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Editorial

Ozone Therapy in Dentistry

Begum S

The word Ozone (O_3) is derived from the Greek word ozein (odorant). Ozone is one of the most powerful antimicrobial agents available for use in medicine and dentistry. In the 1920s Dr Edwin Parr, a Swiss dentist, started to use O_3 as part of his disinfection system. Ozone therapy is a well-established alternative and complementary therapy in most of the European countries.

Ozone is simply a tri-atomic oxygen particle and is just as safe as oxygen when used properly. Ozone is created by passing medical-grade pure oxygen through a corona discharge generator, creating pure O_3. Once ozone is created, it can be used in a liquid form (ozonated water) or gas form. When ozone gas is filtered through pure olive oil, it forms a thick clear ointment (ozonated olive oil). Ozone is negatively charged and by nature looks to neutralize anything with a positive charge. "Bad" cells – bacteria, viruses, cancer cells or free radicals, etc. – in our body typically carry positive charges on their cell membranes. "Good" cells will typically have anti-oxidants on their cell membranes and will deter surface oxygenation. Negatively charged cells will attract the ozone particle looking to neutralize its charge and the ozone will perforate the cell membrane and destroy it, thus destroying the "bad" cell.

Ozone gas has a high oxidation potential and is effective against bacteria, viruses, fungi, and protozoa. It also has the capacity to stimulate blood circulation, platelets, and immune response. Ozone is used in dentistry in gaseous, ozonated water and as ozonated oils. Ozone is shown to be biocompatible and is used in all aspects of dentistry.

Ozone Gas Application:
Ozone generating equipment converts oxygen to ozone. The ozone is thereafter led to a hand piece fitted with a silicone cup. Differently shaped silicone cups are available that correspond to the form of various teeth and their surfaces. This ensures close contact between the silicone cup and the carious area of the tooth so that the ozone does not escape. The ozone is led through the silicone cup over the tooth for a minimum of 10 s. The ozone in the silicone cup is collected again and reconverted to oxygen by the apparatus.

Ozone Aqueous Solution:
Disinfectant and sterilizing effect; Hemostatic effect especially in cases of hemorrhages; Accelerated wound healing, improved oxygen supply and support of metabolic processes.

Ozone Oil:
Ozonated oils are pure plant extracts, through which pure oxygen and ozone are passed. The plant extracts undergo a chemical reaction to form a thick, viscous oil, or in some cases, a petroleum jelly-like product. The final products contain ozonides. This method of external application is harmless.

Advantages of Topical Ozone Therapy:
There is always a chance of development of resistance against antibiotic. Pathogens on the other hand, cannot overcome oxidative challenges of ozone. In addition, there is evidence that ozone directly inactivates bacterial toxins, while antibiotics do not. Indeed, toxins are major contributors to bacterial tissue destruction.

Ozone Therapy Used in Dentistry :

Periodontal disease: Ozone can be used to help treat periodontal disease by using ozonated water flushed below the gum line and/or ozone gas infiltrated into the gum tissue and supporting tissues. So, it can be used as an adjuvant in periodontal surgical and maintenance phase.

Root canals: Ozone is used in all forms during root canal treatment to kill bacteria, sterilize the canal system and to stimulate faster healing. As a gas, ozone can get to places traditional liquids can't because the gas can permeate the tiny tubules that cannot otherwise be accessed, thereby getting a truly sterile, bacteria-free root canal system before sealing the canals.

Decay: Ozone inhibits plaque formation and it can be used to kill decay-causing bacteria. Since ozone is a gas, it can permeste into areas below the gum line, into the grooves of teeth and over the smooth surfaces of the teeth and will kill bacteria on contact. If the decayed area, or cavity, is not too deep, then no restoration may be needed at all. If the area of decay is deeply cavitated and the bacteria is killed, then a filling can be placed often times with no need for numbing. Because ozone acts to recalcify tooth structure, areas of the tooth that have been treated with ozone are stronger than what was there before. AS it stimulates remineralization of recent caries-affected teeth it can be used as a preventive therapy in caries control.

Sensitivity: Because ozone can harden compromised tooth structure, flooding a sensitive area or tooth with ozone gas can effectively eliminate sensitivity.

- If ozone is applied to cavity and crown preparations when completed and prior to restoration placement, the degree of bacterial infection is reduced. This reduction in bacterial count may reduce the symptoms of post-operative pain and thus reduce the need for endodontic procedures in such situations.
- It has been used in treatment of alveolitis, avascular

osteonecrosis of the jaw, and herpes virus infection.

- Ozone has also been used in dental unit water line to disinfect water.

Safety: Ozone does not have any contraindications with other medications; therefore cross-reactions are not a concern at all.

Ozone is used in almost all aspects of dentistry. There are good evidence of ozone biocompatibility, and effectiveness in removing the microorganisms from dental unit water lines, the oral cavity, and dentures. Advantage of ozone therapy is an atraumatic, biologically based treatment. It is toxic when inhaled, and in intravenous administration. It must be clear that if we want to use ozone, we must avoid its toxicity by using a precise ozone generator, by collecting a precise gas volume with a defined ozone concentration.

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Original Article

Risk Factors and Patterns of Cleft Lip and Cleft Palate in Rangpur, Bangladesh

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ABSTRACT:

Background: *Cleft lip and/or palate are the major human orofacial congenital malformations seen in live births. There is a lake of data on risk factors on formation of cleft deformities in Rangpur region of Bangladesh.*

Objectives: *To determine the risk factors and pattern of clef lip and palate in patients in Rangpur region of Bangladesh.*

Material and Methods: *A descriptive cross-sectional study was performed in a health screening camp for patients with cleft lip and palate in Rangpur region of Bangladesh. A total 46 patients (age ranged 0.40 to 46 years), irrespective of their gender, presenting with clef lip/palate deformities were included in the study. The data were collected through a questionnaires as well as history and physical examination. The data were organized and analyzed through Statistical Package for Social Sciences (SPSS, Version 19).*

Results: *Maximum (60.90%) patients had nothing contributory history during pregnacy; 13% patients had solar/lunar effect and 26% had drug hisotry during pregnacy. Cleft lip with hard and soft palate were the most (32.60%) of the defects; cleft of soft palate only were the least (2.20%) of the defects. Left sided cleft were the most common (32.60%) defect then in median cleft (28.30%).*

Conclusion: *Clef deformities of the lip and palate affect the male population more than females with clef lips, in association with a clef palate being the most common anomaly. Females are mainly affected by an isolated clef palate.*

Key words: *Clef lip, Clef palate, Risk factors*

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INTRODUCTION:

The cleft lip and palate are the most common oral-maxillofacial congenital anomalies which Occurs due to improper fusion fronto-nasal and maxillary process. The cleft of the primary palate results from the failure to unite the medial nasal, the lateral nasal and the maxillary processes; and the clef of the secondary palate occurs due to failure of fusion of the palatal shelves in embryonic life.[1] These deformities can be seen, felt and heard hence they constitute a serious affliction to those who have them and their families.[2] The oro-facial defects are one of the leading causes of pediatric disability and mortality.[3] The cleft efects on speech, hearing, appearance, and psychology can lead to long-lasting adverse outcomes for health and social integration. Typically, children with these disorders need multidisciplinary care from birth to adulthood and throughout life than do unafected individuals.[4]

There are some ethnic and geographic variations in cleft occurrence. The clef lip and palate affects 1/500-1000 new born worldwide,[1,3,5] incidence is reported to be 1 in 700 among Asians[2] and it is 9.3/10,000 in Indian subcontinent.[6] Every year 150,000 Bangladeshi children are born with cleft lip and palates.[7] Among the patients of cleft lip and palate, boys are more affected than girls with a ratio of about 3:2.[2] There are several pattern of cleft depending on location, configuration and extension of cleft. This are- cleft lip, cleft lip with alveolus, cleft lip with hard and soft palate, cleft of soft palate and cleft of hard palate only; and these may be unilateral, bilateral or median.

There are some risk factors which might be important in cleft lip and palate such as maternal exposure to tobacco smoke, alcohol, poor nutrition, viral infection, medicinal drugs, and teratogens in the workplace and at home in early pregnancy. Parental exposure to occupational chemicals may be associated with oro-facial cleft development. Use of some drugs like anticonvulsant drugs, notably diazepam, phenytoin, and phenobarbital and cortiocosteroid by mothers in pregnancy increase risk of these anomalies.[4,6] Maternal age and consanguine marriage are might be others causes of cleft lip and palate.[1] Orofacial clefts present as part of the phenotype in over 600 specific genetic syndromes.[8] There is a lake of data on risk factors on formation of cleft deformities in Rangpur region of Bangladesh. The study was aimed to determine the risk factors and frequency of different types of clef lip and palate in Rangpur region of Bangladesh.

MATERIALS AND METHOD:

A descriptive cross-sectional study was conducted in a screening camp for cleft lip and palate patients in Rangpur,

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Bangladesh. Forty six patients, aged from 0.40 to 46 years, presenting with clef lip and palate deformities, irrespective of their age and gender, were included in the study. All the patients' data were recorded through a questionnaire, history and thorough physical examination to determine the type and site of cleft deformity and associated factors including sex of patients, family history of clefts and consanguineous marriage etc. The data were organized through special proforma constructed concerning the objectives of the study. The data were analyzed via Statistical Package for Social Sciences (SPSS version- 19).

RESULTS:

Most (60.90%) of the patients were female. Maximum had no any contributory family history and parents of only two patients had consanguinal marital history. Parents of none had any past illness. Maximum (60.90%) patients had nothing contributory history during pregnacy; 13% patients had solar/lunar effect and 26% had drug hisotry during pregnacy (table-I). Cleft lip with hard and soft palate were the most (32.60%) of the defects; cleft of soft palate only were the least (2.20%) of the defects; cleft lip, cleft lip with alveolous and cleft of hard palate only were in near equal value (17.40% ~ 21.70%) (fig. 1). Left sided cleft were the most common (32.60%) defect than in median cleft (28.30%); right sided and bilateral cleft were in same (17.40%) (fig. 2).

