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CONTENTS

Editorial

Misapplication of Antibiotics In Endodontics

Begum S[1]

Over 350 distinct species of bacteria co-exists within the oral cavity. Bacteria from the oral cavity may gain access to the dental pulp through caries, direct exposure of the pulp, through dentinal tubules, leaking restoration and lateral or apical canals from periodontal involvement. Human dental pulp is almost devoid of collateral circulation. Thus when it becomes infected it is impossible to recover. As the pain of pulpitis is intractable and so severe that patient can't tolerate, for that reason patient take antibiotics themselves and sometimes insist the doctor to prescribe antibiotics for their quick recovery. Whereas, removal of the cause, proper biomechanical preparation and sealing of entire root canal system can recover the patient without the use of antibiotics.

Not only the dentist but most of the physicians around the globe are leading the misuse of antibiotics. In 1995, half of the top ten generic drugs prescribed for patients in the United States were antibiotics. This clearly indicates how antibiotics are being used worldwide.

Resistance of the virulent micro-organisms to the drugs is the major outcome of the misapplication of antibiotics. By stimulating the development of resistant strains of bacteria, these medications permanently alter the microbial environment. Longer the population of bacteria is subjected to an antibiotic, more resistant the survivors become.

Food chain also contributes to the bacterial resistance through the intake of milk, meat, egg and dairy products due to repetitive use of small dosage of antibiotics in agricultural feeds and fertilizers.

In the context of the developing countries like ours, patients are also playing a significant role for the misuse of antibiotics. Inappropriate dose, irregularity and the failure to maintain the proper duration of drugs (due to negligence and sometimes poverty) are the major problems for resistance of drugs.

In my clinical practice, what I have seen is people from the backward society like ours rarely visit the dental practitioner unless they are encountered with the dental pain. So lately, patient with necrosed pulp, alveolar abscess, sinus tract, etc. are frequently seen. Pain alone or localized swelling does not require antibiotic treatment. On such conditions, the first priority should be the complete debridement of the infected root canal system (necrosed pulp) and placement of localized medicaments and for abscess, drainage of the pus that will release pressure and will ultimately reduces the severity of pain .The body immune system should be provided each and every chances to respond to the remained infection (Let the body fight first).

An infection must either be persistent or to be systemically involved to justify the need for antibiotics as the weak body immune system couldn't respond well. We should prescribe antibiotics in all the procedures where bleeding is anticipated like-Surgical endodontics, Periodontal procedures (deep scaling and curettage) and Dental extractions and medically compromised patients like Diabetes Mellitus , malnourishment, Patients prone to heart or joint infection, hemophilia ,etc.

Throughout my clinical career to the date, I have envisioned that almost all dentist are prescribing antibiotics unknowing their role and indication on endodontics. All these prescriptions reinforce the misguided and widespread belief that antibiotics make recovery from an infection faster, less painful and more certain. Patients request medication with the belief it will be beneficial for their early recovery. Hence, in my perspective, dentists and physician have a serious responsibility to understand why antibiotics must be administered with caution and to adhere to the principles that govern their appropriate use.

Today, most bacterial infections can be treated successfully. Tomorrow the balance between microbes and men is uncertain if the misapplication of antibiotics continues as now. Hence the propaganda should be "Just say no! Kill the bugs without the drugs."

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Original Article

Influence of Platelet Rich Plasma on Clinical Success Criteria of Dental Implant Osseointegration

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Abstract

The objective of this study was to evaluate the influence of platelet rich plasma (PRP) on clinical success criteria of dental implant osseointegration. Total 60 implants of 50 patients were evaluated of which 30 were treated with platelet rich plasma and another 30 were treated conventionally without using platelet rich plasma (PRP). During the 16 weeks of the evaluation period no implant failure was reported. The pain, swelling, mobility, paresthesia, and radiolucency between bone and implant were disappeared early in the implants treated with platelet rich plasma than those of treated conventionally. The periodontal indices were evaluated for 1 year after prosthesis loading. The mean value of plaque index (PI) was 0.25 mm, bleeding on probing (BOP) was 0.15 mm and probing pocket depth (PPD) was 1 mm in the implants treated with PRP, but the values were 0.5 mm, 0.5 mm and 2 mm respectively in the implants treated without PRP. Unpaired t test was done for statistical analysis and p value was less than 0.05. So, the changes were statistically significant.

Key words: *Dental implant, Osseointegration, Biological Fixation of implant, Platelet Rich Plasma (PRP).*

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Introduction

In recent years dental implants have become a highly predictable and unique treatment modality to replace missing teeth.[1] A revolution in the research and technology of implants during the last two decades has made the replacement of missing teeth with endosseous implants the standard care and an implant supported prosthesis as the first line of treatment and long lasting rehabilitation.[2] The use of endosseous implants achieves predictable results in terms of survival and success rates of oral rehabilitation.[3]

The biological fixation between the dental implant and jaw bones should be considered a prerequisite for the long-term success of implant supported prostheses.[4] The long-term clinical success of dental implants is related to their early osseointegration[5].

