer cement (Nano filled RMGIC Ketac™ N100 light curing nano ionomer Restorative, 3M ESPE), has been developed that combines the benefits of a resin modified light cured glass ionomer and bonded nano filler technology. Improved polish and aesthetics is the benefits of this combination, yet still provides the benefit of glass ionomer chemistry, such as high fluoride release that is rechargeable after being exposed to a topical fluoride source.

Ketac™ N100 restorative (nano filled RMGIC) contains a unique combination of two types of surface-treated Nanofillers (approximately 5-25 nm) and Nanoclusters (approximately 1-1.6 Micrometer) along with Fluroaluminosilicate (FAS) glass. The filler loading is approximately 69% by weight. While nanofillers are primarily discrete non agglomerates, the nanocluster fillers are loosely bound to agglomerates of nano sized silica/ Zirconia that appear as a single unit, enabling higher filler loading, radio-opacity and strength.

In this case, Ketac™ N100 restorative was used because it's the unique two part paste technology. Its two part paste system provide faster, easier, less messy and more reproducible dispensing and mixing compared to conventional powder liquid systems.

Ketac™ N100 primer (3M ESPE) is a one part, visible light cure liquid specially designed for use with Ketac™ N100 restorative. Its acidic in nature and comprised of methacrylate modified polyalkenoic acid, HEMA, water and photo initiators. Its function is to modify the smear layer and adequately wet the tooth surface to facilitate adhesion of the restorative to the hard tissue[6].

Some studies reported that nano filled RMGIC (Ketac™ N100) showed least micro leakage compared to conventional and resin modified glass ionomer.

Ketac™ N100 restorative is available in eight shades-A1, A2, A3,A3.5, A4, B2, C2 and blue. That ensures excellent aesthetics. It has been claimed by the manufacturers that the material takes initially high polish, close to composite and superior to some other RMGIC and the roughness values after toothbrush abrasion is similar to composite and superior to some RMGIC[7].

An in vitro study done by some authors showed that surface finish of nanofillerGIC,was smoother than the other tested GICs after polishing. In this case, the restoration was assessed clinically. It was considered as aesthetically sound and the patient was pleased both aesthetically and functionally. However, a long term clinical observation is necessary.

Conclusion:

The unique properties of glass ionomers continue to make them an important part of everyday dentistry. For the quality and long lasting filling, it is necessary to choose the right material, to conduct correct restorative procedure and to maintain adequate oral hygiene. Based on the present case report together with the previous studies, it can be stated that Ketac™ N100 light curing nano Ionomer restorative is an ideal alternative to aesthetic glass ionomer cement for the modern dentistry.

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Bell's Palsy: A case report

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Abstract:

Bell's palsy is a lower motor neuron peripheral palsy where there is inflammation & demyelination of the facial nerve that results in muscle weakness on one side of the face. Affected patients develop unilateral facial paralysis over one to three days with forehead involvement and no other neurologic abnormalities. Usually related to viral infections-mainly Herpes simplex virus. Symptoms typically peak in the first week & sometimes resolve gradually. In this article a case of a 38 years old male with facial paralysis for over a month is presented, included clinical presentations, diagnosis, treatment, & prognosis.

Keywords: *Bell's palsy, Corticosteroids, Antivirals*

(Bangladesh Dental Journal 2013; 29: 47-50)

Introduction:

Bell's palsy is an idiopathic, acute peripheral-nerve palsy involving the facial nerve, which supplies all the muscles of facial expression. Bell's palsy is named after Sir Charles Bell (1774–1842), who first described the syndrome along with the anatomy and function of the facial nerve. The annual incidence of Bell's palsy in Europe is 10 cases per 100,000 persons, with equal numbers of men and women affected. There is no predilection for either side of the face. Bell's palsy has been described in patients of all ages, with peak incidence noted in the 40s. It occurs more commonly in patients with diabetes and in pregnant women. Patients who have had one episode of Bell's palsy have an 8 percent risk of recurrence.[1,2]

Patients with Bell's palsy typically complain of weakness or complete paralysis of all the muscles on one side of the face. The facial creases and nasolabial fold disappear, the forehead unfurrows and the corner of the mouth droops. The eyelids will not close and the lower lid sags; on attempted closure, the eye rolls upward (Bell's phenomenon). Eye irritation often results from lack of lubrication and constant exposure.[3] Tear production decreases; however, the eye may appear to tear excessively because of loss of lid control, which allows tears to spill freely from the eye. Food and saliva can pool in the affected side of the mouth and may spill out from the corner. Patients often complain of a feeling of numbness from the paralysis, but facial sensation is preserved.