Table-I: Distribution of Patients according to risk factors of cleft lip and palate

Parameters	n	%
Sex		
Male	18	39.1
Female	28	60.9
Total	**46**	**100.0**
Parents' Relationship		
Consanguineous	2	4.3
Others	33	71.8
Total	**46**	**100.0**
Family History		
Father	0	0
Mother	0	0
Sibling	0	0
Other	0	0
None	46	46
Total	**46**	**100.0**
Pregnancy History		
Drug	12	26
Solar/Lunar	6	13.0
Nothing	28	60.9
Total	**46**	**100.0**

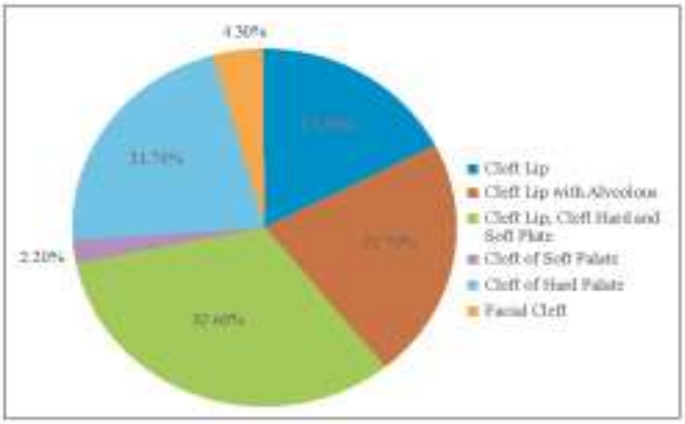

Fig. 1: Distribution of Patients according to Type of cleft lip and palate

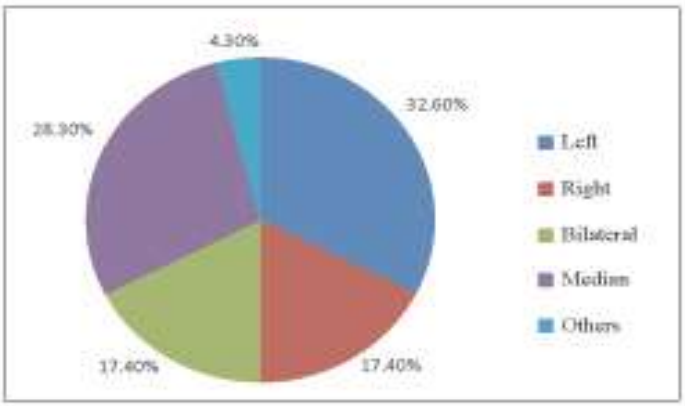

Fig. 2: Distribution of Patients according to Site of cleft lip and palate

DISCUSSION:

In the present study, a total of 46 cases of different types of cleft lip and palate patients were studied for their pattern of presentation, and risk factors. In the current series, the overall male to female ratio was 2:3, the results is consistant with the study of Omo-Aghoja et al.[2] who found cleft defects more in female than male in Nigeria; Mary et al.[5] found similar results (male to female ratio 1:1.42) from a study in China. The present study results differ from the study of Pakistan by Khan et al.[1] who found male to female ratio 1.4:1; Aljohar et al.[3] reported in their study from the Kingdom of Saudi Arabia it to be 1.3:1; Martelli et al.[9] made similar observations in from Brazil, with a male to female ratio of 1.7:1.

In the current series, 4.30% patients' parents had consanguineous marriages. The results of study by Khan et al.,1 Ravichndran et al[10] and Aziza et al[11], who found more than half of patients' parents had consanguineous marriages respectively, differ from the present study.

In this study, none of the patients had positive family hisotry. The results is nearer to the study by Eshete et al.[12] and Joycelyn et al.[13] who found a lower family history of 4.8% in Ethiopia and 4.30% in Nigeria respectively. In a study by khan[1] shown that 21.4% of cases had a positive family history for cleft deformities; Aziza et al.[11] observed 27.75% cases of their study population, Ravichandran et al.[10] produced a results with 34.20% of their study

population and Muyesser et al.[14] shown 14.88 % of cases having a positive family history for cleft lip and cleft palate.

In this study, 26% patients' mothers have history of drugs during pregnancy. This result is supported by study of Joycelyn et al.[13] reported that about 25% of mothers in Nigeria took different types of drugs without any prescriptions. Omo-Aghoja et al.[2] found 22.10% mothers took tradional harbal drugs in Nigeria. Gladys et al.[15] reported from a study of Mexico that 18% of cleft patients' mothers had history of drug intake during pregnant life. In this study 13% patients' mothers have history of lunar effects; by searching no other study found in relation to cleft and lunar effect. So, one thing is certain, that it has no relationship with the Lunar or Solar eclipse as it is generally thought by lay public.[16]

In this study, cleft lip with hard and soft palate were the most (32.60%) of the defects followed by cleft palate (23.90%), and cleft lip (17.40%). The result is supported by the others study[1,3,10,14,17,18] in which similar distribution of cleft were observed. Milard et al.[19] found slightly less cleft lip and palate than cleft palate only. Natsume et al.[20] reported that cleft lip found more than cleft palate. Cleft left lip with alveolous was found in 21.70% cases of current study. Catherina et al.[21] showen that cleft lip with alveolous were about 0.8/1000 live birth in Sweden.

Left sided cleft were the most common (32.60%) defect followed by median cleft (28.30%); right sided and bilateral cleft were same (17.40%) in present study. The results of this study corelates with others studies[14,22-24] who reported most of the cleft in left side. Omo-Aghoja et al.[2] reported that right sided and left sided cleft were observed same in their study.

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Original Article

Pattern of Dental Disease among the Patient Attending in Out Patient Department (OPD) of Rangpur Dental College Hospital, Rangpur

Mamun AA[1], Ahmad MS[2], Habib MA[3], Alam MM[4]

ABSTRACT:

Background: *It is important to understand the disease pattern of patients attending the out patient department of Rangpur Dental College. This is necessary for planning and providing effective dental health care services.*

Objectives: *To assess the patterns of dental disease among the patients attending the out patient department of Rangpur Dental College Hospital.*

Methodology: *A cross sectional study was done among the patients attending outpatient department in Rangpur Dental College Hospital (RDCH) with a view to assess the pattern of oral disease. A total of 256 new patients (141 male and 115 female) and 53% from urban and 47% from rural area were interviewed through a structured questionnaire followed by checklist from15.08.2013 to 31.08.2013.*

Results: *The study revealed that 50% patients have Gingivitis, 48% have Caries, 16% have Pulpitis, 13% have perodontitis, 25% have other dental disease.*

Conclusion: *It may be concluded that oral hygiene is one of major health concern; creating awareness through proper information of dental health can reduce the burden of dental disease.*

Key words: *DMFT, gingivitis.*

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INTRODUCTION:

It is important to understand the disease pattern of dental patients for planning and providing effective dental health care services.[1] Adequate information on pattern of dental diseases and to take necessary preventive programme to fight against the dental problems is a burning issue in health sectors. Therefore, the pattern of dental diseases needs to be identified by valid studies to assess the actual distribution of the problem in the community.[2] Because of the lack of awareness and knowledge of the people in oral and dental health, the dental diseases are increasing day by day. The pattern of dental disease has been changing with the implementation of different preventive programs and different professional experts practices.[3]

In spite of this, dental caries and periodontal diseases are still the major cause for extraction, though their relative contribution to tooth mobility varies from place to place.[4] Poor oral health and tooth loss have a profound effect on general health, quality of life, and can lead to poor dietary habits.[5] Although the patterns of dental disease are gradually changing, dental caries and periodontal disease are still the most important problems that are frequently seen and observed among the majority of the patients attending to the dental hospitals.[6] This study was done to assess the patterns of disease among the dental patients attending the out patient department of Rangpur Dental College Hospital.

METHODOLOGY:

A cross-sectional study conducted among individuals attending the outpatient department of the Rangpur Dental College and Hospital from June 2013 to August 2013. A total 256 patients of both sexes from urban and rural area attending in the outpatient department of the Rangpur Dental College and Hospital were selected by purposive sampling technique as the samples of the study. In order to collect the data, a structured questionnaire and a checklist were prepared at the beginning of the study considering all objects and variables of the study. It was then pre-tested on some dental patients in OPD at Rangpur Dental College. After making necessary alternations and corrections, a final questionnaire was developed. Data were collected on the basis of socio economic status and the disease patterns of the patient attending the OPD of Rangpur Dental College Hospital by the researchers themselves by face to face interview separately among the dental patients. Data analysis was done using statistical Package for Social science (SPSS V.15) for Windows and Microsoft Excel according to the key variable and objectives of the study.

RESULTS:

Among the 256 respondents maximum (101) patients were in the age group between 21-30 years, only 3% old and 8% children were attended in outpatient department (fig-I), 55%

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patients were male and 45% were female, 53% patients were come from urban area and 47% were come from rural area, most of the patients were educated and they were found conscious about their dental treatment. The study found that 18% patients were service holder and 10% were business oriented & 72% were students, housewife, family helper etc. are included (table-I). In this study, it is found that 57% patient have the pain problem, 35% have sensitivity problem, 24% have Gum Bleeding during brushing, 15% have bad odor, 14% have food accumulate, 9% have tooth mobility, 5% have broken tooth, 4% have ulcer, 5 % have missing tooth and 7% have others problem (table-II). In 256 observation 58% patients were referred to Conservative dept. 13% referred to Oral and Maxilofacial dept (OMS). Periodontology 9%, Children dentistry 11%, Orthodontic &Prosthodontics 9% (fig.-I). In this study it was found that 13% male & 14% female had missing teeth, 9% male & 5% female had filled teeth, 11% male & 9% female had Decayed teeth (fig-II).

