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Editorial

The avid followers of Journal of Contemporary Dental Sciences will be delighted to go through the articles published in our latest issue (Volume 5, No.2, 2017). We have included 4 original papers and a case report in the current issue of this journal.

Dr. Spina Luna Biswas in her article evaluated the surgical outcome and postoperative complications of stainless steel plate as an immediate reconstructive device for mandible resection cases in patients with bone involving Squamous Cell Carcinoma (SCC). From the findings of her study she concluded that, though stainless steel reconstruction plate has got some demerits like infection, plate exposure, loosening of screw, it showed some superiority in terms of aesthesis, occlusion and maintenance of good oral function, in case of immediate reconstruction of mandible defect after resection.

Dr. MAH Sheikh in his study findings reported the incidence of post oburation pain in asymptomatic non-vital Maxillary anterior teeth following single and multivisit therapy without prophylactic medication. His study did not find any statistically singnificant difference in incidence and severity of post obturation pain in both the cases.

Smile is a facial expression that is considered as one of the most important components of beauty and aesthetics in today's society. The study by Dr. MM Hasan explored the smile characteristics of Bangladeshi young adults through videograph. Four smile characteristics: smile arc, buccal corridor, smile type, smile index of 143 subjects were evaluated by using Smile Analyzer' and were reported in this paper.

Dr. Rafiul Alam Khan's paper explored hospital acquired infection, an endemic problem encountered in hospital patients all over the world including Bangladesh. His study was aimed to find out the common pathogens in ICU patients & their antibiotic resistant pattern of infection.

Dental implant is becoming a popular alternative for fixed prosthesis. In this issue we have included a case report on immediate loading implant for fixed dental prosthesis of a single rooted tooth by Dr. Haque and his team.

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Contents

Smile characteristics of Bangladeshi young adults: a video graphic evaluation.

MM Hasan[1], MZ Hossain[2]

Abstract

Background: *A smile is easily the most recognized expression, used to convey to our fellow human beings a sense of compassion and understanding. The smile may well be the cornerstone of social interaction and most visibly displays the results of orthodontic treatment. It is important to have general guidelines to aid clinicians in optimizing smile esthetics while satisfying other treatment goals.* ***Aims:*** *The study aimed to measure the smile characteristics of Bangladeshi young adults..* ***Materials & methods:*** *This was a cross sectional study.143 students, doctor and staff were conveniently selected from Dhaka Dental College. The age range was 17-30 years. Videograph of face of each subject was taken in smile. Video was converted to photos (30fps) and 1 photo was selected and measurements was done using smile analytical software "smile analyzer". All data were analyzed through standard statistical method by using Statistical Package for Social Science Software (SPSS).* ***Results:*** *The Smile characteristics of young Bangladeshi showed that the Commissure type of smile was most common on both male & female and complex/ gummy type was rare though gummy smile was common in female than male. Consonant type of smile arc was most common on both sex. Reverse smile arc was very rare. The smile index &buccal corridor ratio are slightly higher among female than male.* ***Conclusion:****The smile characteristics of young help the orthodontist to diagnose, VTO & treatment planning. During treatment machanotheraphy, it should be considered that the smile arc should be in consonant. Thus the goal of orthodontics achieved by proper occlusion with aesthetic smile. It also help other who work with aesthetic of smile like plastic surgeon, maxillofacial surgeon etc.*

Keywords: smile characteristics, smile arc, buccal corridor, smile type. ***(J Cont Dent Sci 2017;5(2):1-6)***

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Introduction

The importance of beauty and attractiveness in today's society has been well established. Physically attractive people are perceived to be more kind, sensitive, interesting, strong, poised, modest, sociable, outgoing, exciting and responsive.[1] It is also believed that attractive people are more likely to obtain better jobs, have more successful marriages, and experience happier, more fulfilling lives. These societal biases begin early in life and impact a person's future for a lifetime.[2] Dentofacial attractiveness is particularly important to a person's psychosocial wellbeing. People with a normal dental appearance are judged more socially attractive over many personal characteristics than those with malocclusions. Those with poor dental esthetics have been linked to lack of self-confidence and are thought to be disadvantaged in social, educational, and occupational settings.[3]

An unattractive dental appearance during childhood can lead to teasing by age peers that may result in a profound psychological impact, which may continue into adult life.[4-6] Both adolescent patients and their parents expect orthodontic treatment to improve oral and dental function, health and aesthetics and to enhance self-confidence and the quality of their social life.[7,8] Needless to say, the goal of modern orthodontics is to improve the quality of life which, in part, is achieved through the enhancement of the patients" smile and facial appearance. Oral health related quality of life (OHRQoL) has been defined as "the absence of negative impacts of oral conditions on social life and a positive sense of dentofacialself-confidence". Thus, orthodontic treatment should carefully consider the patient's facial appearance and particularly his/her smile.

A pleasing smile involves a harmonious relationship among the teeth, the gingival scaffold

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and the lip framework.[9] Smile can be defined as a facial expression characterized by upward curving of the corners of the mouth, is often used to indicate pleasure, amusement or derision.

The smile,most visibly displays the results of orthodontic treatment; therefore, it is not surprising that smile esthetics are a major goal of orthodontic mechanotherapy. It is important to have general guidelines to aid clinicians in optimizing smile esthetics while satisfying other treatment goals.

The aim of the study is to measure the smile pattern of Bangladeshi young adult which may play an important role in treatment planning of orthodontic, prosthodontics as well as plastic surgery.

Materials & Methods

The experimental sample consisted of 69 male and 74 female taken among students and doctors of Dhaka Dental College & Hospital. The study period was Dec, 2014 to Jun, 2015. The mean age of the male and female subjects were 19.0 ± 6.7 years and 18.1 ± 4.9 years, respectively. The subject had class 1 incisor & molar relationship, had no facial assymerty, did not have any history of orthodontic treatment or prosthetic replacement of anterior teeth.

The study was explained to each participant and/or his/her parent or guardian and all agreed to participate in the study.

The subjects was video graphed with posed smile. The video graphs was taken with following criteria

* Nikon D5100d DSLR camera.

* Distance between the camera and the subject was taken as 3.5 ft.

* The camera was mounted on a tripod stand with the lens positioned parallel to the true perpendicular of the face in natural head position.

* The subjects will instruct to hold the head in natural position by looking straight into an imaginary mirror. If head position required correction, the researcher helped the subject.[10]

* The camera was raised to the level of subject s lower facial third.

* The same illumination was used for photography of each individual. (Fig:1)

* For digital measurement two measuring scale marked with millimeter place on both side of the face of the sample by a stand.[11] (Fig:2)

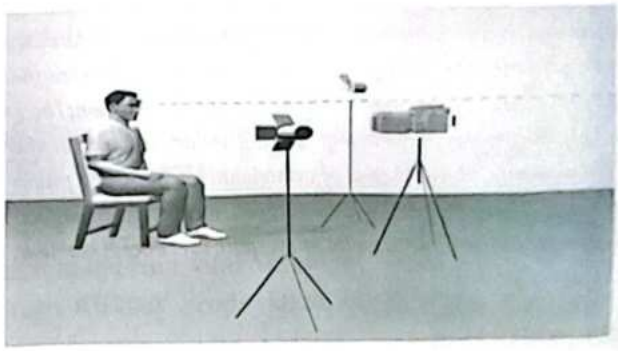

Fig-1: Photographic technique

Fig-2: Measuring Scale holding through the stand on both side of the subject

Video clip(30fps) was captured by means of a DSLR camera (Nikon d5100). The subject was asked to smile voluntarily (posed smile) and video clip was taken.

The video was downloaded to a computer. Video was converted to images. 30image was obtained from 1 second video. Each frame will be analyzed and 1 frame(widest commissure to commissure width) was selected for study.

Selected file was added to smile analyzing software 'Smile analyzer'[12] & measured the required data.

Measurement Parameter

1. Smile type. In order to categorize smile patterns of subjects, Rubin classification[13] was adapted and shown in (Fig- 3).

* Commissure smile: In the commissure smile, the corners of the mouth turn upward due to the pull of the zygomaticus major.

* Cuspid smile: In the cuspid smile, the upper lip is elevated uniformly without the corners of the mouth turning upward; the entire lip rises like a window shade.

* Gummy smile : In the complex or gummy smile, the upper lip moves superiorly, as in the cuspid smile. But the lower lip usually moves inferiorly in a smile fashion.[14]

2. Smile arc, which may be in one of mainly three forms: consonant (i.e. parallel), flat, reverse.[15] There was another type which can't be defined-'Upper incisor trapped by lower lip' (Fig-4).

* Consonant smile arc: the curvature of incisal edge of the maxillary anterior teeth are parallel to the upper border of the lower lip.

* Flatsmile arc: the curvature of incisal edge of the maxillary anterior teeth are in straight line to the upper border of the lower lip.

* Reverse smile arc:the curvature of incisal edge of the maxillary anterior teeth are curved in reverse to the upper border of the lower lip.