A patient with an acute onset of unilateral facial weakness most likely has Bell's palsy. A careful history of the onset and progress of paralysis is important because gradual onset of more than two weeks' duration is strongly suggestive of a mass lesion.

Treatment of Bell's palsy is controversial, because as many as two-thirds of patients recover spontaneously. Corticosteroids alone or associated with antiviral agents have been recommended.[4] Adour[8] reported that patients with Bell's palsy treated with acyclovir and prednisone experience a more favorable recovery and less neural degeneration than patients treated with placebo plus prednisone. The favorable response to the treatment of Bell's palsy with acyclovir–prednisone supports the theory that reactivated HSV causes neuritis.

Case Report:

A 38 years old male patient presented with right hemi facial palsy reported to oral & maxillofacial surgery Department of TMSS medical college Dental Unit, Bogra with the complaints of sudden weakness of the right side of the face with inability to close right eye & lack of sleep since past 1 month.(Figure-1). Patient gave a history of overnight exposure on extreme cold & denied any type of facial trauma or systemic alteration.

Clinical examination revealed restricted facial asymmetry, dropping of the corner of the mouth, inability to close his right eye (Figure-1), absence of wrinkling of the right side

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of the forehead (Figure-2), obliteration of the nasolabial fold of the affected side, restricted movement of the both upper & lower lips (Figure-3).

Based on the clinical symptoms & absence of radiographic & laboratory findings provisionally diagnosed as Bell's Palsy & treated with corticosteroids 60 mg per day in a 21 days tapering course, vitamin B complex every 12 hourly & Artificial tears during the day. He was advised to warm water compress & to keep the left eye closed with sleep mask during the night to avoid conjunctival dryness. After 21 days of medication, the facial palsy disappeared. The patient was examined two weekly then after 6 months (Figure-4) & 1 year & no sign of recurrence was noted.