Table I: Distribution of the patients by socio-demographic status (n=256)

Parameter	n	%
Age of the Patients (Years)		
<10	20	7.81
11-20	43	15.62
21-30	101	39.45
31-40	44	17.35
41-50	34	13.28
51-60	9	3.51
> 60	5	1.95
Total	**256**	**100**
Sex of the Patients		
Male	141	55.08
Female	115	44.92
Total	**256**	**100**
Living Area of the Patients		
Rural	120	47
Urban	136	53
Total	256	100
Patient Type		
Normal	254	99.21
Handicapped	2	0.79
Total	**256**	**100**
Education of Patients		
Illiterate	20	8
Primary	36	14
High School	19	7
SSC	41	16
HSC	64	25
Graduate	71	28
Post-Graduate	5	2
Total	**256**	**100**
Profession of the Patients		
Business	25	10
Services	46	18
Others	185	72
Total	**100**	**100**

Table-II: Distribution of the patients by their complaints (n=256)

Patient Complaints	n	%
Pain	147	57%
Food Accumulate	37	14%
Sensitivity	89	35%
Gum Bleeding During Brushing	62	24%
Bad Odor	38	15%
Broken Teeth	12	5%
Swelling	14	5%
Missing Tooth	19	7%
Disorder of Tooth	8	3%
Tooth Mobility	23	9%
Ulcer	9	4%
Others	17	7%
Total	**475**	

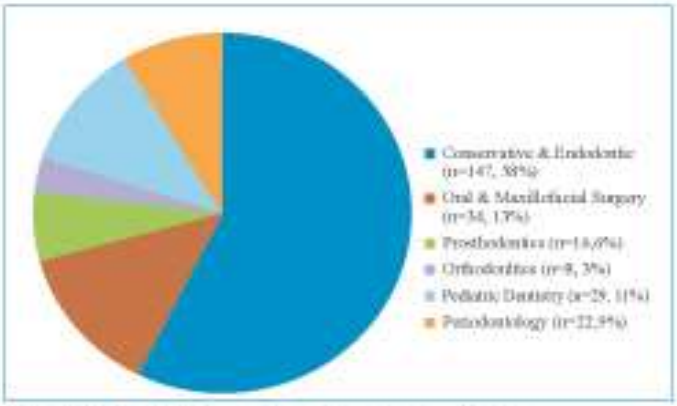

Fig. 1: Patient Referred to different department.

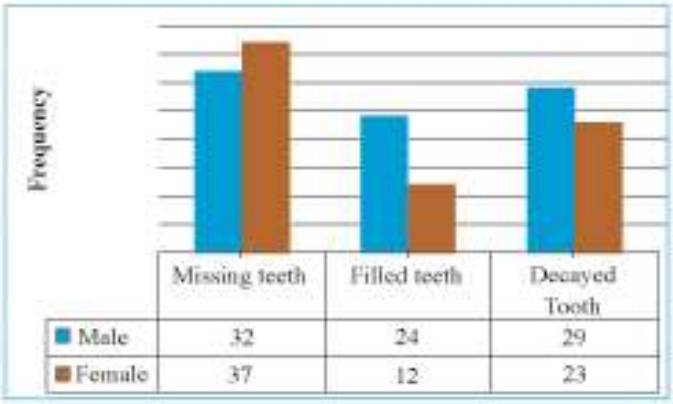

Fig. 2: DMFT of patients according to sex

DISCUSSION:

Dental check-ups have been practiced by general dental practitioners in many countries for decades. This practice leads one to assume that it is an effective clinical procedure. In fact, there is limited evidence to strongly support or oppose the dental checks practice or persuading individuals to attend regular dental checkups.[7] As a developing country like Bangladesh the prevalence of different dental diseases is not fully explored and documented but the pattern of dental disease has been changing with the implementation of different preventive programs and different professional's experts practices.[8]

In this study, it was observed that highest 57% of the patients had complaints of pain followed by sensitivity (35%), gum bleeding (24%) and other on examination was found that only 20% of the patients had decayed, 14% had filled and 27% had missing teeth. Considering the patients complaint and clinical examination patients was reffered to conservative (58%), OMS (13%), periodontology (9%) & prosthodontic (9%) department.

The study had revaled that that 85% of the respondents oral hygiene condition were fair and only 9% had poor oral hygiene. It was also found that in low income group most 73% of respondents had poor oral hygiene and other income group found comparatively higher oral hygiene. It was observed that highest 66% had mild inflammation of gingival and 72% of the respondents plaque and only 26% had found good. In clinical observation it was found that 50% had gingivitis 48% dental caries, 16% had pulpitis another study found similar to this study.[8] In context of pattern of oro-dental diseases, different study found shown different results as the investigators collected the samples from different geo-graphical region. For the geo-graphical variation, peoples' socio-demographic status, food habit and oral hygiene practices differ from one another. So, pattern of oro-dental diseases also be different. In the present study, investigators have collected samples from a tertiary level dental hospital in Rangpur, a northern region of Bangladesh; and found oro-dental diseases pattern which does not co-relates with other study findings.

CONCLUSION:

The present survey showed that the levels of oral disease knowledge and attitudes were low. Poor quality of life in terms of experience of pain and discomfort from teeth was common in interviewed; however, due to limited access to dental care most people remained underserved. Dental visits were infrequent and mostly carried out for emergency care. The multivariate analyses of dental caries experience revealed the existence of socio-behavioural determinants of oral health; dental caries and pain are currently somewhat higher among the privileged population groups .

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Original Article

The Role of Three Dimensional Computed Tomography for Evaluation and Surgical Planning of Midface Fractures.

Siddik ANMM[1], Haider IA[2], Talukder MA[3]

ABSTRACT:

Background: *A common site for trauma in the head region is the face. Due to its complex pattern of attachment a meticulous, complete and undistorted imaging is essential to examine the facial bones in order to avoid the serious sequelae. The most commonly used conventional radiographic (CR) modality for demonstrating mid face fractures is Waters' view (OM view) radiographs.*

Objectives: *To evaluate the effectiveness of conventional tomography (CT) and three dimensional computed tomography 3D CT in the middle third facial bone fractures.*

Methods: *Thirty patients, age ranged from 12 to 70 years, with maxillofacial injury was purposively selected in the study. Data on patients' sociodemographic charecteristics were collected by structured questionaire and nature of trauma, number of the fracture, soft tissue injury, head and spinal injury, associated body injury were recorded from clinical examination and radiography by check list. Data were analyzed by MS-EXCEL.*

Results: *3D computed tomography has been found to offer information that are otherwise not available by only conventional CT. 3D Computed tomography is an excellent modality for the detailed evaluation of middle face fractures.*

Conclusion: *The combination of both conventional tomography and 3D computed tomography offers a high diagnostic gain as fractures of the middle face are considered.*

Key word: *3D CT, Plain CT, Midface Fractures*

Rangpur Dent. Coll J 2014; 2(1): 9-12

INTRODUCTION:

The most complex structures of the skeletal anatomy are the facial bones. The facial bones provide the structural support and points of attachment for the facial soft tissues and protect vital organs from injury. It also provides the facial symmetry, beauty and look. The middle third is more complex than upper and lower third.[1] Middle third of the facial skeleton is defined as an area bounded superiorly by a line drawn across the skull from the zygomaticofrontal suture of one side, across the frontonasal and frontomaxillary suture to the zygomaticofrontal suture on the opposite side, and inferiorly by the occlusal plane of the upper teeth, or, if patient is edentulous, by upper alveolar ridge. Posteriorly, the region is demarcated by the sphenoethmoidal junction but includes the free margin of the pterygoid laminae of the sphenoid bone inferiorly.[1] Therefore in case of trauma, a thorough and accurate assessment of facial injuries is mandatory.

A common site for trauma in the head region is the face. Aetiological factors include road traffic accident, fall from height, interpersonal violence etc.[2] Most of the facial fracture result from road traffic accidents and sport injuries.[3] In developing country like Bangladesh road traffic accident is the most common aetiological factor.[4] Fractures of the middle part of the face may involve the maxilla, Zygoma & orbit.[5] Due to its complex pattern of attachment with each other a meticulous, complete and undistorted imaging is essential to examine the facial bones in order to avoid the serious sequelae of over lapping, over-looking or mis-interpretation of the radiographic findings.[6]

Superimposition of osseous structures commonly results in radiographs of poor interpretive quality especially in complex structures as the face and skull. A clear demonstration of the complex structures associated with massive comminution and displaced fragments is not always an easy task.[7] On the other hand, it is rather difficult to distinguish soft tissue lesions or their extensions within complex structures as those of the face or base of the skull.[8] The most commonly used conventional radiographic (CR) modality for demonstrating mid face fractures is Waters' view(OM view) radiographs.[9,10] However, with the recent advances in radiographic imaging, the computed tomography with Three Dimensional (3D) images is used in the diagnosis of maxillo-facial fractures.[11] The value of any diagnostic modality depends on the amount of information gained by its utilization. In case of maxillo-facial trauma, the purpose of any imaging investigation is to provide the surgeon with sufficient information for the best treatment planning.[3]

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The purpose of this study was to evaluate the effectiveness of conventional tomography (CT) and three dimensional (3D) computed tomography (CT) in the middle third facial bone fractures, which may help in establishing a preferred diagnostic protocol in managing such cases.

MATERIALS AND METHODS:

A descriptive cross sectional study was carried out in the department of Oral and Maxillofacial Surgery, Dhaka Dental College & Hospital from January 2012 to June 2012 after recivieng ethical clearance from concerned authority. Thirty patients, age ranged from 12 to 70 years, (mean 36.30, SD±12.06 year) with maxillofacial injury were selected purposively. Patients contraindicated for radiography, severely injured, unconscious, psychotic/ uncooperative patients were excluded. Data on patients' sociodemographic charecteristics were collected by structured questionaier and nature of trauma, number of the fracture, soft tissue injury, head and spinal injury, associated body injury were recorded from clinical examination and radiography by checklist. Data were analyzed by Ms-Excel.

RESULT:

Among 30 patient, 21 (70%) patients had head injury associated body injury was 6 (20%) and 3 (10%) had spinal injury (table: I). Among 30 patients 24 (80%) had the history of road traffic accident, 3 (10%) fall from height, 1 (3.33%) sports injury and 2 (6.66%) others cause. (figure: 1). Out of 30 patients, orbital fractures were in 3D CT 42 and Plain CT 29; zygomatic fractures were in 3D CT 65 and Plain CT 40; and maxillary fractures in 3D CT 82 and in Plain CT 58 (table: II). In orbital fracture, lateral orbital wall fracture in 3D CT 28, in plain CT 16; medial orbital wall fracture in 3D CT 22, in plain CT 20; infra-orbital rim fracture in 3D CT 45, in plain CT 25 and orbital floor in 3D CT 03, in plain CT 15 (figure: 2). In zygomatic fracture, frontozygomatic suture fracture in 3D CT 28, in plain CT 16; Frontozygomatic process fracture in 3D CT 20, in plain CT 10; Zygomatic arch fracture in 3D CT 18, in plain CT 0. Zygoma fracture in 3D CT 25, in plain CT 18 and Zygomaticomaxillary suture fracture in 3D CT 19, in plain CT 12 (figure: 3). In maxilla, palatal bone fracture in 3D CT 12, in plain CT 16; Anterior wall of maxillary antrum fracture in 3D CT 45, in plain CT 30; Posterior wall of maxillary antrum fracture in 3D CT 0, in plain CT 15; Lateral wall of maxillary antrum fracture in 3D CT 21, in plain CT 22 and Medial wall of maxillary antrum fracture in 3D CT 08, in plain CT 12 (figure: 4).