3. Smile index, that is, the smile width (delineated by the outermost confluences of the vermilion borders of the lips at the corners of the mouth) divided by the smile height (interlabial gap).[14]

4. Left and right buccal corridors, measured from the inner commissure to the last visible maxillary tooth. This measurement was divided by the visible maxillary dentition width. The result was a ratio of the maxillary teeth while smiling, minus the buccal corridor. For example, 0.92 means that the maxillary dentition occupied 92 per cent of the inner intercommissure width. Therefore, the buccal corridor would then occupy 8 per cent (100 minus 92 per cent) of the smile.[16]

Fig-3. Smile type (a) commissure smile (b) Cuspid Smile (c) gummy Smile

Fig-4 : Smile Arc (a) consonant (b) Flat (c) Reverse (d) Upper incisor trapped by lower lip.

Results

The selected image was analyzed by smile analytical software 'smile analyzer'.[12] The obtain data analyzed through standard statistical methods by using SPSS version-20 software. Cross tabulation will work out and the significance of the dependence between parameters will be calculated. Among the different kinds of smile, the commissure smile was most common & less common was gummy smile (Fig-5).Females hadmore gummy smile than male (Fig-6).

Fifty two percent of the sample showed consonant smile arc, 31% a parallel smile arc, 5% a reverse smile arc and 12% an upper incisor trapped. Consonant smile arc was commonly seen both in male (52%) and female(51%). Chi-square test was applied, and P value was found to be nonsignificant. Female showed more upper incisor trapped than male.(Fig-7,8).

The mean value of smile index was 7.01 in male and 7.25 in female. Unpaired t-test was applied, and P value was calculated. The P value showed that there is no significant different in smile index for female and male. (Table-2)

The mean of buccal corridor ratio was 20.1. Buccal corridor for female was slightly higher than male in smile which is statistically insignificant. (Table-3)

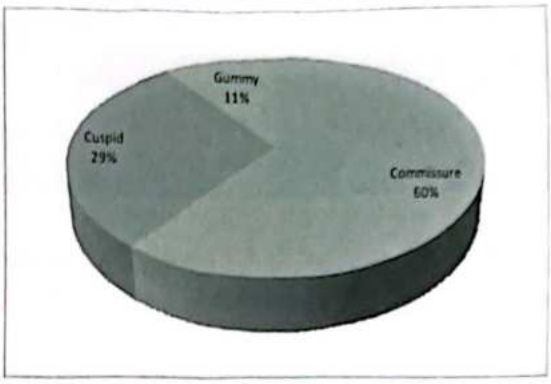

Fig-5: Smile type

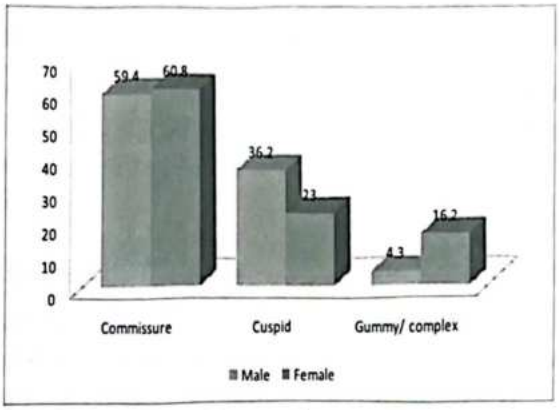

Fig-6: Smile type in sexwise

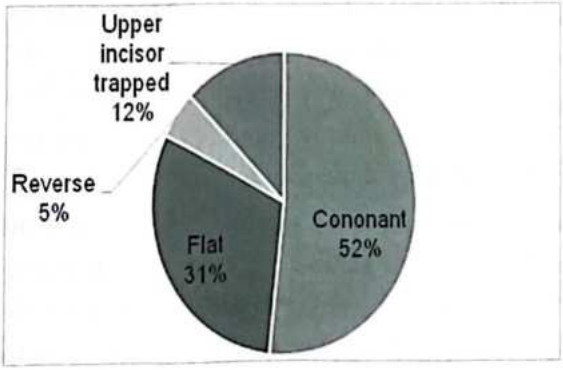

Fig-7: Smile Arc

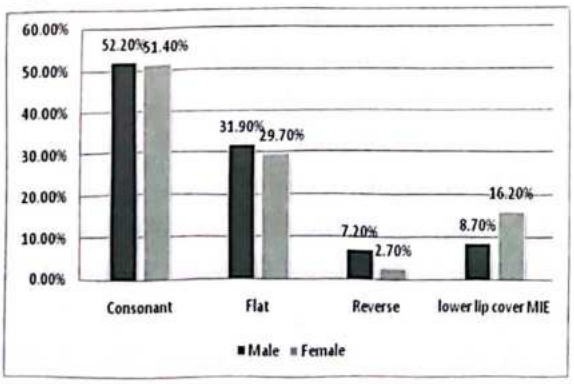

Fig-8: distribution of Smile arc in both sex

Table-1: Smile index of both sex

	Sex	n	Mean	SD	p-value
smile index smile	M	68	7.01	1.87	0.5297
	F	74	7.25	2.49	

<.05 is significant

Table-2: Buccal corridor ratio of male & female on smile

	Sex	n	Mean	SD.	p-value
Percentage Buccal corridor on smile	M	66	12.74	4.77	0.76
	F	74	13.28	13.51	

<.05 is significant

Discussion

One of the primary aims of an orthodontic treatment is to attain and preserve facial attractiveness. Facial attractiveness and smile attractiveness appear strongly connected to each other. Furthermore, attractiveness is suggested to influence personality development and social interaction.[17] The smile also influences a person's perceived attractiveness and is the cornerstone of social interaction.[18] In most arenas, attractiveness was found to be equally important for men and women. The smile is rightfully deemed a valuable means of nonverbal social communication and sound criteria of facial attractiveness.[19] Smile analysis and smile design have become key elements of orthodontic diagnosis and treatment planning over the last decade.[20] Perception of facial attractiveness varies from person to person and is influenced by their personal experience and social environment. So the aim of our study was to evaluate the various parameters of the smile. The significant parameters of smile are as follows:

In this smile, typically thought of as a Cupid's bow, the corners of the mouth are first pulled up and outward, followed by the levators of the upper lip contracting to show the upper teeth. In this classic smile pattern, the lowest incisal edge of the maxillary teeth are the central incisors. From this point, the convexity continues superiorly with the maxillary first molar being 1 to 3 mm higher than the incisal edge of the centrals.

The cuspid smile was found in 29.4% of the population. This is similar with other studies measuring smile, except Sawyer et al.[21] That may be due to he studied less number of subject or may be due to racial variation (Table-3). The shape of the lips are commonly visualized as a diamond. This smile pattern is identified by the dominance of the levatorlabiisuperioris. They contract first, exposing the cuspid teeth, then the corners of the mouth contract to pull the lips upward and outward. However, the corners of the mouth are often inferior to the height of the lip above the maxillary cuspids.

Our finding that 10.5% of the subjects had a gummy smile is consistent with previous reports.Murakami et al.[22] reported a higher percentage of gummy smile that related to the younger age of the subjects observed. The similar results were obtained and by Peck et al.[23] that 26% of their samples had a mean age of 15.5 years, demonstrated a high or gummy smile.

Table: 3 Comparison of frequencies for smile classification with other studies

	Commissure smile		Cuspid smile		Gummy smile	
	Subject	%	Subject	%	Subject	%
Sawyer et al.2010 (n=71)[23]	54	77.0	11	15.0	6	8.0
Desai et al.2009 (n=99)[9]	64	63.4	29	29.3	6	6.1
Tjan et al.1984 (n=454)[24]	313	68.9	93	20.5	48	10.6
Rubin, 1974 (n=100)[13]	67	67.0	31	31.0	2	2 2.0
Liang et al (n=188)[25]	114	60.6	63	33.5	11	5.9
Present Study (143)	86	60.1	42	29.4	15	10.5

Smile arc

Of all the different kinds of smile arc, the consonant/parallel one was the most common at 52% (Fig 7); this agrees with other studies measuring smile arc (Desai et al[9], Tjan et al,[24] Dong et al,[26] and Owens et al[27]). In comparison, a previous study by Maulik and Nanda[16] showed that a flat smile arc is the most common at 49%. This difference could be attributed to the subjectiveness of the smile-arc measurement. In addition, the smile arc highly depends on conversational distance and head posture (angle of elevation).[28] Therefore, every effort should be made to keep the subject's apparent occlusal plane parallel to the camera. Our finding that 5.7% of the subjects had a reverse smile arc is consistent with the studies mentioned above (Desai et al.[9], 3.6%; Tjan et al.[24] 1.32%; Dong et al.[26], 5%; and Maulik and Nanda[16], 10%). In our sample, 12.9% of the subjects had the lower lip covering the maxillary incisal edges during their smile frame; this is similar to Desai et al.[9],13.3% and other studies in which more than 10% of the subjects covered the incisal portions of their anterior teeth with the lower lip. An interesting observation is that female have more the lower lip covering themaxillary incisal edges and this may be due to self-conscious of their dentition and do not want to show their teeth so that smile arc cannot be determined.