Fig.-1: *Facial asymmetry with open right eye.*

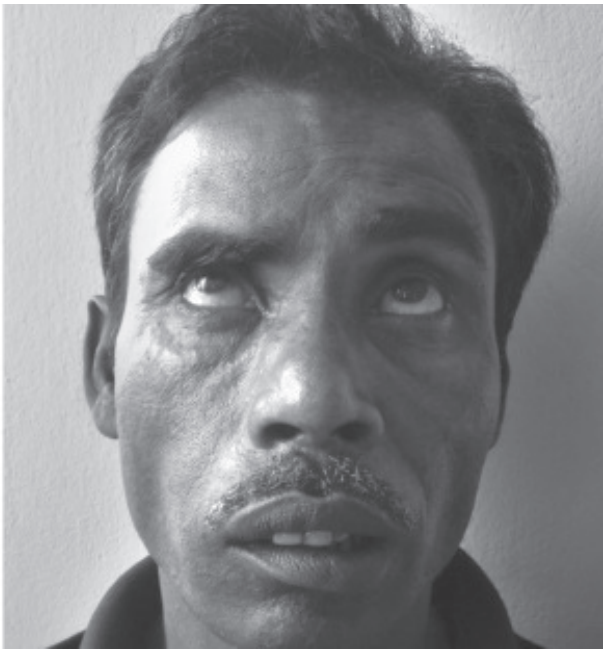

Fig.-2: *Absence of wrinkling of the right side of the forehead,*

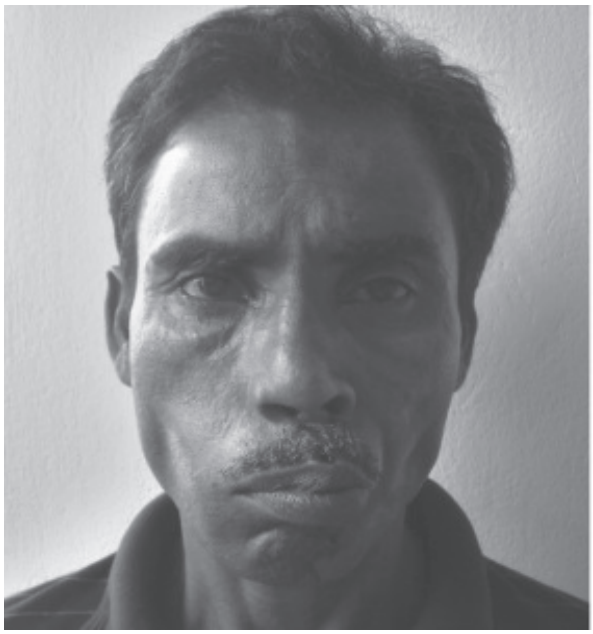

Fig.-3: *Restricted movement of the both upper & lower lips*

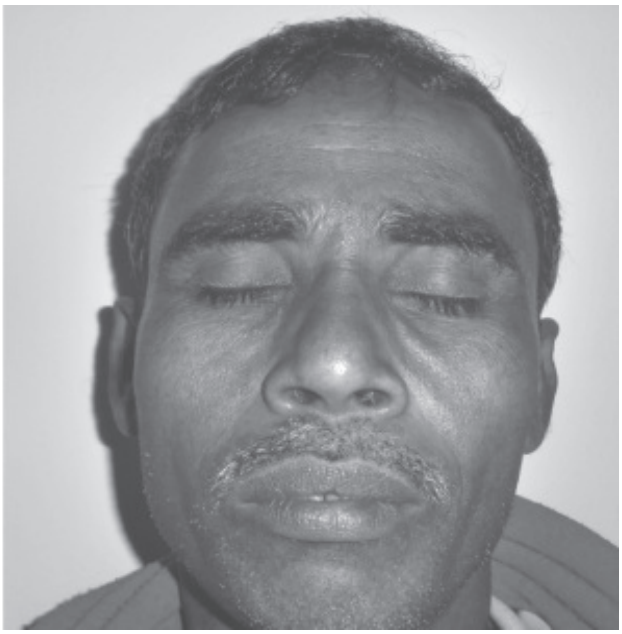

Fig.-4: *Complete recovery*

Discussion:

Many pathologies can be included in the differential diagnosis of Bell's palsy: unilateral central facial weakness, Ramsay Hunt syndrome, Lyme neuroborreliosis, tumours, diabetes mellitus, sarcoidosis, weight loss, visual changes, Vertigo and weakness or numbness.[4]

Diagnosis of Bell's palsy depends on clinical signs, symptoms and evaluation to exclude other possible causes of facial paralysis.

Laboratory investigations and imaging are carried out to detect the origin of the paralysis: lumbar puncture, IgG and IgM antibody tests and cerebral spinal fluid cell count to detect intracranial pressure and inflammation; magnetic resonance imaging and computed tomography to locate an intracranial lesion or hemorrhage; Lyme titre test to rule out Lyme disease; and acetylcholine-receptor antibody test for myasthenia gravis.[5]

Patients should be advised to use artificial tears to keep the eyes moist and prevent exposure keratitis. During the day, sunglasses are indicated, and dirty, noxious fumes should be avoided. During sleep, an ophthalmic ointment should be used.[4]

Our patient enjoyed complete recovery after 4 weeks, but clinicians should be aware of possible morbidities. For example, some patients experience lasting facial weakness. Factors associated with a poor prognosis include advanced age, hypertension and impairment of taste and pain other than in the ear. Bell's palsy does not usually recur; however, if it does, particularly bilaterally, further investigation is required to rule out other causes of facial paralysis such as myasthenia gravis, sarcoidosis and lymphoma.[6]

Patients who have persistent clinical signs without improvement in facial paresis after 4 weeks, involvement of other cranial nerves or a second episode of palsy require further investigation.[8] A detailed history and thorough clinical examination should be carried out in those patients. Early recognition of signs and symptoms inconsistent with Bell's palsy is important to avoid misdiagnosis. If the patient does not recover within the expected timeframe, imaging must be performed, such as computed tomography or magnetic resonance imaging. Current imaging techniques may reveal occult lesions of the temporal bone, internal acoustic canal or cerebellopontine angle, for example.[7]

Many clinical trials have evaluated acyclovir with or without prednisone for the treatment of Bell's palsy: Adour[8] and De Diego[9] for example, using a facial paralysis recovery profile. Studies evaluating the efficacy of antiviral agents for the treatment of Bell's palsy show conflicting results. As each trial has used different treatment modalities, facial nerve recovery scales and doses of acyclovir, and some have involved only a small number of patients, it is difficult to compare their results and verify the effectiveness of acyclovir.[6]In the mentioned case Antiviral was avoided due to lack of evidence of viral infection relevancy.

Considerable controversy remains over the use of steroids for Bell's palsy in adults, and there is even less evidence for using steroids to treat Bell's palsy in children.[10] Children are more vulnerable to the side effects of corticosteroids, particularly their effect on growth, immunity and adrenal suppression. A side effect of corticosteroids unique to children is growth suppression, which can be reduced by prescribing the medication on alternate days.[11] In this case described above, we preferred steriods associated with vitamin B complex & to avoid Antiviral agents & the outcome was satisfactory without any complication.