Table-I: Associated Injury (n=30)

Management	n	%
Head injury	21	70
Associated body injury	6	20
Spinal injury	3	10
Total	**30**	**100**

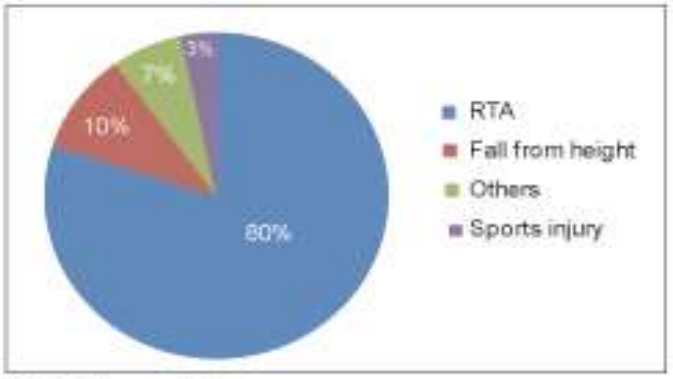

Fig-1: Causes of injury

Table- II: Number of fractures by anatomical site (n=30)

Site	3D CT	Plain CT
Orbit	42	29
Zygoma	65	40
Maxilla	82	58

3D CT : Three dimensional computed tomography
Plain CT : Plain computed tomography

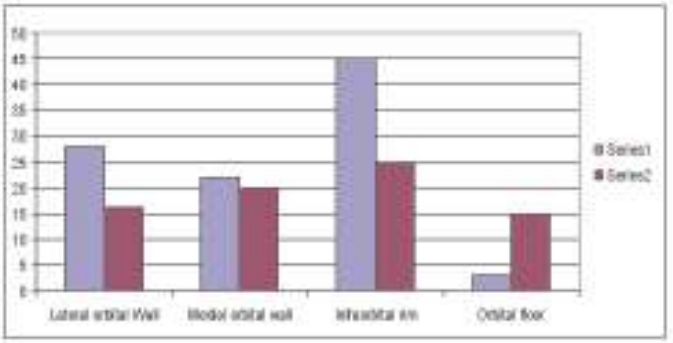

Fig- 2: Diagnosis of orbital fracture by two imaging modalities

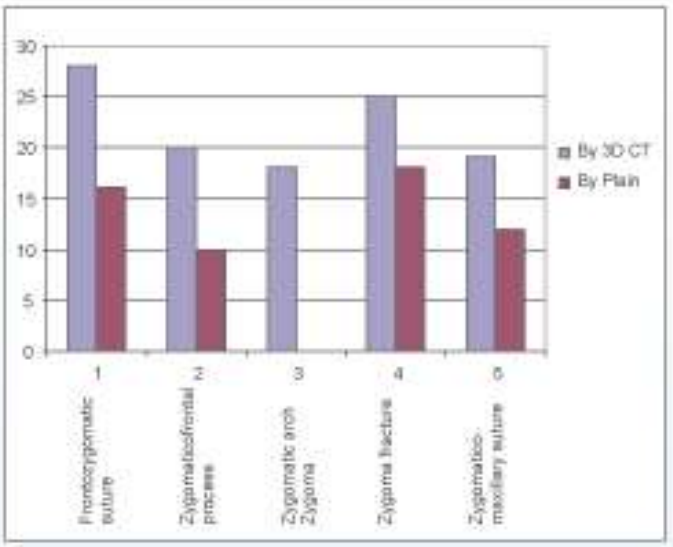

Fig- 3: Diagnosis of Zygomatic fracture by two imaging modalities

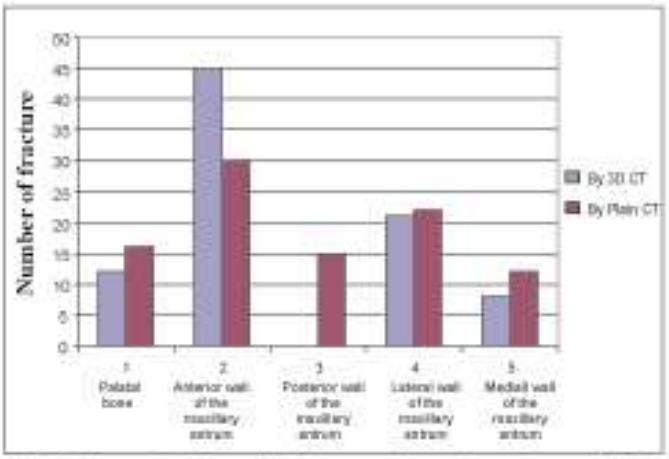

Fig-4: Diagnosis of maxilla fracture by two imaging modalities.

DISCUSSION:

Many study stated that the great advantage of 3D CT in comparison with conventional CT is the ability to image both hard and soft tissue so that it is possible to evaluate the extra-ocular muscles, optic nerve and globe.[13-16]

In this study, it was found that 3D CT is the best method for imaging orbital fractures. There was a difference in imaging fractures of the lateral and infra orbital rim between 3D CT and conventional CT. 3D CT was better than conventional CT and was also better than conventional CT for the medial orbital wall. In case of orbital floor fractures this study found no significant result this may be due to inconvenience of the procedure to convert 2D data into 3D reconstruction, 3D CT was more effective for determining the types and sites of fractures.

3D CT may be useful to assess the factors, such as orbit displacement, surroundings of orbital rim, presence or absence of any foreign body which are helpful in predicting-which cases are more likely to develop enophthalmos. It also can differentiate the volume of the orbital tissue.[14]

This study shows the superiority of 3D CT in the diagnosis of fractures of the orbit especially lateral and infra orbital rim and in some cases of medial, supra-orbital rim and orbital floor. While the Waters' view may be sufficient for fractures of infraorbital rim and in some cases of lateral orbital wall, 3D CT is indicated suspected blow-out fractures with involved infra-orbital rim, especially in the patients who may develop diplopia or enophthalmos. There are different opinions in the literature on the evaluation of fractures of the zygoma with conventional methods. Patria and Blaser[13] have reported that Waters' projection alone is not sufficient to determine the depression and rotation of zygoma and should be supplemented with other conventional methods. Accordingly, Dafner et al.[17] have proposed that the lateral projection is useful in diagnosing dislocation, rotation and depression of the molar prominence. Johnson[15] pointed out that any dislocation can be evaluated adequately from a Waters' view by comparison with the sound side.

There is a consensus that conventional methods are adequate for the evaluation of fractures of the zygoma and CT is not required. [15, 18] It is only needed when there is a gross dislocation associated with an orbital fracture. Dislocation and rotation can be easily displayed by 3D CT.[15,18] It is claimed that 3D CT is superior to conventional CT for the diagnosis of zygoma fractures for two reasons; first, since the exact diagnosis of displacement of each of the five major articulations of the zygoma can be evaluated better with 3D CT, it facilitates the selection of the best surgical approach;[19] second, depression of zygomatic arch may trap the coronoid process of the mandible and this complication is more easily appreciated on 3D CT.[20]

This study finding shows difference between any of the methods for imaging fractures of the zygoma. Plained CT proved inadequate for imaging fractures of zygomatic arch. Widening of the zygomaticotemporal suture was overlooked on submentovertex views due to superimposition but was clearly seen on 3D CT. In case of zygomaticomaxillary suture, 3D CT shows difference. Fractures of the zygoma could be classified with 3D CT.

The study shows difference between 3D CT and conventional plain CT for the detection of all sites of fractured zygoma for radiologic evaluation, which are very much helpful for diagnosis and surgical planning. This study shows the degree of suspicion in different areas of zygoma fracture, among these all of the sites are better visualized to this 3D CT.

Rowe et al.[11] and Russell et al.[18] found that CT is adequate for simple Le Fort fractures but in more complex injuries, CT along with 3D is required. Johnson[15] and Feuerbach stated that extensive plain film studies following massive trauma are technically difficult and yield a relatively small amount of information. Using 3D CT areas of clinical interest can be isolated by volume rendering technique 3D and viewed in a variety of orientations, but not possible using other modalities.

This study established that 3D CT is more effective than conventional plain CT for maxillary fractures. Maxillary palatal fracture is less visualized and it is due to inadequate conversion of 2D data to 3D reconstruction and it is due to software insufficiency, but it could be easily visualized after individual mobility of individual bone.

The study shows that the very important structures in the midface that is orbit, zygoma and maxilla fracture are better detected by 3D CT, and of these individual structure 3D CT has the high modality of suspect the fracture sites.

CONCLUSIONS:

It is quite difficult – or even impossible – to fully diagnose the cranio-facial trauma cases with middle face fractures making use only of conventional radiography or conventional CT or only 3D CT. In this study, 3D computed tomography has been found to offer information that is

otherwise not available by only conventional CT. It has been necessary to use 3D Computed tomography for guiding surgical exposure and fragment fixation. The combination of both conventional tomography and 3D computed tomography offers a high diagnostic gain as fractures of the middle face are considered. 3D Computed tomography is an excellent modality for the detailed evaluation of middle face fractures.