Smile index

The value for Smile index of this study was 7.03 which is similar to the study conducted by Desai et al[9]& Dolly Petel et al[29]. But Sachdeva K.et al[30] found 1.92, he has done some mistake on calculation. Because he found mean outer commissure width 60.57 mm and mean interlabial gap 8.5mm, so the smile inde should be more than 6.The present study also showed statistically nonsignificant different in smile index 7.2 for female and 7.01 for male.

Buccal corridor

Buccal corridor ratio was 13.0 for Bangladeshi population, which is consistent with the studies

conducted by Desai et al[9], Rashed and Heravi[12], Dolly petel et al[29] & differ with Sachdeva K et al[30]. Buccalcorridor is directly influenced by arch form. It also heavily influenced by the anteroposterior position of the maxilla relative to the lip drape. Moore et al.[31] recommended that having minimal buccal corridors is a preferred esthetic feature in both men and women.

Conclusion

Current trends in orthodontics place greater emphasis on smile esthetics. This study was performed to assess smile pattern of Bangladeshi people. It is therefore emphasized that all the above discussed elements of smile analysis should be considered for treatment planning and subsequent treatment.

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Outcome of Immediate Reconstruction with Stainless Steel Plate following Mandibular Resection incase of Squamous Cell Carcinoma

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Abstract

Background: *In Squamous cell carcinoma (SCC), resection of the mandible is necessary when the bone is extensively involved or when it necessary maintain an oncologically safe margin of soft tissue in more deeply invading tumors. After resection, stainless steel reconstruction plates can be considered as an immediate, fast and safe way to restore mandibular continuity. Plates also permit restoration of speech, mastication, swallowing and facial contour.* ***Objective:*** *The purpose of the study was to evaluate the surgical outcome and postoperative complications of stainless steel plate as an immediate reconstructive device.* ***Methods:*** *A study of a series of 21 patients attending in Oral and Maxillofacial Surgery Department of Dhaka Dental College and Hospital selected for mandibular resection for the treatment of stage-iv squamous cell carcinoma, was evaluated over three months period. Some of these patients underwent segmental resection (9 out of 21 patients) while others (12 out of 21 patients) underwent partial resection of mandible with disarticulation. Radiotherapy was given postoperatively to all of the patients. Of the study subjects every patients resected mandible were reconstructed with stainless steel plate. The routine preoperative imaging with orthopantomogram (OPG) was used to demonstrate evidence of gross mandibular bone invasion. Computed tomography (CT) scan was used in suspected cases to detect bone involvement. A total of four assessments were done for the collection of data. Baseline assessments were done at the time of enrolment before operation. First, 2nd and 3rd assessment was done respectively after operation, at 1 week, at 1 month and at 3 months period, which included both clinical and radiological evaluation. Overall outcome of operation (aesthesis, occlusion) and postoperative complication (infection, exposure of plate, screw loosening) was assessed in all three observational periods. Data were analyzed by the software program SPSS version 17.* ***Results:*** *Mandibular reconstruction with stainless steel plate offered an excellent performance in aesthesis - 33.33% at 1 month and at 3 months follow up. Regarding occlusion stainless steel plate showed satisfactory result in 52.38% cases in both 1month and 3 months follow up. Signs of infection were observed earlier (1 week) in 9.5% cases. Plate exposure and screw loosening were in 4.8% cases at 1 month follow up and in 4.8% cases at 3 months follow up.* ***Conclusion:*** *From the current study it could be concluded that, though stainless steel reconstruction plate has got some demerits like infection, plate exposure, loosening of screw, it showed some superiority in terms of aesthesis, occlusion and maintenance of good oral function, in case of immediate reconstruction of mandibular defect after resection*

Key words : Immediate reconstruction, Stainless Steel Plate, Mandibular Resection, Squamous Cell Carcinoma

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Introduction

Resection of the mandible is necessary when the bone is extensively involved or when it is necessary maintain an oncologically safe margin of soft tissue in more deeply invading malignant tumors.[1] After tumor resection, interruption of mandibular continuity produces both a cosmetic and functional deformity. The resulting dysfunction after loss of mandibular continuity results in deviation of the mandible towards the resected side due to the unopposed pull of the remaining muscles of mastication and soft tissue contracture and scar formation. There is limited range of motion when attempting lateral and protrusive movements of the jaw with a return to midline on opening or closing secondary to the remaining contralateral muscles of mastication. In addition, malocclusion and problems with proprioception occur.[2] The ultimate goal of mandibular reconstruction is to return the patient to their previous state of function, to restore bony continuity, facial contour and maintain tongue mobility.

Success rates following immediate reconstruction were not considered very high (46%) in comparison to delayed reconstruction (90%).[3]

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However, reconstructing the mandibular defect immediately, the problems of drift of the remaining mandibular segments and contracture of the surrounding soft tissues can be avoided. Although reconstruction with microsurgical bone transplant is still the gold standard, it can be delayed in certain circumstances such as lack of microvascular surgical skills or equipment or due to inherent patient factors, such as age of patient, co-morbidity, previous irradiation etc. In these cases immediate reconstruction of mandibular defect with reconstruction plate would be the most logical option to maintain mandibular continuity for preservation of aesthesis and function. Immediate reconstruction of mandibular defects using reconstruction plates does not replace the necessity of using of free flaps but provides an alternative that offers fast and reliable reconstruction with no donor site morbidity and good facial contour.[4]

This present study was undertaken to evaluate the effectiveness of stainless steel plate as an immediate mandibular reconstructive device in respective of outcome such as aesthesis, occlusion and postoperative complication like infection, exposure of plate, fracture of plate and screw loosening.

Materials and Methods

This descriptive study was conducted among the 21 patients admitted in the Department of Oral and Maxillofacial surgery, Dhaka Dental College Hospital with stage-iv squamous cell carcinoma invading mandible. Data was collected between the period from July 2011 to December 2011. Inclusion criteria of the study subjects was histopathologically confirmed case of squamous cell carcinoma invading mandible (T4 cases) and exclusion criteria were psychotic/ uncooperative patient and patients refusing to attend regular follow up and having debilitated disease where surgery is contraindicated. Approval from Institutional ethical review board was taken prior to commencement of the study. Informed written consent was taken from the participant after explaining all the facts, potential dangers to the subjects in case of primary data collection. They were assured of confidentiality, and for the purpose of data analysis no individual data were reported rather de-identified data were preceded for analysis. Compilation of hospital and treatment records was conducted by researcher under supervision of relevant specialists.

Baseline measurements were done at the time of enrolment before operation. Pre operative data were collected by face to face interview of the recruited patients, with pretested semi structured questionnaire. Baseline variables were demographics, site of tumour involvement, General examination features, vital signs, co morbidity, Staging of the tumor, types of mandibular resection (segmental/partial). Post-operative data were collected at 1 week, 1 month and 3 months interval regarding clinical and radiographic evaluation of aesthesis, occlusion, infection, exposure of plate and screw loosening. Furthermore, aesthesis was categorized as Excellent (Facial symmetry, undisturbed function of the facial nerve, and good mandibular contour), Fair (Slight facial asymmetry, definitive mandibular contour, weakness of the mandibular nerve) and Poor (Gross facial asymmetry, lack of mandibular contour, total palsy of the facial nerve).

A checklist was used to assess treatment records and follow up. Data were sorted and screened for any discrepancy and were edited where required. Screened data were then entered into statistical software SPSS version 17.

Data were presented in the form of table and graphs. Descriptive statistics was presented with frequency table. Difference was illustrated with cross tables and test statistics were added in the foot note of the table.

Bar and line charts were generated to illustrate descriptive statistics.

Results

Analyzing the reports of 21 cases, there were 12 male (57.1%) and 9 female (42.9%) participants in the study. The most prevalent age group was between 41-60 years (57.1%) and mean age group was 54.28+15.08. Site of the primary tumor involvement was different. The most prevalent site was gingiva and lower alveolus (85.6%), then buccal mucosa (4.8%), floor of the oral cavity (4.8%) and retromolar trigone (4.8%). Among the participants 42.9% cases underwent segmental resection (Anterior segmental – 19.04%, Body ramus segmental – 23.80%) and 57.1% partial resection (Body, ramus, condyle) of mandible. Postoperative evaluation of the study participants was done at 1 week, at 1 month and at 3 months. Aesthesis was found excellent in 33.33% cases at 3 months follow up period and occlusion was found satisfactory in 52.38 cases at 3 months evaluation period. Infection was found as an earlier (1 week) complications in 9.5% cases. Exposure of reconstruction plate and screw loosening was found in 4.8% cases at 1 month and 3 months period respectively.