Conclusion:

Differential diagnosis is essential to guide treatment in Bell's palsy. Although its etiology is still unknown, viral infection, vascular ischemia and autoimmune disorders have all been postulated as possible mechanisms. If viral infection is suspected antiviral drugs should be started for patients who reported within 4 days of occurrence of symptoms. Special attention should be given to children with respect to steroid prescription. Dental surgeons, especially those who deal with children, should be aware of this disorder.

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Relation between periodontal infection and cardiovascular diseases: Review of the evidence

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(Bangladesh Dental Journal 2013; 29: 51-54)

Introduction:

Oral cavity is the gate way of the body. Poor oral hygiene affects the system of the body health. Microbial dental plaque is the main etiological agent in chronic inflammatory periodontal disease. The progression of disease depends on the host defenses to these challenges. During normal activity such as tooth brushing, chewing and mastication, the micro organism of dental plaque and their metabolic product enter the blood stream causing bacterimia. As a result effect may be seen in remote organ causing different cardiovascular disease namely sub-acute bacterial endocarditis, atherosclerosis, atheroma, thromboembolism, myocardial infarction and even stroke (Ischemic). According to Mattila et al[1] patients with poor oral hygiene, had a two fold increase of Coronary heart disease (CHD).

More than 500 species of micro organisms have been isolated from oral flora. Micro organisms causing periodontal infection includes *Prophyromonus gingivalis*, *Prevotella intermedia*, *Tannerela forsythia*, *Actinobacillus actinomycetemcomitans actinomycetemcomitans*, *Campylobacter rectus, Ekenell a corrodens, Fusobacterium nucleatum, Peptosteptococcus micros* and *treponema denticola*.

Periodontal pocket acts as a reservoir of micro organisms and their metabolic products. The microbial & its parts and products of their metabolism e, g; toxin and enzymes causes wide spread destruction of supportive structure of tooth. According to Mattila et al 59patients with poor oral hygiene, had a two fold increase of Coronary heart disease (CHD). There may be a greater risk of CHD related events such as MI when periodontitis affects a greater number of teeth in the mouth, compare with the subject having periodontitis at fewer teeth.[2]

In this review article author will discuss the relation between periodontal infection and coronary heart disease CHD and ischemic disease.

Discussion:

Increase Blood Viscosity :

Systemic infections are known to induce thickening of blood a hypercoagulable state and to increase blood viscosity. Fibrinogen level and WBC counts are often increased in a patients with periodontal disease.[3,4] Individual with poor oral health have significant elevation in coagulation factor- viii/ vWF, antigen, increasing the risk of thrombus formation. Thus periodontal infection may also promote increased blood viscosity and thrombogenesis, leading to increased risk for central and peripheral vascular disease. Fibrinogen is probably the most important factor in promoting this hypercoagulable state. Fibrinogen is the precursor of fibrin and increased fibrinogen level increase blood viscosity.

Thrombogenesis:

Platelets binds specially some stains of *streptococcus sanguine*, a common component of supra-gingival plaque, and *Prophyromonas gingivalis*, which is closely associated with periodontitis.[5] Aggregation of platelets is induced by the platelet aggregation-associated protein (PAAP) expressed on some strains of these bacteria.[6] These causes thrombo emboli formation and the resultant cardiac and pulmonary events.

Atherosclerosis:

Atherosclerosis is focal thickening of the arterial intima , the inner most layer lying the vessel lumen, and the media. The thicker layer under the intima, consisting of smooth muscle, collagen and elastic fibers.[7] According to Beck

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JD et al, [8] early in the formation of atherosclerotic plaques, Circulatory monocytes adhere to the vascular endothelium. This adherence is mediated through several adhesion molecules on the endothelial cell surface, including intracellular adhesion molecule -1 (ICAM-1), endothelial leukocyte adhesion molecule-1(ELAM-1) and vascular cell adhesion molecule-1 (VCAM-1) . The adhesion molecules are up regulated by a number of factors, including bacterial LPS, prostaglandins and pro inflammatory cytokines. After binding to the endothelial lining, monocyte penetrates the endothelium and migrates under the arterial intima.

The moncytes also ingest circulating low density lipoprotein (LDL) in its oxidized state and become engorged, forming foam cells characteristic of atheroma plaques.