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Original Article

Oral Health Status among the Tobacco Workers in Rangpur, Bangladesh

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ABSTRACT:

Background: *Oral health is a vital part of general health and is a valuable asset of every individual. Oral diseases are one of the most common of non-communicable diseases affecting varied population. Tobacco habits co-existing in a significant proportion of male adolescent will have major implication on oral diseases.*

Objectives: *The objective of the study was done with a view to assess oral health status of tobacco workers.*

Methods: *A cross sectional study was carried out among 117 tobacco workers of three factories in Haragash upozilla, Rangpur district. Subjects were randomly interviewed through a structured questionnaire regarding work details, habits and oral health status.*

Results: *It was found that, 76% male and 67.4% female workers Oral Hygiene Index is poor. In the context of Periodontal Index it is found that 4.2% male and 8.6% female worker's have mild gingivitis and 2.8% male workers established disruptive periodontal disease, 2.8% male worker's have thin film of plaque adherent to the gingival margin and adjacent area of the tooth. We also found 98.6% male and 97.8% female worker's have mild gingivitis, 1.4% male and 2.2% female worker's have severe gingivitis.*

Conclusion: *It may be concluded that oral hygiene is one of major health concern, creating awareness through proper information of dental health can reduce the burden of dental disease.*

Key words: *Oral health, Tobacco workers.*

Rangpur Dent. Coll J 2014; 2(1): 13-16

INTRODUCTION:

Oral health is a vital part of general health and is a valuable asset of every individual. Oral diseases are one of the most common of non-communicable diseases affecting varied population. It is an important public health problem owing to the prevalence, socio-economical aspect, expensive treatment and lack of awareness. Oral health status has a direct impact on general health and conversely general health influences oral health.

Though oral and dental diseases are rarely life-threatening, they do have an impact on the quality of life. For the oral health of the general population at the global level, marked changes in oral disease pattern has been observed over past decades. Oral health report of the studies carried out, over past 40 years revealed contrasting disease trend, depending upon country population group and socio-economic condition. Majority of people living in rural areas have limited access to essential oral health care due to geographic and economic barrier. Various previous studies suggested that cigarette smoking and tobacco habits co-existing in a significant proportion of male adolescent will have major implication on oral diseases. Oral health as an essential aspect of general health can be defined as "a standard of health of the oral and related tissues which enables an individual to eat, speak, and socialize without active disease, discomfort or embarrassment and which contributes to general well-being". Oral health knowledge is considered to be an essential prerequisite for health-related practices, and studies have shown that there is an association between increased knowledge and better oral health. Those who have assimilated the knowledge and feel a sense of personal control over their oral health are more likely to adopt self-care practices.

Adequate information on pattern of dental diseases and to take necessary preventive program to fight against the dental problems is a burning issue in health sectors. Therefore, the pattern of these dental diseases needs to be identified by valid studies to assess the actual distribution of the problem in the community. Purpose of this study was to asses the oral health status of tobacco worker to develop awareness and knowledge of the people in oral and dental health, the dental diseases related to occupational hazards in tobacco factories.

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5. Dr. Md. Monirul Alam, BDS, Lecturer, Dept. of Science of Dental Materials, Rangpur Dental College, Rangpur.

METHODOLOGY:

A cross-sectional study was conducted among 117 tobacco worker in factories in Rangpur District, Rangpur over the period of three months from July to December 2013. The sample was collected purposively and by purposive random sampling technique. In order to collect the data a structured questionnaire and a checklist was prepared at the beginning of the study considering all objects and variables of the study. It was then pre-tested on some tobacco workers in Rangpur. After making necessary alternations and corrections, a final questionnaire was developed in English. Data was collected on the basis of work details and no. of teeth, decayed, missing, filled teeth (dmft), oral hygienic index, periodontal index, mobility index, plaque index, gingival index, dental disease such as- gingivitis, periodontitis, caries, pulpitis, abrasion/attrition/erosion, fracture etc. by the researcher himself by face to face interview separately among the dental patients. Data analysis was done using statistical Package for Social science or SPSS 15 for Windows version and Microsoft word and Excel according to the key variable and objectives of the study

RESULTS:

In this study it is found that most (45.3%) workers are work in the tobacco factories for 1-5 years and 29.9% are from 10 years more. Most (66.7%) worker work for 8 hours. It is found that, 52.1% workers work in Making *bidi* and tobacco processing and most of them does not use musk in the work place (table-I). In our study it is found that, most (77.8%) workers consume betel-leaf and nut; among them, 57.1% are in 1-5 times. Most (55.6%) workers use tobacco as smoking (bidi and churut) and smokless(Zadda and Gul). Maximum worker uses tobacco more than 5 times in a day. It is found that, 23.9% workers get health and medical facilities in the factory premises and of the 89.2% are satisfies with the facilities (table-II).

Table I: Factors related to tobacco workers at work premises

	n	%
How long you work at tobacco factory		
1-5 Years	53	45.3
5-10 Years	29	24.8
10 Years more	35	29.9
Average work time at factory		
8 Hours	78	66.7
10 Hours Plus	39	33.3
Work Category at Tobacco factory		
Making Biri	28	23.9
Tobacco Processing	33	28.2
Zadda Processing	3	2.6
Gul Processing	6	5.1
Administrative work	15	12.8
Labour	32	27.4
Have You use musk?		
Yes	40	34.2
No	77	65.8

Table II: Factors Related to tobacco workers habit

	n	%
Have you eat Betel-leaf and nut?		
Yes	91	77.8
No	26	22.2
If yes, what times		
1-5	52	57.1
6-10	33	36.3
11+	6	6.6
Have you use tobacco?		
Yes	65	55.6
No	52	44.4
If you use tobacco but how you use?		
Zadda	39	33.3
Biri	24	20.5
Gul	6	5.1
How many times you use smoking-tobacco (Bidi/Churut)		
1.00	2	1.7
2.00	4	3.4
3.00	1	0.9
4.00	3	2.6
5+	17	14.5
How many times you use smokless-tobacco (Jarda/ Gul)		
1.00	2	1.7
2.00	6	5.1
3.00	7	6.0
4.00	4	3.4
5+	23	19.7
Is in your factory give health and medical facilities		
Yes	28	23.9
No	89	76.1
If given, how possibilities		
Satisfactory	25	89.2
Unsatisfactory	3	10.8
Factories sanitation facilities.....		
Satisfactory	84	71.8
Unsatisfactory	33	28.2

Maximum workers (54.7%) have gingival disease, 17.1% have periodontitis, 51.3% have caries, 18.7 % have pulpitis, 45.3% have abrasion,12.8% have attrition and 5.1 % have erosion (fig. 1). It is found that, 29.1% male and 11.1% female workers have dental caries, 19.7 % male and 8.5% female workers have Missing teeth due to extraction and 1.7% have male worker have filling teeth (fig. 2). It is found that, mean oral Hygiene Index is 4.73 and Std. Deviation is 2.54; mean Periodontal Index is 0.58 and Std. Deviation is 0.77; mean Plaque Index is 0.15 and Std. Deviation is 0.10 and mean Gingival Index is 0.13 and Std. Deviation is 0.34 (table-III).

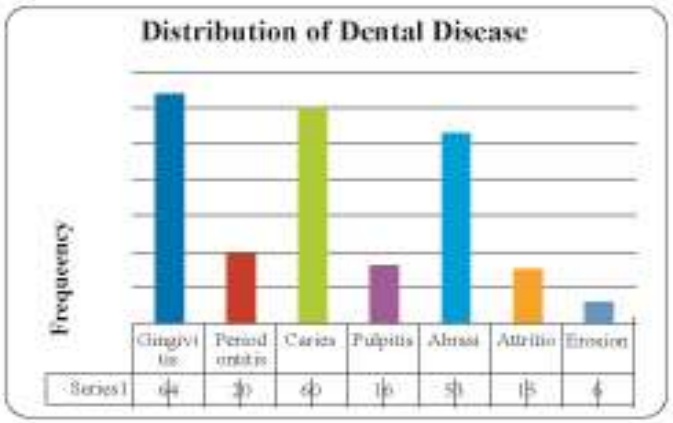

Fig. 1: Distribution of Dental disease among the tobacco workers

Table III: Oral Helath Status of tobacco workers in terms of sex of the Respondesnt

	Sex			Mean ± SD
	Values	Male	Female	
Oral Hygiene Index	0-1	4	6	4.73 ± 2.54
	1.3-3	13	9	
	3.1-6	41	21	
	6+	13	10	
Periodontal Index	0-0.2	6	3	0.58 ± 0.77
	0.3-0.9	3	4	
	1.6-5	2	0	
Plaque Index	0.0-.10	20	14	0.15 ± 0.10
	0.11-0.2	33	25	
	0.21-0.49	14	6	
	0.5+	2	0	
Gingival Index	0	9	11	0.13 ± 0.34
	.01-.10	29	16	
	0.11-0.20	21	9	
	0.21-.40	5	2	
	2.1+	1	1	

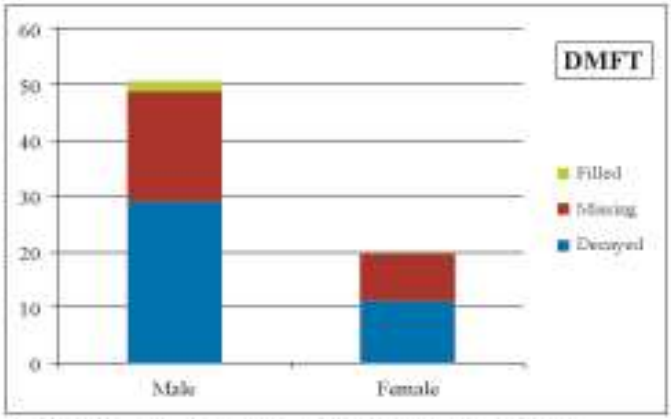

Fig. 2: Distribution DMFT by Sex of the respondent

DISCUSSION:

The effects of the various etiologic agents responsible for oral occupational disease depend on their specific chemical, physical and bacterial nature, their physical state, and their mode of entry in the chemical industry may affect the pattern of disease in the periodontium and the oral mucosa and also increases the prevalence of dental caries.

Progression and severity of the disease depends on complex interactions between several risk factors such as microbial, immunological, environmental, and genetic factors, as well as age, sex, and race.[1] Tobacco smoking is a significant risk factor for periodontal disease.[2] Epidemiological studies concerning the association between smoking and periodontal disease have markedly increased. Based on epidemiological articles published from 1965 to 2000 & the US Surgeon General's Report 2004, which comprehensively addressed active smoking and health issues, concluded that there is sufficient evidence to infer a causal relationship between smoking and periodontal disease.[3]

The study results corelate with the preveous study by Rahman M[13] who found that largest percentage of workers involved in bidi making followed by gull and jarda processing. Respondents who were working in the factory about 68% of them suffering from various kinds of diseases although in some times the factory give medical allowances some times but it did not fulfill their demand. The current study results is supported by the sudy of Kaur R (2006)[14] who found prevalence of tobacco related oral sign and symptomes are high in tobacco-factory worker in India. Abhishek et al,[15] who conducted a study to estimate the prevalence of oral lesion of tobacco workers, found that tobacco industry workers are in high risk for development oral lesion. The study report support the present study finding.