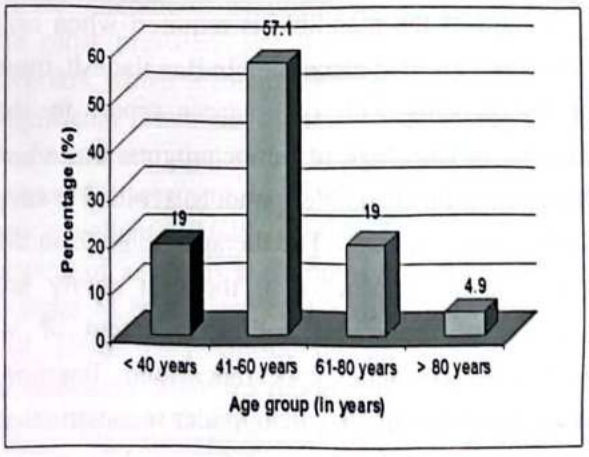

Fig. 1: Age distribution of the patients

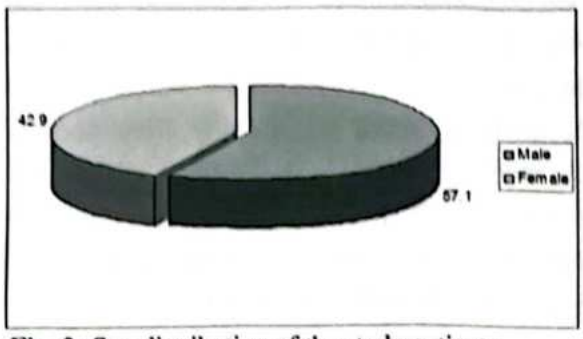

Fig. 2: Sex distribution of the study patients

Table-1: Distribution of the primary tumour site of the study participants (n=21)

Tumour site	Frequency	Percentage (%)
Buccal mucosa	1	4.8
Floor of oral cavity	1	4.8
Retromolar trigone	1	4.8
Gingiva and lower alveolus	18	85.6
Total	21	100.0

Table-I showing the distribution of different sites of the primary lesion. The most prevalent site was gingiva and lower alveolus (85.6%).

Table-2: Postoperative evaluation of the participants(n=21)

Postoperative duration	Postoperative evaluation										
	Aesthesis N (%)			Occlusion N (%)		Infection N (%)		Exposure of reconstruction plate N (%)		Screw loosening N (%)	
	Excellent	Fair	Poor	Yes	No	Yes	No	Yes	No	Yes	No
After 1 week	0	0	21 (100)	21 (100)	0	2 (9.5)	19 (90.47)	0	21 (100)	0	21 (100)
After 1 month	7 (33.3)	9 (42.85)	5 (23.80)	11 (52.38)	10 (47.61)	0	21 (100)	1 (4.8)	20 (95.2)	1 (4.8)	20 (95.2)
After 3 months	7 (33.3)	9 (42.85)	5 (23.80)	11 (52.38)	10 (47.61)	0	21 (100)	1 (4.8)	20 (95.2)	1 (4.8)	20 (95.2)

Table 2 showing post-operative evaluation of the participants regarding aesthesis, occlusion,

infection, exposure of reconstruction plate and screw loosening following 1 week, 1 month and 3 months.

Aesthesis improved significantly from poor to fair/excellent after 1 and 3 months post-operatively. Although 100% occlusions were achieved until 1 week of operation, occlusion changed substantially following 1 and 3 months of operation. Immediate infection observed only in 9.5% cases just within 1 week of operation which subsided after 1 and 3 months of operation. Exposure of reconstruction plate and screw loosening was observed only in 1 case (4.8%) following 1 and 3 months of operation.

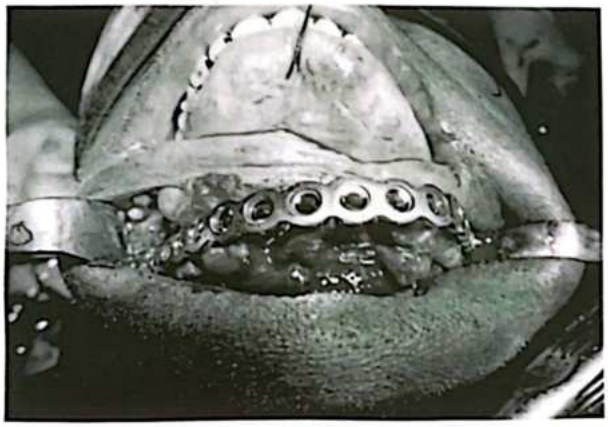

Fig-3: Reconstruction with SS Plate following anterior segmental Mandibulectomy (per-operative view)

Fig-4: Reconstruction with SS Plate following partial Mandibulectomy with disarticulation (per-operative view)

Fig-5: Exposure of SS reconstruction plate (Post-operative view)

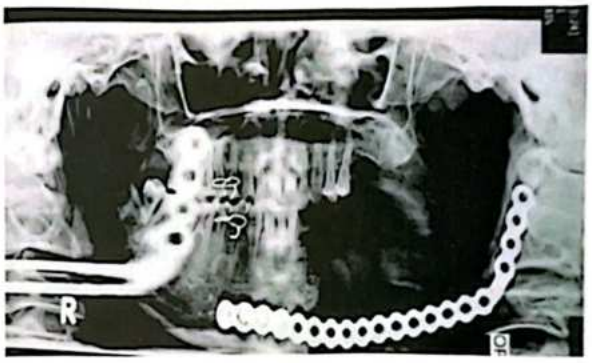

Fig-6: Post operative OPG showing reconstruction with SS Plate following partial Mandibulectomy with disarticulation.

Discussion

Resection of the mandible is required when oral cancer has invaded mandible.[1] In Bangladesh, most of the patients with oral cancer report to the surgeon in late stage of tumor progression, when resection of the mandible cannot be avoided to save the life of the patients. The therapeutic goals in the management of cancers in the oral cavity are excision of the tumor and achievement of an acceptable cosmetic appearance and function. After resection surgery, mandibular reconstruction is necessary, as resection causes several functional and cosmetic problems due to loss of continuity of the mandible hampers oral rehabilitation including mastication to a great extent.[5] Various autogenous and synthetic materials (stainless steel, titanium plate etc) have been introduced for the mandibular

reconstruction.This study conducted among 21 patients with squamous cell carcinoma involving different sites of oral cavity in the Department of Oral and Maxillofacial Surgery, Dhaka Dental College Hospital, Dhaka. Mandible was invaded by this cancer invariably in all cases. Of the study objects every patients with resected mandible were reconstructed with stainless steel plate. Facial profile, centric occlusion and extension of the lesion were assessed clinically and radiographically at preoperative phase. Some of these patients underwent segmentalresection (9 out of 21 patients) while others (12 out of 21 patients) underwent partial resection (body, ramus and condyle) of mandible. Of the segmental resections 23.80% were anterior segmental resection crossing midline and 25.00% were body segmental resection. Follow-up of these operated patients were taken at postoperative period at 1 week, at 1month and at 3months.Patients with different age group were included in the current study. The mean age group was 54.28±15.08 .The most prevalent age group was between 41 and 60 years (57.1%). Male were more in comparison to female in this study.

Site of the primary tumor has a significant impact on the outcome of treatment. In the current study the most prevalent site was gingiva and lower alveolus, which accounts for 85.6%.

Significant aesthetic disfigurement (asymmetry) was noted among the operated patients at different points of assessment. In 33.33% of the cases result was excellent, 19.04% good and 47.61% poor in respect of aesthesis at 3months follow up period. Hisham M et al conducted a study between 1991 and 1998 by reconstucting mandibular defect immediately after operation with stainless steel plate. Among 52 patients unsatisfactory aesthesis were reported in 13.4% patients. However, these unsatisfactory facial appearances were may be due to difficulty of adjusting the plate before resection[6]. Keliman RM, Guillan PJ in 1987 also reported 29.2% unsatisfactory aesthesis in their study due to same reason.[7] Occlusal deviation was observed in 47.61% cases and satisfactory occlusion was observed in 52.38% cases at 3 months follow up period. Occlusal deviation was noted mainly in those patients who underwent partial resection (body, ramus and condyle) of mandible. Deviation of the mandible causes occlusal disharmony that occurs due to the unopposed pulls of the remaining muscles of mastication, soft tissue contracture and scar formation.[2] In the current study there was less soft tissue contracture and scar formation after surgery and consequently less occlusal disharmony was noticed.

Exposure of the reconstruction plate is another complication of stainless steel plating system in the reconstruction of mandibular defect after mandibular resection. In the present study, out of 21 patients two patients (9.52%) showed plate exposure, one patient at one month and another patient at three months. The patient who showed plate exposure at one month may be due to wound dehiscence and incase of another plate exposure case (at three months) was due to recurrence of primary lesion as proven histopathologically. In both of the cases the plate had to be removed. Ueyama Y et al in 1996 reported 6 plate exposure cases out of 34 patients. They claimed that out of 6 cases, exposure of plate occurred in 3 cases due to local tumor recurrence and in another 3 cases due to preoperative radiation therapy.[9] In the current study relationship between preoperative radiation therapy and postoperative exposure could not be established as none of the study participants received radiotherapy preoperatively.

Though screw loosening is a late complication of such reconstruction, two out of 21 patients (9.52%) had loosening of screw at different observational periods in this study. One patient showed screw loosening at one month and another patient at three months. It was detected by examining the radiograph. Both of the cases also had exposure of plate and as a result ultimately

plate removal was done. It may be due to the fact that, exposure of the plate was followed by infection subsequently loosening of screw in one case. In another case (where recurrence occurred at 3 months) it may be due to involvement of tumor and osteolysis of bone around the screws. Ueyama Y et al, 1996 found screw loosening in 4 of 34 cases (11.8%). In these cases, the remaining masticatory muscles and teeth produced a strong occlusal force against the plate. As a result, complication like screw loosening occurred during follow up period.[9]

The main limitation of the study was the smaller sample size and limited duration of follow up period. To see the local control of disease, recurrence and 5 years survival rate follow up period should be extended, otherwise significant postoperative outcome (aesthesis, occlusion, function) and complications (infection, plate exposure and screw loosening) cannot be estimated properly.