Once within the arterial media, monocytes may also transform to macrophages . According to Lowe GD,[9] a host of pro-inflammatory cytokines, such as interleukin-1 (IL-1), tumor necrosis factors alpha (TNF-á), and prostaglandin E2 (PGE2) are produced, which propagates the atheromatous lesion. Mitogenic factors such as fibroblast growth factor and platelet derived growth factor, stimulate smooth muscle and collagen proliferation within the media , thickening the arterial wall. Atheromatous plaque formation and thickening of the vessel wall narrow the lumen and dramatically decrease blood flow through the vessel. Arterial thrombosis often occur atheromatous plaque raptures exposes circulating blood to arterial collagen and tissue factor from monocytes/macrophages that activate platelets and the coagulation. Platelet and fibrin accumulation forms a thrombus that may occlude the vessel, resulting in the ischemic events such as angina or MI.[10] The thrombus may separate from the vessel wall and form an embolus, which may also occlude vessels, again leading to acute events such as MI or cerebral infarction (stroke).

Relation between Periodontal infection and Cardio vascular events:

Acute phase protein such as C-reactive protein (CRP) and fibrinogen are produced in the liver in response to inflammatory or infectious stimuli and act as inflammatory markers. CRP induces monocyte /macrophages to produce tissue factor , which stimulate the coagulation pathway and increase blood coaguability. Increase fibrinogen level may contribute to this process. CRP also stimulate the complement cascade, further exacerbating inflammation.

Recent efforts have focused on periodontitis as a trigger for systemic inflammation. Serum CRP and fibrinogen levels are often elevated in subjects with periodontitis compared with non periodontitis subjects.[11] These acute phase proteins may act as intermediary steps in the pathway

Periodontal Infection
↓
Gram negative bacteremia/LPS
↓
Endothelial damage
Platelet adhesion/aggregation
↓
Monocyte infiltration/Proliferation
↓
Cytokine/growth factor production
Thrombus formation
↓
Atheroma formation,
vessel wall thickening
Thromboembolic events

Fig.-1: *Influence of periodontal infection on atherosclerosis*

(Courtesy:Clinical periodontology ,*Micheal G.Newman, DDS And Carranza's*

from periodontal infection to cardiovascular disease . Thus periodontal diseases may have both direct effects on the major blood vessel (e.g. atheroma formation) as well as indirect effects that stimulate changes in the cardiovascular system (e.g. elevation of systemic inflammatory responses).

In case-control studies , poor dental health was a significant risk factor for cerebrovascular ischemia . In one study , bleeding on probing , suppuration and sub-gingival calculus and the number of periodontal or periapical lesions were significantly greater in male stroke patients than in control.[12]Overall 25% of all strokes patients had significant dental infection 2.5% of controls. Thus study supports an association between poor oral health and stroke in men under age 50. In another study men and women age 50 and older who had a stroke had significantly more severe periodontitis and more peri-apical lesions than non stroke controls.[13)] Poor dental health was an independent risk factor for stroke. In a longitudinal study over 18 years , subjects with greater than 20% mean radiographic bone loss at baseline were almost three times as likely to have a stroke than subjects with less than 20% bone loss.[14] Periodontitis was a greater risk factor for stroke than was smoking and was independent of other known risk factors. Both large epidemiological studies and systemic reviews of the evidence suggest an approximate

three fold increased risk of stroke in subjects with periodontitis.[15]

Peridontal Disease and Stroke: Ischemic crerbral infarction or stroke , is often preceded by systemic bacterial or viral infection. As shown by Grau AJ, et al [16] recent infection was a significant risk factor for cerebral ischemia and was independent of other known risk factors, such as hypertension , history of a previous stroke , diabetes, smoking, and CHD. Interestingly, the presence of systemic infection before the stroke resulted in significantly greater ischemia and a more sever post ischemic neuralgic defect than did stroke not preceded by infection.[17] According to Grau AJ et al, [17] Stroke patients with preceding infection had slightly higher level of plasma fibrinogen and significantly higher levels of CRP than those without infection.

In several studies of atheroma obtained from humans during end arterectomy , more than half of the lesions contained periodontal pathogens, and many atheromas contained multiple different periodontal species.[18,19]

Research has clearly shown a wide variation in host response to bacterial challenge . Some individuals with heavy plaque accumulation and high proportions of pathogenic organisms appear relatively resistant to bone and attachment loss. Other develop extensive periodontal destruction in the presence of small amounts of plaque and low proportions of putative pathogens. Patients with abnormally exuberant inflammatory responses often have a hyperinflammatory monocyte /Macrophage phenotype (MQ+). Monocyte /macrophages from these individual secrete significantly increased levels of proinflammatory mediators(e.g,IL-1, TNF-alpha, PGE2) in response to bacterial LPS compared with patients with a normal monocyte /macrophage phenotype. Patients with aggressive periodontitis , refractory periodontitis , and type 1 diabetes mellitus often possess the MQ+) phenotype.[20]