CONCLUSION:

In order to prevent oral disease and promote oral health the national health authorities should give priority to community-oriented oral health care. Essential oral health care should be offered to those vulnerable group of the community.

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Original Article

Management Facilities of Drug Abusers in Some Selected Rehabilitation Centers in Dhaka, Bangladesh

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ABSTRACT

Background: *Drug and alcohol rehabilitation centers and programs have been identified as a very effective means from getting out of the horrors of alcohol and drug addiction. The evaluation of on what center and program that would cater to special need is one of the most important for decisions making.*

Objectives: *The objective of the study was to find out the management facilities of those rehabilitation centers to the patients and to assess the satisfaction of the respondent.*

Methods: *A descriptive study was conducted among the 100 patients selected purposively with the inclusion criteria from who were admitted in some selected rehabilitation centers during data collection period. Interviewer administered close ended questionnaire for data collection by face to face interview and record review. Management facilities were checked in four (4) renowned rehabilitation centers of Dhaka.*

Results: *Management facilities of rehabilitation centers of Dhaka is not in very good condition, it is in average condition. The study also showed that among those four (4) institutes one institute even don't have any registered doctor which is undesirable. The study showed that from total participants among male 11.24% are completely satisfied about the management facilities of rehabilitation centers. Whereas 24.72% male are moderately satisfied and 14.04% male are dissatisfied. Among females 9.09% female patients are completely satisfied, 40.91% are moderately satisfied and 0% female is dissatisfied.*

Conclusion: *The result reflected that the management facilities of those rehabilitation centers are in average condition.*

Key words: *Drug, Abuse, Management Facility, Rehabilitation.*

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INTRODUCTION:

Drug abuse is the excessive, maladaptive or addictive use of drugs for non-medicinal purposes. It also define a state, emotional and sometimes physical, characterized by a compulsion to take drugs on a constant basis in order to experience its mental effects.[1] Drug abuse gives rise to dependence both physical and psychological, social and economic instability. The effects of drug abuse on an individual therefore form the basis for its cumulative effects on the society.[2]

There are several factors, which can influence the abuse of drugs among youths such as peer pressure, weak parental control, child abuse, imitation, emotional stress, truancy among students, and the availability of the drugs and the ineffectiveness of the laws on drug trafficking.[3] Several types of drugs are susceptible to abuse by youth. These drugs range from most common and less expensive such as cigarettes and alcohol to expensive and more deadly such as cocaine and heroin.[4]

In Bangladesh drug abuse is now in alarming situation. Drug use is an alarming problem in Bangladesh. An estimated 1.7 million people are drug users in the country.[5] Injecting drug users present a tremendous potential for an HIV epidemic due to their needle-sharing habits, while non-injecting drug users are also prone to spread/ receive HIV infection through their unsafe sexual behavior.

There are many drug and alcohol rehabilitation centers that can help anyone in their endeavor for recovery. These rehabilitation centers have different programs that are especially made to cater to the different needs of an individual who wants to recover from drug and alcohol addiction.[6] It is important to know enough about these drug

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and alcohol rehabilitation centers and programs because they are vital in search of recovery. One of the important goals of drug and alcohol rehabilitation centers and programs is to make an individual decrease the utilization of whatever substance being used.

There are many things that drug and alcohol rehabilitation centers and programs can offer. In-patient or out- patient programs, and support from local groups are the ones included in this treatment. The reason for addiction is always the considering factor on such treatments.[7] Drug and alcohol rehabilitation centers and programs have been identified as a very effective means from getting out of the horrors of alcohol and drug addiction.[8] However, a very effective treatment center can cost very high but cost is always a small part if recovery is your goal. The price on should be paying should not be the calculated variable on finding a good treatment center. After all, the evaluation of on what center and program that would cater to your special need is one of the most important decisions you will be making.

But the recovery of the patient depends on the present condition of rehabilitation centers and the way how they are managing patients.[9] The study was done to find out the management facilities of those rehabilitation centers to the patients and to assess the satisfaction of the respondent. So that study may help our people as well as our decision maker to think something about the management facilities of rehabilitation centers of our country.

METHODOLOGY:

A descriptive cross sectional study was conducted among 100 patients (age ranged 19–48 years, 89 male and 11 female) in 4 renowned rehabilitation centers in Dhaka to identify the management facilities of drug abusers from 1st January to 30th June over the period of six month. Interviewer administered close ended questionnaire to collect data by face to face interview and record review on the basis of rehabilitation centre, technique of withdrawal, gym, registered doctors, counseling, monitoring, and treatment expense per day, food quality and satisfaction by patients about treatment. Data analysis was done by SPSS programming system after data processing.

RESULTS:

This study conducted in those rehabilitation centers gave us some idea about the management facilities of rehabilitation centers and also indicates that the condition of drug abusers and the condition of rehabilitation centers are not so good in position. During study we found there are lots of educated patients who are admitted as drug abuser. Fifty two patients were in higher secondary level educated and 1 patient was in secondary level student and rests were higher educated and most (89) of them are male (table-I). Among the total 100 patients only 22 patients said that they were satisfied about the management facilities of rehabilitation centers and 53 patients expressed as satisfied in average (table-II).

Table I: Socio-demographic characteristics of respondents (n=100)

Parameters				
Age (yrs)	**Minimum-19**	**Minimum-48**	**Mean - 31.90**	**SD - 6.648**
Sex		**n**	**%**	
Male		89	89.0	
Female		11	11.0	
Total		**100**	**100.0**	
Education				
Masters		1	1.0	
Graduate		52	52.0	
Higher Secondary		43	43.0	
Secondary		4	4.0	
Total		**100**	**100.0**	
Occupation				
Job		9	9.0	
Business		27	27.0	
Student		37	37.0	
Others		27	27.0	
Total		**100**	**100.0**	
Addicting Substances				
Sleeping Pill		12	12.0	
Pain Killer		1	1.0	
Ganja		9	9.0	
Alcohol		9	9.0	
Phensydil		5	5.0	
Heroine		1	1.0	
Others		8	8.0	
More Than One Drug		55	55.0	
Total		**100**	**100.0**	
Inspiration of Addiction				
Adventure		14	14.0	
Friends		38	38.0	
Frustration		34	34.0	
Others		14	14.0	
Total		**100**	**100.0**	
Barrier				
Financial		23	23.0	
Familial		12	12.0	
Social		20	20.0	
Others		45	45.0	
Total		**100**	**100.0**	

Table II: Crieteria of Rehabilitation Centers

Parameter of withdrawal Technique	n	%
Medicine	32	32.0
Medicine & Religious Way	43	43.0
Crudely	25	25.0
Total	**100**	**100.0**
Gym		
Yes	32	32.0
No	**100**	**100.0**
Registered Doctors		
0	25	25.0
4	27	27.0
5	16	16.0
8	32	32.0
Total	**100**	**100.0**
Counseling		
Yes	75	75.0
No	25	25.0
Total	100	100.0
Monitoring		
Yes	75	75.0
No	25	25.0
Total	**100**	**100.0**
Treatment Expense Per Day		
201-500	68	68.0
501-2000	17	17.0
2001-5000	15	15.0
Total	**100**	**100.0**
Food Quality		
Good	11	11.0
Average	67	67.0
Bad	22	22.0
Total	**100**	**100.0**
Satisfaction on Treatment		
Satisfied	22	22.0
Average	53	53.0
Dissatisfied	25	25.0
Total	**100**	**100.0**

DISCUSSION:

Addressing the issue of substance abuse treatment and prevention in rural areas begins with understanding the complex etiology underlying substance abuse and utilizing this information to develop effective drug prevention programs. Fundamental to this understanding is identification of the unique barriers and limitations encountered by seeking effective substance abuse prevention programs and treatment.[10]

Addiction to drugs is a disease that affects one's brain and behavior. The drugs interfere with normal brain functioning and not only create powerful feelings of pleasure, but also have long-term effects on brain metabolism and activity.[11,12] It is a serious, chronic, and relapsing health problem for any sex, age and background. However, it is a treatable disease. The addiction progresses through predictable stages. Those addicted to drugs suffer from a compulsive drug craving and usage; and generally cannot quit by themselves. Support and treatment are therefore necessary to end this compulsive behavior.[13]

Drug rehabilitation is an umbrella term for process of medical and psychotherapeutic treatment, for dependency on psychoactive substances such as alcohol, prescription drug and so-called street drugs such as cocaine, heroin or amphetamines.[14] The obvious intent is to enable the patient to decrease their previous level of abuse, for the sake of avoiding its psychological, legal, social, and physical consequences in extreme abuse.

According to the Rural Healthy People (2010) [15] survey, substance abuse was selected by 25 percent of the respondents as a rural health priority among the 28 Healthy People 2010 focus areas. Substance abuse, ranked sixth, was virtually tied with education and community-based programs and with maternal, infant, and child health the seventh, eighth, and ninth place rankings among the priority nominations.

The abuse of alcohol spans across geographic, demographic, social, and economic boundaries. Nationally, an estimated 15.1 million people abuse alcohol,[16] with rates of binge drinking among adults remaining relatively constant since 1988. The highest prevalence of being drinking is reported in the 18 to 25 year old group at 32%.[10] Men have higher rates of alcohol use than women; however, women experience a faster progression of alcoholism with less consumption. Heavy alcohol use, nationally, appears to vary little by urban city among 18 to 49 year olds.[17]

CONCLUSION:

About half of the respondent (53%) commented average about the management facilities and less than one fourth respondent (22%) were satisfied on rehabilitation centers and one fourth respondent (25%) were dissatisfied about the management facilities. The result reflected that the management facilities of those rehabilitation centers are in average condition.