From the current study it can be concluded that, though stainless steel reconstruction plate has got some demerits like infection, plate exposure, loosening of screw and plate fracture, it showed some superiority in terms of aesthesis, occlusion and maintenance of good oral function, in case of immediate reconstruction of mandibular defect after resection.

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Incidence of Post-Obturation Pain in Asymptomatic Non-vital Maxillary Anterior Teeth following Single and Multi Visit Therapy without Prophylactic Medication

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Abstract

Background: *Endodontic treatment can be followed by numerous short and long term complications, most commonly pain. The objective of this study was to assess post obturation pain in asymptomatic non vital maxillary anterior teeth without prophylactic medication performed in single visit and multi visit therapy.* ***Methods:*** *This prospective cross sectional study was conducted at Conservative Dentistry and Endodontic department of Bangabandhu Sheikh Mujib Medical University, Dhaka. A total 110 cases of asymptomatic non vital maxillary anterior teeth with or without peri-apical radiolucency less than 1cm were selected for this study. Patients were divided into two equal treatment groups, group-i: fifty five for single visit group and group-ii: fifty five for multi visit group. After completion of treatment, the frequency of post obturation pain was recorded as no pain, mild, moderate and severe pain at second and seventh post obturation day. The data were analyzed by using SPSS version 17. P value <0.05 was taken as significant.* ***Results:*** *At the second post obturation day, between group I and group ii, mild pain (21.8%vs 10.9%), moderate pain (10.9%vs 9.1%) and severe pain (3.6%vs 3.6%). At seventh post obturation day, both group experienced mild pain (20%vs 14.5%) and moderate pain (5.5%vs0.0%). No patient noticed severe pain during the follow up period at seventh post obturation day. However, there was no statistically significant difference between Group I and Group II in experiencing severity of pain at second (p=0.435) and seventh (p=0.371) post obturation day.* ***Conclusion:*** *No statistically significance in the incidence and severity of post obturation pain in asymptomatic non vital maxillary anterior teeth were found between single and multiple visit endodontic procedures without prophylactic medication.*

Key words: Post obturation pain, Root Canal Treatment, Single visit, Multi visit. ***J Cont Dent Sci 2017;5(2):13-18***

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Introduction

Pain and swelling is often indicator of an existing disease process associated with an offended tooth. Endodontic treatment aims to reverse the disease process and thereby eliminate associated signs and symptoms.[1] The etiological factors for post-obturation pain or flare ups are complex and involves various aspects such as type of treatment (initial treatment or retreatment), number of appointments (single or multiple), mechanical and chemical injury during clinical procedure, microbial factors related to the contents of infected root canal etc.[2] The development of post-obturation pain after RCT is a poor indicator of pathosis and unreliable predictor of long term success.[3]The reported prevalence of post obturation pain and swelling range widens from 0 to 65%[4], however these cases usually constitute a true emergency and very often require unscheduled visit for management. Completion of RCT can be done by single visit or multi visit procedures. The concept of doing complete endodontic treatment in one visit is not new. It was there from at least 100 years.[5] Now a days with the development of new instruments, materials and techniques single visit RCT can be done in almost all cases.

However, patient requests and expectations of treatment have made single visit RCT popular

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amongst dental surgeons, as it is less time consuming and more economical[6] and as a consequence, more appropriate to the needs of itinerant and busy patients.[7] Existing literature on single as compared to multiple visit endodontics[6,8,9] gives conflicting opinions and recommendations. A number of studies arr available on single visit and multi visit root canal therapy, regarding its outcome and complications, but only a few studies on asymptomatic non-vital teeth were found on literature review.[4,10,11]

So, we decided to carry out a study to assess the incidence and severity of post obturation pain following single and multi visit procedures in asymptomatic non vital maxillary anterior teeth without prophylactic medication.

Methods

A total of 110 cases of asymptomatic non-vital maxillary anterior teeth with or without peri-apical radiolucency less than 1cm in periapical radiograph were selected for this study from those patients visting for root canal treatment at the Department of Conservative Dentistry & Endodontics, BSMMU, Dhaka and gave consent regarding this study. It was prospective cross sectional study, carried out during the period from June 2014 to Feb 2015 and was approved by Institutional Review Board of BSMMU, Dhaka.

The sample size was divided into two treatment groups.

Group-I (n=55) Single visit treatment group.

Group II (n=55) Multi visit treatment group.

Diagnosis of asymptomatic non vital maxillary anterior teeth was confirmed by pulp sensitivity tests applying heat and cold methods and examination of pre-operative peri-apical radiograph was done for assessment of peri-apical lesion cases.

After tooth preparation and proper isolation, the canals of all teeth were prepared according to standardized technique and obturated with ZincOxide Eugenol sealer and Gutta-Percha points using lateral condensation filling technique. In the single visit treatment group, at the first appointment the teeth were isolated, bio-mechanically prepared, dried and obturated. Whereas in the multi visit treatment group, at the first appointment the teeth were isolated, biomechanically prepared, dried, filled with Calcium hydroxide paste as an intra canal medicament and temporized with Zn oxide eugenol cement. At the second appointment, seven days after the first one, the teeth were isolated, irrigated, dried and obturated in the same way as the first visit.

All patients were recalled to record any pain experience at the second and seventh day after completion of treatment. Patient complaints also were recorded as and when pain appears during multi visit treatment.

Pain perception was recorded in terms of feeling of discomfort irrespective of duration, requirement of analgesics, tolerance of pain, disturbance in normal activity or sleep, impairment of masticatory function etc.[12,13]

The presence or absence of pain or the appropriate degree of pain was recorded and graded as below according to 'Verbal descriptive scale"[14]

1. No pain (Grade-0)-the treated tooth feels normal.
2. Mild pain (Grade-l) -any discomfort, no matter brief in duration that do not require medication.
3. Moderate pain (Grade-ll)-Pain tolerable or is tolerable with analgesics.
4. Severe pain (Grade-Ill) -Pain not responding to analgesics, disturb normal activity/ sleep /impairment of masticatory function.

The data was analyzed by a computer based software program "Statistical Package for Social Science -SPSS version 17". P value <0.05 was considered significant.

Results

A total sample of 110 patients (62 male and 48 female) were treated each having an asymptomatic non vital maxillary anterior tooth. Among them 55 patients had been treated in a single visit root canal therapy (group-I) and other 55 patients had been treated in multi-visit root canal therapy (group-II). In single visit treatment group 34(61.8%) were male and 25 (45.5%) were female. In multi-visit treatment group male was 28(50.9%) and female was 23(41.8%).(Table-1) The difference was not statistically significant (p>0.05) between two groups.

The age of the patients ranged between 15-45 years. The mean age of the single visit therapy group patients was 29.3±9.0 years with a range of 15-45 years and the mean age of the multi visit therapy group patients were 29.8±8.1 years with a range of 16-45 years.(Table-2).The difference of mean age were not statistically significant (p>0.05) between two groups.

Out of 110 patients, mild, moderate and severe pain was experienced by 18(16.4%), 11(10%), and 4(3.6%) patients respectively and 77(70%) patients had no pain at second post obturation day. While mild and moderate pain was experienced by 19(17.3%) and 3(2.7%) patients respectively, 88(80%) patients experienced no pain on seventh post obturation day. (Table-4)

Comparing the pain experience at second post obturation day, between group I and group II, mild pain was (21.8%vs 10.9%), moderate pain was (10.9%vs 9.1%) and severe pain was (3.6%vs 3.6%) . Group II had more patients than Group I who experienced no pain (63.6%vs 76.4%). There was no statistically significant difference between group I and group ii in experiencing severity of pain (p=0.435) (Table-4).

At the seventh post obturation day, both group experienced mild pain (20%vs 14.5%) and moderate pain (5.5%vs 0.0%). Group II had more patients than Group I who experienced no pain (74.5%vs 85.5%). However, there was no statistically significant difference between Group I and Group II in experiencing severity of pain (p=0.371) (Table-4).