This monocyte / macrophage phenotype appears to be under both genetic and environmental control [20)]. The monocyte /macrophage cell lines intimately involved in the pathogenesis of both periodontal disease and atherosclerosis. Diet induced elevation in serum LDL levels up regulated monocyte / macrophage responsiveness to bacterial LPS. Thus elevated LDL levels, a known risk factor for atherosclerosis and CHD, may increase secretion of destructive and inflammatory cytokines by monocytes/macrophages.[21]) This may result not only in progression of atheromatus lesions, but also in enhanced periodontal destruction in the presence of pathogenic microorganisms. This is one example of a potential shared mechanism in the pathogenesis of cardiovascular and periodontal disease.

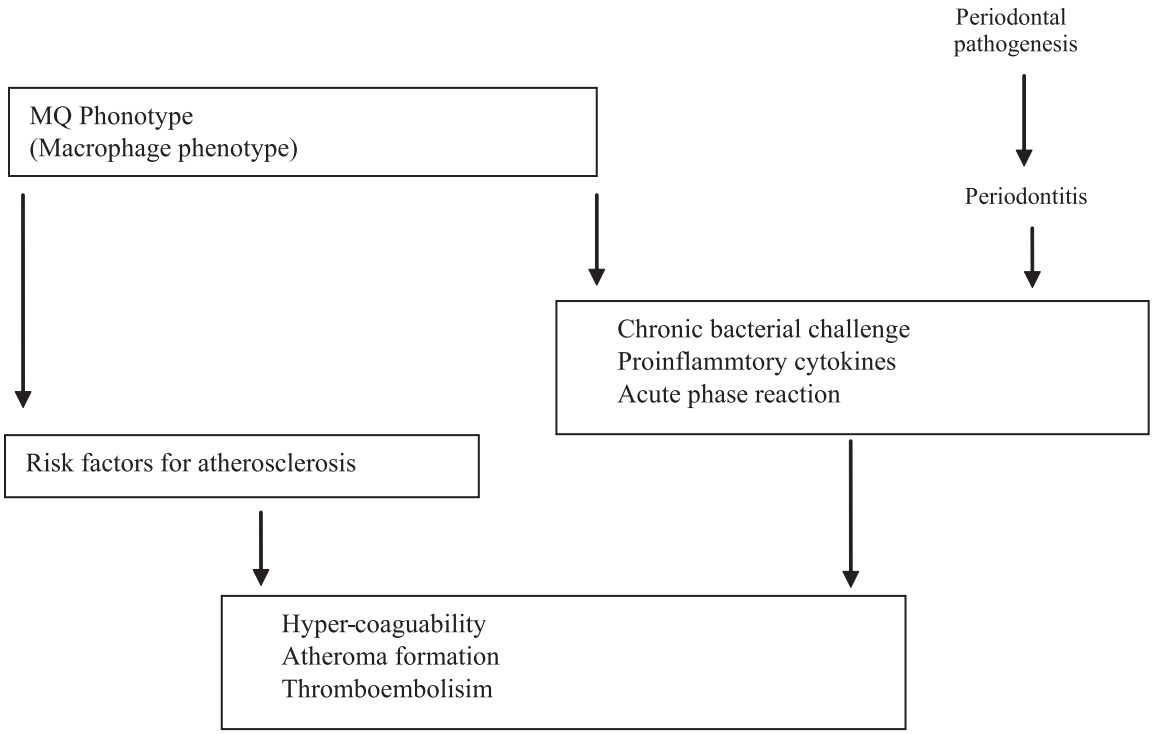

Fig.-2: *Cardiovascular and periodontal consequences of hyper responsiveness monocyte/macrophage phenotype(Courtesy: Clinical periodontology ,Micheal G.Newman, DDS And Carranza's)*

Vascular monocytes /macrophages in patients with an MQ+ phenotype meet this challenge with an abnormally elevated inflammatory response that may directly contribute to atherosclerosis and may precipitate thrombo-embolic events.

Conclusions:

Most cases of strokes are caused by thromboembolic events, where as others are related to cerebro-vascular atherosclerosis. As previously discussed , periodontal infection may contribute directly to the pathogenesis of atherosclerosis by proving a persistent bacterial challenge to arterial endothelium, contributing to the monocyte/ macrophage-driven inflammatory process that results in atheromatosis and narrowing of the vessel lumen. Furthermore, periodontal infection may stimulate a series of indirect systemic effects, such as elevated production of fibrinogen and CRP, Serve to increase the risk of stroke. Finally bacterimia with PAAP-positive bacterial strains from the supra-gingival and sub-gingival plaque can increase platelet aggregation, contributing to thrombus formation and subsequent thromboembolism, the leading cause of stroke.