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Review Article

Accidental Needle Breakage During Inferior Alveolar Nerve Block: A Case Report & A Review

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Abstract:

The incidence of dental needle breakage has dramatically reduced since the advent of disposable needles. Nevertheless, fracture still occasionally occurs. Most needle fractures have occurred during administration of inferior alveolar nerve (IAN) blocks. Though it is unusual yet alarming complication in contemporary dental practice that is why we reviewed and report a case of surgical retrieval of a broken needle from the pterygomandibular space following an inferior alveolar block and also suggest some guidelines for preventing this unfortunate event.

Kew words: *Inferior alveolar nerve (IAN) block, Needle, Pterygomandibular space.*

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INTRODUCTION:

The number of cases reported in the literature of needles broken in the course of local anesthetic procedures have shown a marked decrease since the generalized use of disposable instruments began. This complication, however, may still occur because of errors in the manufacturing process, lack of patient cooperation, inaccurate anesthetic technique, or sudden and unexpected movements on the part of the patient or the dentist[1]. When this accident takes place, a dentist must refer the patient to a specialist in oral and maxillo-facial surgery without delay to prevent associated pathologic conditions or medicolegal problems.

Blum[2] reported 100 cases of broken needles over a 14 year period from 1914 to 1928. The occurrence of needle breakage has decreased as a result of the development of stainless, flexible alloys used in modern, disposable dental needles[3]. Scientific advances in metallurgy and manufacturing, as well as better training of dental practitioners in how to administer anesthetic also have reduced breakage frequency[4]. We report surgical management of a patient with a broken needle in the pterygomandibular space following an inferior alveolar nerve block.

CLINICAL CASE:

A 27-year-old female patient was referred by quack dentist after 7days with the complaints of pain and difficulty in opening of the mouth. The patient was sent for evaluation and removal of a fragment of 27-gauge 35mm long needle that broke during an inferior alveolar nerve block. The needle was repeatedly used and the operator moved direction after insertion of the needle. The fragment disappeared into the tissues and the quack dentist was unable to retrieve it. Dental panoramic view was taken which confirmed the presence of the needle in the pterygomandibular space (Fig.1).

The patient was healthy with no significant medical history. Physical examination showed a moderate trismus. The patient complained of localized pain in the left pterygomandibular region and the ability to feel the broken needle during mandibular movements. Clinical intraoral examination revealed no bleeding or visible punctures wounds. Under local anesthesia, a vertical incision parallel and medial to the anterior border of the ramus was made and a periosteal elevator was used to reflect the masseter and medial pterygoid musculature. During blunt dissection of the medial pterygoid muscle and control of bleeding the broken part of the needle was identified. The needle was retrieved in one piece without any damage to local vital structures (Fig.2). The incised wound was closed by 3/0 viery[1]. The postoperative phase was uneventful and no complications were observed.

Fig.1: Radioopaque line on pterygomandibular space.

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Fig.2: Retrived broken needle.

Discussion and recommendations Factors affecting the risk of needle fracture include:

NEEDLE DIMENSIONS:

Two of the most commonly used needles in dental practice: a 30-gauge (narrow), 23 mm length, red needle, commonly used for infiltration injections and a 27-gauge (wide), 35 mm length, yellow needle, used mostly or regional block injections. Although needle fracture is extremely rare in routine practice, it is our opinion that the use of a short, 30-gauge needle for administering ID blocks increases the risk of this unfortunate event occurring. It has been suggested that narrower gauge needles are more likely to fracture[5,6]. Additionally, the majority of reported cases of needle fracture during ID block have involved the use of 30-gauge needles[7-11].Needle fracture usually occurs at the weakest point the attachment between the thread and the needle itself (the hub). Therefore, total needle insertion must be avoided. Archer[12] recommended the use of longer needles (minimum 42 mm length). It has also been advised that no more than two-thirds of the needle length should be introduced. Kronman et al[13] performed a study on cadavers in order to determine the average depth of penetration required for successful inferior alveolar nerve blocks. Some operators prefer to use 30-gauge short needles for ID blocks, especially for children. Although this technique does not seem to be taught to undergraduates, it would seem that it is still being adopted by some practitioners.

PREVENTION OF FACIAL PALSY:

Pain reduction It is often thought that the use of thinner needles is less painful. Proponents of the 30-gauge needle state that it causes less discomfort when initially piercing the mucosa14. Brownbill et al 15 used a subjective visual analogue scale to assess the pain experienced by children who had ID blocks. On comparison between 25- and 30-gauge needles. With adult subjects, Fuller et al 16 found no significant difference in the pain experienced on penetration of the retromolar fossa with 25-, 27- and 30-gauge needles. Promoters of the 30-gauge needle may also argue that, owing to the narrow lumen, anaesthetic cannot be injected quickly, causing less distension of tissues and therefore decreasing pain. However, as resistance in a tube is inversely related to the radius to the fourth power, greater pressure is required to deliver solution from a narrower lumen.

Therefore, using a narrower needle may cause the patient more pain due to increased hydraulic pressure.[5] Although a 30-gauge needle can aspirate blood, the time required for adequate aspiration is not reasonable for block-type injections[10]; additionally; a narrow needle is easily deflected by the penetrated tissue[10].

FACIAL PALSY:

Facial nerve palsy is a rare complication of IAN blocks. This occurs when the needle is advanced and enters the capsule of the deep lobe of the parotid gland on the medial side of the mandibular ramus. Injection of the local anesthetic solution within the capsule diffuses to affect nearby branches of the facial nerve as they traverse the gland. This complication is self-limiting and wears off gradually over the same period as the local anesthetic. Explanation and reassurance is usually all that is needed. It is important to emphasize that, with a correct technique of IAN block; needle length has no bearing on the risk of causing facial palsy. It is only if the needle is advanced too far medially, parallel to the ascending ramus, and the injection made at this point, there a risk of entering the parotid capsule

PATIENT CO-OPERATION:

Today, needle fracture is mainly attributed to a sudden movement of the patient or incorrect operator technique6.The procedure must be clearly explained and the patient warned not to make any sudden movements. Unco-operative children or patients without voluntary control of their musculature may require referral to experienced specialists.

OPERATOR TECHNIQUE:

Bending prior to injection weakens the needle and repeated attempts using the same needle should be avoided because of the risk of metal fatigue[17]. Changing the grip on the syringe while the needle is located deep in the tissue should be avoided. Changing the needle direction is acceptable only if the majority of the needle has been withdrawn and its tip is just beneath the mucosa. To prevent excessive pain, the injection should be administered slowly and contact with the periosteum should be gentle[6]. The needle should be withdrawn without lateral pressure because deviation of the long axis of the needle from the long axis of the syringe may cause fracture[5]. A needle must never be advanced to its hub. It is better to use wider and longer needles to minimize the risk of hub weakness[6].

MANUFACTURING QUALITY:

Manufacturers do not prescribe any specific clinical usage for a particular length or gauge of needle, so cannot be liable for any consequences unless a manufacturing defect is found[18].

Needle breakage during administration of a nerve block was a complication more frequent prior to the 1960s. This was thought to be at least partly due to the use of more rigid, non disposable needles which were subjected to repeated sterilization cycles, with attendant alterations to their physical properties during this time[18]. The most common site for loss of a fractured needle is the pterygomandibular space during an inferior dental nerve block[12,20]. There is a degree of controversy over management of broken dental needles. Different authors1,[21] have mentioned that removal is not necessary unless the patient developed symptoms such as pain, infection, numbness and swelling. No author has cited the possibility of formation of fibrosis in the tissues around the needle over time. Retrieval of the needle in itself can lead to neurological and tissue damage during removal1. On the other hand, many other authors[20] suggested removal, fearing that the needle might migrate toward large blood vessels in the head and neck. We agree with these authors, which state that because of the fear of needle migration and also because of the medico-legal considerations, removal of the broken needle is important. It is obvious that presence of active symptoms such as pain, trismus and infection that are not alleviated by standard treatments necessitate needle removal[22-23]. There are in the literature no contraindications to perform the surgical removal under local anesthesia. A further argument in favor of removal is the possible psychological trauma to the patient that may result from the knowledge that a needle has been retained "somewhere in the throat"[24]. Every effort should be made to retrieve the needle immediately, if the tip is visible, using fine haemostatic too[25]. Prompt retrieval is advocated to minimize symptoms of pain, dysphagia, trismus and to prevent migration of the needle and potential damage to vital structure[1,20]. If its tip is not visible, attempts by the general practitioner in order to recover it should be discouraged, because the needle could be pushed deeper into the tissue. It is strongly recommended that only an oral and maxillofacial surgeon may indicate and/or perform surgery to remove the broken needle.

The most important aspect of the surgical technique is accurate localization of the needle. Determining the position of a broken needle in the pterygomandibular space in an anaesthetized patient is a difficult task. Plain radiographs are useful in confirming the presence, dimensions and approximate position of the needle. They are, however, unable to provide the accurate position of the needle and its relationship to adjacent structures. The incision and site of exploration can be determined from the information available on the CT scan. The use of 3D reformatting is especially useful. Nezafati and Shahi[23] used C-arm digital fluoroscopy[23]. Most reports have suggested the use of a vertical mucosal incision often on the medial aspect of the mandible in the area penetrated by the needle, followed by blunt supra-periosteal dissection to identify the needle1[-20]. But an initial subperiosteal dissection can help identify bony landmarks (lingula), which can be used as reference during exploration and also provides greater protection to the inferior alveolar and lingual nerves[19]. The extensive dissection can also cause local pain and trismus for a considerable period. Kennett et al.[24] described postoperatively considerable swelling and trismus but the patient was fit for discharge on the third postoperative day. Other authors reported uneventful postoperative recovery[19, 20], as also occurred in the present case. Similar to this case breakage with repeated injections has been documented[23].

Pietruszka et al.[10] suggested that a 30-gauge needle should not be used for nerve blocking injections because it is the most narrow, least rigid needle available and also the most susceptible to breakage what happened in present case.

Though most dentists use a 27 gauge (35 mm long) needle for administration of an inferior alveolar nerve block in an adult, there is occasionally a perception that the use of a thinner needle (30 gauges) is associated with less discomfort[19].

In conclusion, preventing needle breakage is important, as it can be a traumatic experience for the patient. Practitioners should routinely inspect dental needles before administering injections and minimize the number of repeated injections using the same needle. A bidirectional rotation insertion technique should be used in order to minimize the needle deflection. It is recommended to not penetrate the needle to its hub, as this is where the needle is the weakest and sight of the needle can be lost when it is buried to the hub. A meticulous injection technique is imperative. The use of adequate preoperative sedation in the nervous patient may be considered, thereby minimizing the possibility of his sudden movement during the injection.