Table 1. Distribution of the study patients by sex (n=110)

Sex	Single visit therapy (n=55)		Multiple visit therapy (n=55)		P-value
	N	%	N	%	
Male	34	61.8	28	50.9	0.773^{ns}
Female	25	45.5	23	41.8	

#ns= not significant. P value reached from chi square test

Table 2. Distribution of the study patients by age (n=110)

Age (In year)	Single visit therapy (n=55)		Multiple visit therapy (n=55)		P-value
	N	%	N	%	
≤ 25	24	43.6	20	36.4	#0.760^{ns}
>25	31	56.4	35	63.6	
Mean± SD	29.3	±9.0	29.8	±8.1	
Range (min, max)	15	, 45	16	, 45	

#ns=not significant. P value reached from unpaired t-test

Table-3: Comparison of baseline characteristics between single and multi visit therapy (n=110)

Baseline characteristics	Group-1 (n=55)	Group-II (n=55)	P Value
Occupation			
Service holder	17 (30.08%)	26 (47.3%)	
Business	9 (16.4%)	6 (10.9%)	0.259 ns
Housewife	9 (16.4%)	10 (18.2%)	
Student	20 (36.4%)	13 (23.6%)	
Position of Maxillary Anterior teeth			
Left			
Central Incisor	22 (40%)	19 (34.5%)	
Lateral Incisor	5 (9.1%)	8 (14.5%)	
Canine	3 (5.5%)	7 (12.7 %)	0.716 ns
Right			
Central Incisor	17 (30.9%)	14 (25.5%)	
Lateral Incisor	6 (10.9%)	5 (9.1%)	
Canine	2 (3.6%)	2 (3.6%)	
Symptoms			
Trauma	30 (54.5%)	39 (70.9%)	
Filling	24 (43.6%)	16 (29.1%)	0.151 ns
Swelling	1 (1.8%)	0 (0.%)	
Signs			
Caries	28 (50.9%)	16 (29.1%)	
Discoloration	21 (38.2%)	32 (58.2%)	0.059 ns
Restoration	6 (10.9%)	7 (12.7%)	
Periodontal Condition			
Good	15 (27.3%)	20 (36.4%)	
Average	40 (72.7%)	35 (63.6%)	0.306 ns

ns Not Significant, P value derided form Chi square test. G-I (Single visit therapy), G-II (Multi visit therapy).

Table 4. Comparison of study patients between single and multi visit group.

Follow up	Group-i (n=55)		Group-ii (n=55)		Total (n=110)		P-value
	N	%	n	%	n	%	
Second post obturation day							
No pain	35	63.6	42	76.4	77	70.0	0.435^{ns}
Mild	12	21.8	6	10.9	18	16.4	
Moderate	6	10.9	5	9.1	11	10.0	
Severe	2	3.6	2	3.6	4	3.6	
Seventh post obturation day							
No pain	41	74.5	47	85.5	88	80.0	0.371^{ns}
Mild	11	20.0	8	14.5	19	17.3	
Moderate	3	5.5	0	0.0	3	2.7	

ns=not significant. P value reached from chi square test
G-I (Single visit therapy), G-II (Multi visit therapy).

Discussion

This study has shown that post obturation pain in the single visit treatment group is relatively more than multi-visit treatment group. Oginni and Udoye[15] observed almost same result, where significant more pain was in the single visit treatment group than multi-visit treatment group. This finding is also supported by a significant number of reports.[3,6,12-13,16-18] On the contrary, Some authors reported[10,19,20] no significant pain prevalence while two reports[2,9] showed significant prevalence of post obturation pain and flare-ups in multi-visit treatment group. The discrepancy may be attributed to the fact that inter-appointment root canal medication was not used in their studies.

In multi-visit technique, calcium hydroxide was used as an intra-canal medication in between visits in this study. Some previous studies [4,17,21] also used calcium hydroxide as an intra-canal medicament. As necrotic pulp allows more dentine infection, there is a necessity to use inter-visit medication for complete disinfection. Spanberg.[22] Harrison et al[23] shown that the use of an anti-microbial intra-canal medication and sodium hypochlorite irrigation could prevent post obturation pain. Siqueira et al[24] also observed that the use of an anti'microbial strategy during the endodontic therapy can significantly remove micro organisms from the root canal and prevent post operative pain.

In this study, five patients from multi visit therapy group reported with inter appointment flare up which was managed by normal saline and sodium hypochlorite irrigation alternately and also by changing calcium hydroxide as intra-canal medication.

Despite the higher percentages of post obturation pain reported at the second post obturation day in both groups, pain was decreased markedly at the seventh post obturation day. This was found in agreement with the findings of 5 different studies .[4,10,15,19,23] This should draw the attention of dental surgeon not to over-react to early post obturation symptoms by immediately initiating endodontic re-treatment procedures or extraction of the involved tooth.

In this study, the age of the patients ranged from 15-45 years in single visit group (29.3±9.0) and 16-45years in multi-visit group (29.8±8.1). Al-Negrish[4] also described the same age group between 16-45 years.

In single visit treatment group, male was 61.8% and female 45.5% and in multi-visit group male was 50.9% and female was 41.8%. Males report more to dental OPD in this research institute as because they are more ambulatory and prone to trauma, ultimately reporting with signs of discolored teeth.

The present study showed pain was significantly higher in older patients than younger patients (at and below 25 yrs of age), which seems to agree with Torabinezad et al[25] and Cheng et al.[26] They found more pain in older patients.

The higher incidence of post obturation pain in the elderly group might be experienced by previous pain experience and a reduced ability to tolerate pain and discomfort.

Though, we studied only maxillary arch anterior teeth, some authors [27, 28] found more pain in mandibular arch than maxillary arch while others [2, 30] found no significant differences in pain between maxillary and mandibular teeth.

We studied maxillary single anterior teeth i.e canine, central incisor and lateral incisor teeth with no significant difference in incidence and severity of pain in single and multi visit RCT. There was also no difference in observation of pain at day 2 and day 7 after post obturation. Mulhern et al treated maxillary single rooted, symptomless, necrotic teeth in one and two visit RCT, reported no significant difference in post obturation pain in between two group.[10] Fava studied sixty maxillary central incisor with asymptomatic necrotic pulp in one and two visits.[13] No difference was observed in the incidence of post operative pain between the two groups. Our study findings were compatible with those studies.

Conclusion

Under the conditions of this prospective study, no statistically significant difference in incidence of post obturation pain in asymptomatic non vital maxillary anterior teeth following single and multi-visit endodontic procedures without prophylactic medication was observed.

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Antimicrobial resistant pattern of bacteria isolated from tracheal aspirate of ICU patient

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Abstract

Hospital acquired infection is an endemic problem encountered in hospital patients all over the world including Bangladesh. The present study was carried out on 60 patients who were admitted in the ICU of BSMMU & DMCH from February 2016 to December 2016. The study was aimed to find out the common pathogens in ICU patients & their antibiotic resistant pattern of infection. Out of 60 patients, 55 tracheal aspirates were collected. Among the studied cases 32(58.18%) different types of pathogens were isolated from tracheal aspirate. Out of 32 culture positive cases, the common most organisms were Pseudomonas aeroginosa 14(43.75%) & E.coli 07(21.87%) & were resistant to Pipercillin (66.67%) &Ciprofloxacin (50%).

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Introduction

Intensive care unit is a specially staffed & equipped hospital ward dedicated to the management of patients with life threatening illness, injuries or complications (Maliha et al, 2002).[1]

According to Halpen patients admitted into hospital Intensive Care Unit ward were suffering from respiratory insufficiency, haemodynamic insufficiency, coma, several head trauma, after major surgery, life threatening acute illness, severe fluid imbalance & failure of one or more of the major organ system (Halpen, 2004).[2] Patients in ICU are 5-10 times more likely to develop infection than those in patients on general wards (Fagon et al, 1996).[3]

Critically ill patients admitted to ICU are exposed to multiple invasive devices. Close contact with health care personnel, longer ICU stay, space limitations increase the risk of contaminating equipment. Low resistance of patients to infection & drug resistance of endemic microbes influence the frequency & nature of infection in ICU (Floros et al, 2001.[4]

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Mechanical ventilation itself has been viewed as major risk factor for hospital acquired infection in ICU.[5] Endotracheal tube bypasses natural upper airway fibers & therefore interferes with laryngeal & cough reflexes & impedes mucociliary clearance. Pharyngeal flora leaks around the cuff of endotracheal tube & bypasses into the lung predisposing to the development of pneumonia (Singh & Kapadia, 2001).[6] Instillation of normal saline, a common practice during suctioning, may also facilitate direct entry of bacteria into respiratory tract. In addition flora from the lower part of the intestine may colonize the stomach & aspirate to the trachea & contribute to the development of infection (Tasota et al, 1998).[7]

Bacterial infection in ICU patient is an alarming problem throughout the world. The present study has been designed for the isolation, identification & resistant pattern of bacteria of ICU patient.

The aims and the objectives were to isolate & identify bacteria from ICU patients and to see to see the antibiotic resistant pattern of isolated bacteria.

Materials & Methods

The clinical specimens for this study were collected from ICU patient of BSMMU hospital & DMCH from February 2016 to December 2016. Intensive care unit (ICU) patients of both sexes & different age groups were considered for evaluation & a total of 60 patients were studied. Out of 60 patients, 55 samples of tracheal aspirates were collected for isolation of the bacteria.

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Laboratory used

Laboratory investigations were done in the department of Microbiology & Immunology of BSMMU, Shahbag, Dhaka.