Thus periodontitis initiates or exacerbates an atherosclerotic lesions. Further research is required in this field to more clarify the association or relation between periodontal infection and cardiovascular disease.

Good oral hygiene and oral health can improve our overall health, reducing the risk of serious cardiovascular diseases and most probably preserving our memory in golden years. The phrase “healthy mouth, healthy you” really is true- and this is backed by growing scientific evidence.

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Dental care in Pregnancy

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Abstract:

Management of a pregnant dental patient poses a unique challenge to the dentist, as her or she is solely responsible for providing safe and effective care to the mother and developing fetus. There are number of anatomical and physiological maternal changes during pregnancy. A sound knowledge of these changes will help the dental surgeons in careful management of the pregnant dental patients. Apart from these changes various complications of pregnancy may complicate the dental treatment.

(Bangladesh Dental Journal 2013; 29: 55-57)

Introduction:

Pregnancy causes an array of complex physiologic changes in the female patient that must be appreciated by the dental health professional. Sound knowledge about fetal development is therefore important for management of pregnant dental patient. Pregnancy is divided into three trimesters based on a 42-week gestation, or three months (14 weeks) for each trimester.[1]

First Trimester: The duration of first trimester is first 12 weeks (84 days). The first 12 days from conception to implantation is the periimplantation period. Exposure to harmful drugs during periimplantation period can kill the embryo. From the 13th day there is organogenesis and the fetus is susceptible to abortion and teratogenecity.[2]

Second Trimester:

The duration of the second trimester is from 13 weeks to 28 weeks (112 days). It is the optimal trimester for dental care.

Third Trimester:

The duration of the 3rd trimester is from 29 weeks to 40 weeks (84 days). Elective dental care is usually not advisable during this period as the fetus is mature and there is an increased risk of supine hypotension, hypertension and preeclampsia. But emergency treatment can be provided with care.[2]

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Complications of pregnancy:

The dentist should be aware of the complications that can complicate the pregnancy, because any dental treatment may be looked upon as a causative factor for the complication especially abortion. Thus a detailed history prior to any dental treatment is of immense value as it rules out any complication.

Vomiting: Vomiting related to pregnancy:

1. Simple vomiting.
2. Hypereremesis gravidarum.

Hemorrhage: Hemorrhage related to pregnancy:

1. Miscarriage.
2. Ectopic pregnancy.

Anemia: Anemia in pregnancy may be due to:

1. Preexisting anemic state.
2. Decreased dietary intake.
3. Multiple pregnancies.
4. Increased demand for iron by the developing fetus.

Gestational Diabetes mellitus:

Gestational Diabetes mellitus is present in the late second and third trimester of pregnancy.

Hypertension: Hypertension may be due to:

1. Preexisting hypertension.
2. Preeclampsias.
3. Eclampsia.

Oral manifestation of pregnancy:

1. Pregnancy gingivitis
2. Pregnancy tumour.

Pregnancy gingivitis: The gingival in pregnancy is oedematous and characterized by marked tendency towards bleeding and histologically has no specific feature distinguishing it from normally inflamed gingival. The oedematous appearance of gingival is due to increased level of oestroegn and progesterone. Pregnancy gingivitis is more common in the anterior region.

Pregnancy tumour:

Pregnancy tumour is a clinical diagnosis for a red swelling on gingiva in pregnant women. It is usually single but may be multiple. Clinical onset of pregnancy tumour is around the second or third trimester. Histologically it is identical to pyogenic granuloma.[1]

Pharmacological consideration: Administration of drugs to pregnant patients is of significant concern because of the teratogenic, toxic or otherwise harmful effects of drugs on the developing fetus. The placenta does not strictly constitute a barrier and any drug can cross it to a greater or lesser extent. Teratogenicity refers to a capacity of a drug to cause fetal abnormalities when administered to the pregnant mother.[3]

FDA risk categories:

The Food and Drugs Administration has classified drugs with respect to their toxic potential during pregnancy. Drugs in categories D, X and in some cases C may similar risk. The categories are determined by the reliability of documentation and the risk to benefit ratio.

FDA risk categories:[3,4,5]

Category A

Adequate and well-controlled studies have failed to demonstrate a risk to the fetus in the first trimester of pregnancy (and there is no evidence of risk in later trimesters).

Category B

Animal reproduction studies have failed to demonstrate a risk to the fetus and there are no adequate and well-controlled studies in pregnant women.

Category C

Animal reproduction studies have shown an adverse effect on the fetus and there are no adequate and well-controlled studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks.