Needle breakage rarely occurs nowadays, but when it occurs, the situation must be managed appropriately. Every effort should be made to retrieve the needle immediately, if the tip is visible. If it is not visible, the required steps include immediate referral to a maxillofacial unit, imaging to identify the position of the fragment, and surgery to remove the needle. The imaging exam should be the one available at the clinical facility, but a combination of two or more could be of great help in locating the broken needle. Surgeons performing the removal must not only be skilled and well-trained, but be familiar with the anatomy involved. It is strongly recommended that only an oral and maxillofacial surgeon may indicate and/or perform surgery to remove the broken needle.

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Case Report

Orthodontic Management of an Adolescent Boy with Class II Div-1 Malocclusion with Deep Bite & Posterior Cross Bite: A Case Report

Habib MA,[1] Mahamud AMS,[2] Rabbani RMG[3],Islam MS,[4] Hossain MZ[5]

ABSTRACT:

We describe the treatment of an adolescent boy age, 13 years, with Class II div-1 malocclusion. Deep bite & posterior cross bite on left side were present. Treatment consisted mainly of bite opening, upper 1st premolars extractions, canine retraction, arch contraction, leveling and alignment with Edgewise fixed appliances by multiloop technique. Due to patient good cooperation, treatment time reduced (18 months). However the treatment resulted in Class II molar occlusion with proper alignment of upper & lower anterior segment, an ideal over jet, overbite and incisor angulations.

Key words: *Class II div-1 malocclusion, deep bite, cross bite, class II skeletal base, edgewise orthodontic therapy.*

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INTRODUCTION:

Class II malocclusion presents a major and a common challenge to orthodontists. Angle defined it as the lower molar being distally positioned relative to the upper molar, line of occlusion not specified.[1] Class II is the most common & difficult to treat malocclusion as compared to other malocclusions, due to its wide ranging varieties & interplay of various types of etiological factors[2]. Etiology of Class II malocclusion may be due to heredity, abnormal intra-uterine fetal pressure, birth injury, and traumatic injury to mandible or TMJ[3]. It may be a dental class II or have a skeletal component. Skeletal class II jaw relation may be due to a prognathic maxilla, retrognathic mandible or a combination of both. Mandibular retrognathism may be due to small mandible, posterior placement of condyle in glenoid fossa or a functional retrusion[4].

It is important for every orthodontist to have adequate knowledge & correct understanding of the various types of Class II malocclusions before instituting a treatment plan. There is no universal method of managing the condition. The aim and objectives of the treatment are to arch contraction of maxillary anterior segment that will result normal over jet & overbite, improvement of aesthetics by the correction of lip posture & facial profile, improvement of functional demand by correcting better occlusal interdigitation.

CASE REPORT:

Md. Sayem, age 13, came to the Department of Orthodontics & Dentofacial Orthopedics at Dhaka Dental College & Hospital for treatment. He had Class-II div-1 malocclusion with deep bite & posterior cross bite on left side. Patient's major reason for seeking treatment was to improve his dental esthetics and function. He complained of his ugly look during smile and difficulties to bite with his teeth.

The patient was in the permanent dentition. He presented with an overjet of 9 mm, and the overbite was 5mm and complete. Molar & Canine relationships were Class-II on both sides & Incisor relationship was Class-II div-1. His oral hygiene was good.

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Fig-1: Pre-treatment extra-oral facial photographs.

Fig-2: Pre-treatment intra-oral photographs.

Fig-3: Post treatment extra oral photographs.

Fig- 4: Post-treatment intra-oral photographs.

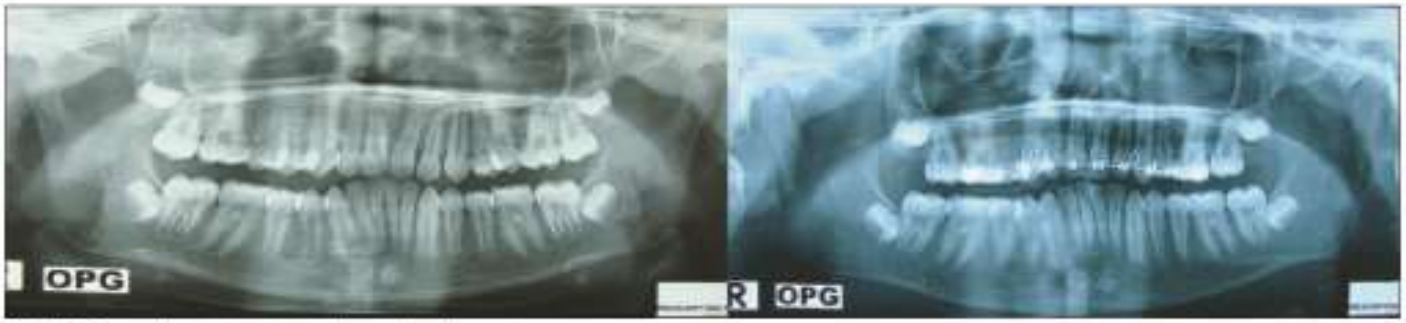

Fig-5: Pre and post-treatment lateral orthopantomogram.

Fig-6: Pre and post-treatment lateral cephalogram.

Table-I: Pre and post treatment lateral cephalometric tracing results

Parameter	Ref. Measurement (± 2°)	Pre treatment	Post treatment
SNA (angle)	82°	85°	85°
SNB (angle)	80°	80°	80°
ANB (angle)	2°	5°	5°
Upper 1 to NA (linear)	4mm	7 mm	4 mm
Upper 1 to NA (angle)	22°	37°	23°
Lower 1 to NB (linear)	4mm	5mm	5mm
Lower 1 to NB (angle)	25°	24°	23°
Inter incisal angle	131°	114°	129°

TREATMENT PLAN AND PROGRESS:

Anterior bite plane was given to open the bite. As the upper arch is proclined, Maxillary 1st premolars were extracted and treatment started with fixed appliance. In the upper arch, initial leveling was done with the use of 0.014 multiloop archwires over 3 months. Then upper canines are retracted by using segments of elastomeric chain with 0.016 inch stainless steel archwires. In the lower arch, leveling and alignment was done by 0.014 multiloop arch wires. The remaining extraction space on upper arches was closed by using 0.017x 0.025 inch rectangular arch wires with tear drop contraction loops. After satisfactory interdigitation was achieved, the fixed appliances were removed. Then maxillary and mandibular removable retainers were placed. The active orthodontic treatment time was 18 months.

The analysis of lateral cephalogram revealed that the patient had a Class II div-1 dental relation on Class II skeletal base relationship. The maxillary incisors were proclined but mandibular incisors were of average inclination. The post treatment lateral cephalometric radiograph and analysis also showed the Class II skeletal pattern but dental relation was Class I. The maxillary and mandibular incisors were of average inclination.

RESULTS:

The overall orthodontic treatment of this patient was quite successful. A Class I incisor and canine relationship were established. The overjet and the overbite were corrected; and maxillary and mandibular crowding was eliminated. The final cephalometric radiograph is shown in figure-6. The posterior intercuspation was excellent with occlusal settlement and panoramic radiograph showed near parallel root position. The upper and lower incisors showed excellent inter arch relationship the mandibular dental midline was improved. The dentition and the periodontal tissues remained healthy. Except moderate gingival recession over upper left canine, this was present before treatment. The profile was well balanced.It takes about 18 months from the starting of treatment.

DISCUSSION:

One of the most common problems in orthodontics today is Class II div-1 malocclusion. Treatment is more complicated when deep bite & cross bite characterize the Class II div-1 malocclusion[2]. This case study aimed to determine the influence that the Class II division 1 malocclusion with a mandibular deficiency has on the dimensions of the dental arches. Studies rarely include Class II division 1 patients with mandibular retropositioning; thus, we decided to standardize our sample on the basis of mandibular

deficiency. Class II division 1 malocclusions seem to induce changes in the dimensions and, consequently, the upper dental arch shape. Subjects with Class II division 1 malocclusion presented with longer upper dental arches, most likely due to the proclination of the upper incisors. The upper dental arch in the Class II division 1 subjects presented with lesser transverse dimensions (table 1) and a typical triangular shape (Figures 1 and 2).

Despite other factors related to the upper arch constriction, such as oral breathing, prolonged sucking habits, and inadequate positioning and function of the tongue, the transverse adaptation of the upper arch to the lower arch may not be neglected. Such adaptation happens naturally as a transverse compensation of the upper arch to the retropositioning of the lower arch and is typical of Class II division 1 malocclusions. Therefore, dental compensation in Class II division 1 is neither restricted to the sagittal dimensions nor to the incisors. An accurate orthodontic tridimensional morphologic evaluation (Figures-1 and 2) would provide a complete and correct interpretation of the sagittal, transverse, and vertical alterations found in Class II malocclusions. The current study focuses on the transverse changes and corroborates the need for expanding the upper arch prior to mandibular advancement. The clinical confirmation of the upper arch constriction is evidenced by the posterior crossbite that results when the mandible is advanced and implies the achievement of a well-balanced final lateral relationship between the upper and lower arches following mandibular advancement.

This patient was treated with anterior bite plate, extraction of upper 1st premolars and light edgewise forces to produce a result that was pleasing to the patient and satisfying to the orthodontists in a one year & two months period. This method is supported by another study by Janson et al. (2009). They found this method statistically significant for successful treatment. We preferred extraction over mesiodistal reduction of tooth size considering the amount of tooth tissue discrepancy which was -4mm in upper arch, sufficient to cover premolar extraction space and not to involve a number of teeth for mesiodistal reduction by disking although Paul & Victor (1999)[6] recommended that A well-treated Class II Division 1 case using a nonextraction Edgewise technique achieved a Class I functional occlusion and acceptable esthetic improvements were achieved.

CONCLUSION

Analysis of final records indicated that all treatment objectives were achieved. The teeth were placed in good alignment, deep bite & posterior cross bite were relieved & good occlusion was maintained. A satisfactory esthetic result had been achieved. The parent & patients psychological satisfaction was also achieved.

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