Methods of sample collections

Tracheal aspirate

In sterile way with caution to avoid trauma, the fine flexible sterile plastic suction tube was passed through endotracheal tube to the trachea. Tracheal secretion was aspirated by suction with 50 ml disposable syringe. The tube was then removed & the tip of the tube about 5 cm was cut & kept on sterile test tube (Collee et al, 1996).[8]

Laboratory methods

In the laboratory the tip of the plastic suction tube was rolled over the blood agar, chocolate agar & Mac Conkeys agar in the sterile way & then streaking was done with sterile wire loop by wearing sterile gloves & holding the tip of the tube with sterile forcep. Mac Conkey s agar was incubated at 370C. Blood agar & chocolate agar incubated at 5% CO2 in the candle extinction jar at 370C for overnight. Identification of the organism was done by 1) colony morphology 2) Gram staining & 3) necessary biochemical test (Collee et al, 1996).[9]

Identification of organisms

Gram negative organisms were identified by colony morphology,Gram staining, motility test,fermentation of different sugar media, indole production, methyl red reaction, citrate utilization, urease production & H2S production in KIA media.

Gram positive organisms were identified by colony morphology,Gram staining,haemolytic property , catalase test & coagulase test.

Antimicrobial susceptibility test

All the bacteria isolated were tested for antimicrobial susceptibility against Cotrimoxazole (Co), Tetracycline (T), Erythromycin (E), Cloxacillin (CX), Gentamycin (G), Ciprofloxacin (CIP), Ceftazidime (CAZ), Nalidexic acid (NA), Nitrofurantoin (NF), Ampicillin (A), Aztreonam (AO), Imipenem (I), Pipericillin (PC), Carbenicillin (PY), Netilmycin (NET). Commercially available disc were used.

Media used

Muller-Hinton agar was prepared from a dehydrated base according to the manufacturer recommendations.

Reading of sensitivity test result

After overnight incubation at 37oC the plates were examined & the diameter of complete zone of inhibition were measured in millimeter with the help of a ruler placed on the under surface of the petridish. The zone of inhibition was measured in two directions at right angle to each other through the centre of the discs & the averages of the two readings were taken.

Results

A total of 60 ICU patients of BSMMU & DMCH having suspected hospital acquired infection were studied. Tracheal aspirate samples were collected from each ICU patients for isolation of bacteria.

A total of 60 ICU patients, of which 25 tracheal aspirate samples collected from BSMMU & 30 tracheal aspirate samples from BSMMU & 30 tracheal aspirate samples from DMCH.The rate of culture positivity of tracheal aspirate samples were 14(56.00%) in BSMMU &

the rate of culture positivity of tracheal aspirate were 18(60.00%) in DMCH (Table-1).

Table-1: Number of culture positive cases in tracheal aspirate samples of study patients in ICU patients.

Name of sample	BSMMU		DMCH		Total
	No. of sample	culture positive	No. of sample	culture positive	culture positive
acheal pirate =55)	25	14(56)	30	18(60)	32(58.18)

N : Parenthesis indicates percentage.

A ng 32 culture positive cases in BSMMU & D CH, highest number 14(43.75%) isolates were P domonas aeroginosa followed by Escherichia c 07(21.87%), Klebsiella pneumoniae 05 (53%), Proteus spp. 02 (6.25%), Staphylococci : us 02 (6.25%) & Streptococcal pneumoniae02 (5%) (Table-11).

ble-2: Types of organism isolated from 32 (ture positive cases of ICU patients

Name of the bacteria	BSMMU(n=14)	DMCH (n=18)	Total (n=32)
Pseudomonas aeroginosa	06(42.86)	08(44.44)	14(43.75)
scherichia coli	03(21.43)	04(22.22)	07(21.87)
Klebsiella pneumoniae	02(14.29)	03(16.67)	05(15.63)
Proteus spp.	01(7.14)	01(5.56)	02(6.25)
Staphylococci aureus	01(7.14)	01(5.56)	02(6.25)
Streptococcal pneumoniae	01(7.14)	01(5.56)	02(6.25)

Note: Parenthesis indicate percentage.

Resistant pattern of pseudomonas aeroginosa isolates of BSMMU & DMCH, resistant to piperacillin, gentamycin (60%-70%), resistant to carbanicillin, ciprofloxacin, ceftazidime (50%-70%), resistant to imipenem, aztreonam, netilmycin & ceftriaxone (33%-65%). (Table-III).

Table-3: Antimicrobial drug resistance pattern of bacteria isolated from tracheal aspirate of BSMMU & DMCH

Name of the organism	Hospital	Ampicillin	Cotrimoxazole	Tetracycline	Erythromycin	Cloxacillin	Gentamycin	Ciprofloxacin	Ceftriaxone	Imipenem	Aztreonam	Ceftazidime	Netelmycin	Carbanicillin	Piperacillin
Pseudomonas spp.	BSMMU (n=6) DMCH (n=8)	- -	- -	- -	- -	- -	4(66.67) 5(62.5)	3(50) 4(50)	2(33.33) 5(62.5)	2(33.33) 5(62.5)	2(33.33) 5(62.5)	3(50) 4(50)	2(33.33) 5(62.5)	4(66.67) 4(50)	4(66.67) 6(75)
Klebsiella spp.	BSMMU (n=2) DMCH (n=3)	2(100)3(100)	2(100)3(100)	2(100)2(66.670	(50)2(66.67)	–	0(0)0(0)	0(0)0(0)	0(0)0(0)	–	–	(50).1(33.33)	- -	- -	- -
E.coli	BSMMU (n=3) DMCH (n=4)	3(100) 3(100)	3(100) 3(100)	2(66.67) 3(75)	2(66.67) 2(50)	–	0(0) 0(0)	0(0) 0(0)	0(0) 0(0)	–	–	1(33.33) 1(25)	- -	- -	- -
Proteus spp.	BSMMU (n=1) DMCH (n=1)	1(100) 1(100)	1(100) 1(100)	1(100) 1(100)	1(100) 1(100)	–	0(0) 0(0)	0(0) 0(0)	0(0) 0(0)	–	–	0(0) 0(0)	- -	- -	- -
Staph. aureus	BSMMU (n=1) DMCH (n=1)	1(100) 1(100)	1(100) 1(100)	1(100) 1(100)	1(100) 1(100)	0(0)	0(0) 0(0)	0(0) 0(0)	0(0) 0(0)	–	–	0(0) 0(0)	- -	- -	- -
Strepto. pneumoniae	BSMMU (n=1) DMCH (n=1)	1(100) 1(100)	1(100) 1(100)	1(100) 1(100)	1(100) 1(100)	–	0(0) 0(0)	0(0) 0(0)	–	–	–	0(0) 0(0)	- -	- -	- -

Note: Parenthesis indicate percentage

Discussion

Sick or injuried people who need very close monitoring are cared in an area of the hospital called Intensive care unit (ICU). Generally people in the ICU have had a life threatening illness or condition. Bacterial evaluation & emergence of antimicrobial drug resistance continue to interfere with the successful treatment of infections by both community & hospital based physicians.Resistance had emerged to even newer most potent antimicrobial agent (Parry, 1989).[9] Hospital acquired infections are one of the main causes of morbidity & mortality in the hospitalized patients at the present time (Wenzel, 1981).[10] Advances in biomedical technology & therapeutics are producing greater number of highly susceptible patients requiring treatment in hospital & this

is aggravated by the occurrence of transferable resistance to antibiotics in pathogenic bacteria & emergence of new pathogens transmitted by a variety of routes (Mendel et al 1995).[11] In the present study, an attempt has been made to get an insight regarding the identification & isolation of causative organisms responsible for infection in ICU patients of BSMMU & DMCH.The antibiogram pattern of the offending organisms in ICU environment was also investigated. A total of 60 ICU patients of which 55 tracheal aspirate samples collected from BSMMU & DMCH were studied.

In the present study, the culture positivity of tracheal aspirate samples 32 (58.18%).

The most common organisms isolated from BSMMU & DMCH were Pseudomonas aeroginosa 14 (43.75%) followed by Escherichia coli 07 (21.87%), Klebsiella pneumoniae 05 (15.63%), Proteus spp.02 (6.25%), Staphylococci aureus 02 (6.25%) & Streptococci pneumoniae 02 (6.25%).

In the present study,Pseudomonas aeroginosa was the predominating organism in tracheal aspirate in both BSMMU 06(42.85%) & DMCH 08(44.44%) followed by Escherichia coli 03(21.43%) & 04(22.22%), Klebsiella pneumoniae 02(14.29%) & 03(16.67%) & Proteus spp. 01(7.14%) & 01(5.56%) respectively.

In the present study, resistant pattern of Pseudomonas aeroginosa isolates of BSMMU & DMCH, resistant to piperacillin, gentamycin (60%-75%), resistant to carbanicillin, ciprofloxacin, ceftazidime (50%-70%), resistanto imipenem, astreonam, netilmycin, ceftriaxone (33%-65%).

In E.coli, Klebsiella spp. were found 100% resistant to ampicillin & cotrimoxazole, tetracycline (60%-75%), erythromycin (50%-70%) & ceftazidime (25%-50%). In Staph. aureus, Proteus spp. & Strep. pneumoniae 100% resistant to ampicillin, cotrimoxazole, tetracycline & erythromycin.