Category D

There is positive evidence of human fetal risk based on adverse reaction data from investigational or marketing experience or studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks.

Category X

Studies in animals or humans have demonstrated fetal abnormalities and/or there is positive evidence of human fetal risk based on adverse reaction data from investigational or marketing experience, and the risks involved in use of the drug in pregnant women clearly outweigh potential benefits.

Drug considerations in pregnant patients:[6]

Maternal medication	Category in 1st trimester	Category in 2nd trimester	Category in 3rd trimester
LignocaineMepivacaine	B	B	B
Aspirin	C	C	D
Celecoxib	C	C	D
Diclofenac Sodium	B	B	D
Ibuprofen	B	B	D
Mefenamic acid	C	C	D
Paracetamol	B	B	B
Acyclovir	B	B	B
Amoxycillin	B	B	B
Ampicillin	B	B	B
Cefazolin	B	B	B
Cefotaxime	B	B	B
Chloramphenicol	C	C	C
Clindamycin	B	B	B
Cloxacillin	B	B	B
Cotrimoxazole	C	C	D
Erythromycin	B	B	B
Cefalaxin	B	B	B
Ketoconazole	C	C	C
Metronidazole	B	B	B
Tetracycline	D	D	D
Betamethasone	D	C	C
Dexamethasone	D	C	C
Prednisolone	D	C	C
Triamcinolone	D	C	C
Clonazepam	D	D	D
Diazepam	D	D	D
Lorazepam	D	D	D
Chlorpheniramin Maleate	B	B	B
Carbamazepine	D	D	D

Dental management:[7]

The main objective is to protect the developing fetus and the expecting mother and the important points to consider in management of pregnant dental patients are:

1. A written opinion from the concerned gynecologist is to be taken in case of elective treatment.
2. A detailed case history should be taken, which include history of previous pregnancy and complications if any.
3. The approach of the dentist in management of a pregnant dental patient should be conservative.
4. The importance of maintaining sound oral hygiene must be stressed. Dietary advice should be given.
5. Elective dental treatment can be provided preferably in the second trimester.

6. Emergency treatment can be provided throughout the pregnancy period.
7. The duration of each dental visit should be kept as short as possible.
8. In order to prevent supine hypotension during third trimester the patient should be in a sitting position rather than lying down.
9. Radiographs are better avoided; if extremely necessary can be taken with strict radiation safety measures (eg. Lead apron, thyroid collar, high speed films, digital radiography).
10. During prescription of drugs FDA risk category should be considered.

Conclusion:

The dental health practitioner should feel comfortable in knowing that the treatment of pregnant patients is not only permitted, but actually is necessary in order to promote sound oral health. The purpose of this article is not to create treatment algorithms, but rather to suggest that the treatment administered must be individualized to each patient.

However, if the principles set forth here are applied in good judgment, then the treatment of pregnant dental patients can be administered in a both safe and effective manner.

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		Dr. Md. Ruhul Amin	(Sylhet Division)
		Dr. Md. Mosharraf Hossain Khandker Musa	(Rangpur Division)
		Dr. AKM Shariful Islam	(Mymensing Division) (Co-opt)
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		Dr. Md. Asaduz Zaman Sarwar	(Barisal Division)
		Dr. Mehedi Md. Imtiaz Uddin Khan (Imrul)	(Sylhet Division)
		Dr. Mohammed Asik Raihan	(Rangpur Division)
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Assistant Scientific Affairs Secretary	:	Dr. Abdulla Al Mahmud (Shawon)
Office Secretary	:	Dr. Ikramul Ahmed (Sumon)
Assistant Office Secretary	:	Dr. AKM Habibullah (Mithu)
Publicity & Public Relations Secretary	:	Dr. Habibul Basher (Masud)
Assistant Publicity & Public Relations Secretary	:	Dr. Jyotirmoy Das
Social Welfare Secretary	:	Dr. Md. Tozzammel Hossain Limon
Assistant Social Welfare Secretary	:	Dr. Wahiduzzaman (Zaman)
Cultural & Entertainment Secretary	:	Dr. Md. Rafiqul Islam
Assistant Cultural & Entertainment Secretary	:	Dr. Azmeri Haque Badhan
Library & Publication Secretary	:	Dr. Morshed Alam Talukder
Assistant Library & Publication Secretary	:	Dr. Md. Amanulla Sarkar
International Affairs Secretary	:	Dr. Md. Jobayr Rashid Chowdhury (Tanin)
Assistant International Affairs Secretary	:	Dr. Najmul Haque Sajib
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