Conclusion & Recommendation

From the present study it may be concluded that in tracheal aspirate Pseudomonas aeroginosa was the most common organism & mostly resistant to gentamycin (66.67%), ciprofloxacin (50%) & imipenem (33.33%).

From the present study the following recommendation were made:

a) Indiscriminate use of antimicrobial drug should be avoided.

b) Identification of the bacteria should include the use of kits for rapid group specific antisera & polymerase chain reaction (PCR).

c) Studies should include isolation of other causative agents like anaerobic bacteria, viruses, fungi & protozoa.

d) Sources of hospital acquired infections in ICU patients should be detected.

e) Specific genes responsible for multidrug resistance should be detected by DNA probe.

f) Proper monitoring of infection control team.

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Immediate loading implant for fixed dental prosthesis of single root tooth: A case report

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Abstract

In this case report Mini Drive Lock (MDL) intra lock mini implant was used for replacement of lower left permanent incisor of a male patient. Clinical and radiological findings suggested he had healthy bone and no significant health condition. We used MDL intra-lock mini implant of 2.5× 13 mm for replacing the mentioned missing tooth. This system could be a good option for replacing single rooted tooth for fixed dental prosthesis.

Key words: Mini Drive Lock (MDL) Implant, Mini-implant, OSSEAN Surface. ***(J Cont Dent Sci 2017;5(2);24-26)***

Introduction

Dental surgeons can offer different types of implants as fixed prosthesis[1]. Root-form dental implants with various diameter and length were cleared by the Food and Drug Administration (FDA) from the 1970s onward[2]. Dental implants are popular now because of high success rates and are utilized for implant-retained crowns, fixed prostheses, over dentures and orthodontic anchorage[3]. Initially, mini-implants were used for transitional implants to support temporary removable prostheses when the permanent prostheses were planned[4]. Mini-implants are now used for short- and long-term prosthodontic treatment for such as complete and partial removable denture stabilization and for fixation of fixed prostheses (crowns/bridges)[5]. Immediate loading mini-implants have added new dimension to dentistry[6]. Dental implants that are immediately loaded should be stable after insertion and they should be rigidly splinted around the curvature of the arch[7]. Immediate loading refers to situations where implant placement and prosthetic loading take place at the same visit or within 48 hours8. Immediate loading offers many potential advantages, such as reduced number of surgical procedures and an immediate esthetic and functional solution[9]. Mini Drive-Lock (MDL) is a true 'convertible' implant with one-piece solid strength and two-piece versatility[10]. OSSEAN Surface is characterized by its fractal topography that extends beyond the nanoscale level. OSSEAN has an extremely hydrophilic surface and is impregnated with Calcium Phosphate molecules that are incorporated into the surface structure at the molecular level[11].

We treated a patient who had missing mandible lower left permanent incisor with MDL implant for fixed dental prosthesis and present the case details in this report.

Case history

Mr Nazmul, a 39-years old male hailing from Feni came with the complaints of missing lower left permanent central incisor and upper right permanent second molar teeth on 1-1-2016 in our clinic. The patient had been working in Italy for 6 years and wanted to go back shortly. He had learnt about dental implant from various sources and wanted to replace the missing anterior tooth by single tooth implant. We offered him MDL mini-implant (2.5±13 mm) which was immediate loading. We took proper medical history and clinical examination. He was a healthy person with no significant health conditions. We advised him an OPG (Fig.-1). Tracing for the proper implant size was performed by using transparent tracing sheet. Implant length and width was determined placing the tracing sheet over the OPG film anticipating 25% Increase/distortion. Appropriate implant was selected. We placed the implant on that day.

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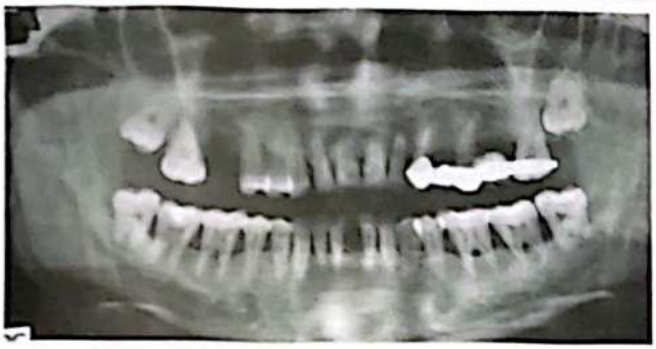

Fig.1: Preoperative OPG

Surgical Procedure

Step-1: Preparation of pilot hole

First local anaesthesia (Inj. Jasocaine A) was administered to the adjacent oral mucosa of the implant placement site. After local anaesthesia 1.2 mm pilot drill was used to breach the gingival tissue and periosteum. Drilling depth was approximately 1/3 rd the implant length until cortical plate was engaged.

Step-2: The implant was directly delivered to the site

The seal of the pack was removed. Sterile MDL Intra-lock implant (2.5±13 mm) was carried to the site and placed into the pilot hole by contra-angular hand piece.

Step-3: Inserting the implant to the site by using slow speed hand piece (The Self Tapping Phase)

The hand piece was set to slow speed to inset the MDL implant into the bone. This process was permitting the implant to cut through the alveolus as well as threading and expanding the bone at the same time till final seating.

Fig 2: MDL Screw

Fig 3: MDL Screw

Step-4: Final Seating of the Implant

The contra-angular attachment was removed. The mini-drive lock adopter and Ratchet Wrench snaps were used for final seating of the implant. Small incremental turns were used with a pause between each turn to take the advantage of the visco-elastic nature of the bone. Final seating was accomplished when the Wrench was flushed with the surrounding gingival tissue. The implant was check for the attachment and impression was taken by Alginate impression material for both upper and lower. Models were prepared by hard plaster and sent to the dental lab for crown (Fig-5).

The patient was advised for an OPG (Figure 4). Supplied crown was fixed by luting cement after one day (Fig-6).

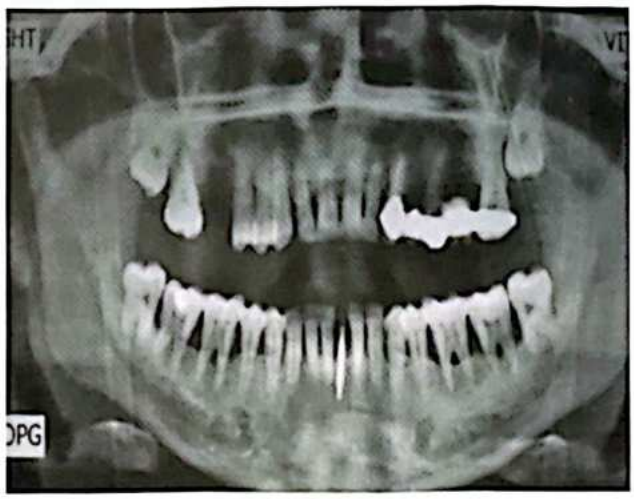

Fig-4: Post-operative OPG

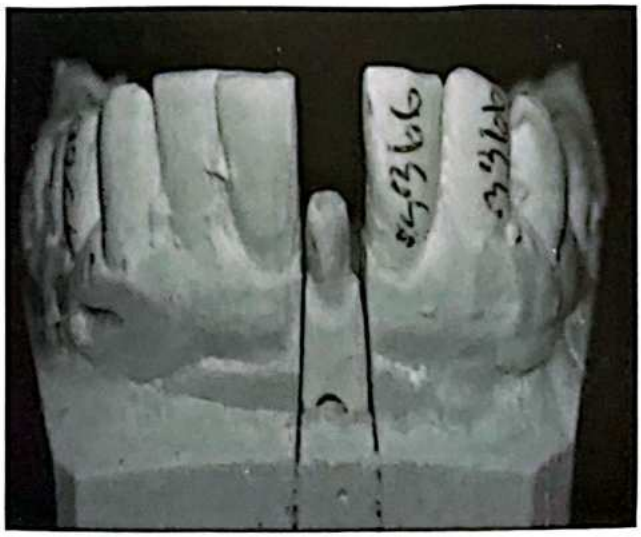

Fig-5: Model preparation for porcelain crown

Fig-6: Porcelain crown

Fig-7: Porcelain crown was fixed into patient mouth

Discussion

Implant was chosen because patient did not want to do root canal treatment and cutting of abutment teeth for dental bridge. He didn't want conventional implant as well because of time factor and surgical procedure. Then he was approached for MDL intra-lock implant which was immediate loading. Due to its OSSEAN surface and this molecular impregnation, binding forces make the Calcium Phosphate exceptionally stable while preserving its bioactive properties. Success of immediate loading implant depends upon achieving primary stability by preventing implant micro-motion during healing procedure and achieving secondary stability by initiating contact osteogenesis in the peri-implant area[12].The OSSEAN surface reduce the osteoclastic activity for the first couple of weeks after implant placement and increasing in osteoblastic activity sooner[13].The patient accepted the MDL mini-implant. We placed the MDL mini-implant of the mentioned position and fixed the crown by luting cement on the mini-implant.

Conclusion

MDL intra-lock implant is better choice for single rooted tooth prosthesis. Success rate of this implant is good. We follow up the patient over phone. He hasn't given any complaint about the implant and dental prosthesis.

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