The term Osseointegration refers to the phenomenon responsible for formation of a direct contact between titanium dental implants and the bone into which they are placed. The bone grows right up to the surface of the dental implant, without an intervening layer of soft tissue, developing a close bond and fixing the dental implant in place. In general term, it is the wound healing with bone regeneration around dental implant after its surgical placement.[6, 7]

The success of implant osseointegration depends on the quality and quantity of the surrounding bone and soft tissue.[8, 9]

Platelet-rich plasma (PRP) is a new approach to tissue regeneration and it is becoming a valuable adjunct to promote healing in many procedures in dental and oral surgery. PRP derives from the centrifugation of the patient's own blood and it contains growth factors that influence wound healing, thereby playing an important role in tissue repairing mechanisms.[10-14]

The use of PRP in surgical practice could have beneficial outcomes, reducing bleeding and enhancing soft tissue healing and bone regeneration. Studies conducted on humans have yielded promising results regarding the application of PRP to many dental and oral surgical procedures (i.e. tooth extractions, periodontal surgery, implant surgery).[15-23]

The use of endosseous implants achieves predictable results in terms of survival and success rates of oral rehabilitation. It is most important to monitor the success of osseointegration process with non destructive and risk free clinical method[24]. The objective of the present study was to evaluate the influence of platelet rich plasma on success criteria of dental implant osseointegration. The considerations were given on pain, swelling, paresthesia, mobility, radiolucency between bone and implant as well as periodontal indices (plaque index, bleeding on probing, probing pocket depth).

Materials and Methods

A total 60 implants of 50 patients were evaluated in this study; of them 24 (48%) patients were males and 26 (52%) were females with age range from 22 to 70 years. The selected individuals were healthy and did not suffer from

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any form of systemic disorders. All participants were nonalcoholic and nonsmokers. Informed consent was taken from each patient.

All preoperative biochemical and radiographic evaluations were performed to select the patients. An ethical standard procedure was followed for placement of every implant. 30 implants were placed with platelet rich plasma at surgical sites and another 30 were placed conventionally as control group for this study. The surgical procedure was performed under local anesthesia and under premedication.

The surgical incision was made slight palatal or lingual to the crest of the edentulous ridge, with vertical releasing curvilinear incisions flaring into the vestibule in order to keep the base of the flap wider than the crestal incision width. Full-thickness subperiosteal flap was reflected to expose the crest and provide visualization of the bone.

Osteotomy was prepared with recommended sequences of drills according to the pre-selected size of implant. The rpm of the drills was controlled by speed-reduction hand piece attached in an osteotomy physiodispenser machine enabling internal as well as external irrigation to prevent excessive heat generation. The integrity of the osteotomy's bony structure was thoroughly assessed and the implant was inserted into the blood filled osteotomy maintaining sterilization in all aspects. Cover screw was placed and the autogenous platelet rich plasma was placed over and all around the implant site.

Platelet rich plasma was prepared simultaneously during surgical procedure with the help of a table-top laboratory centrifuge machine. 10 ml blood was drawn from the anticubital region and transferred to a container containing 1.4 ml anticoagulant (Citrate Phosphate Dextrose solution) and centrifuged for 10 minutes at 1300 rpm. The result was a separation of whole blood into a lower red blood cells (RBC) region and upper straw coloured plasma region and relatively high concentration of platelets found in the boundary layer between these two layers. The upper straw coloured platelet poor plasma (PPP) layer and 1-2 mm of the top part of the RBC layer was aspirated and the remaining content was centrifuged again for 10 minutes at 2000 rpm. This resulted in an upper portion of clear yellow supernatant serum and the bottom tinged layer consisting of highly concentrated PRP. The upper clear layer was aspirated until 1.5 ml serum was left. The contents of the tube was mixed well and transferred into a sterile container. At the time of the application, the PRP was combined with an equal volume of sterile saline solution containing 10% calcium chloride (a citrate inhibitor that allows the plasma to coagulate). In case of collecting bone granules during osteotomy preparation, the mixture was mixed with the bone granules to make it a sticky gel that was relatively easy to apply to the surgical sites.[10] The mucoperiosteal flap was then approximated with sutures. For the patients of control group mucoperiosteal flap was approximated with suture conventionally without placing PRP.

Just after placement of the implant the clinical and radiologic findings were recorded and considered as baseline data. In the follow up visits at 1 week, 4 weeks, 8 weeks, 12 weeks and 16 each patient was monitored for clinical and radiologic evaluation of the implants and the findings were recorded. Periodontal indices were recorded after prosthetic loading and at 1 year of the follow up visit. The findings of both groups were compared to formulate a result. Unpaired t test was done for statistical analysis and p value less than 0.05 was considered significant.

Results

A total 60 implants of 50 patients were evaluated of which 30 were treated with platelet rich plasma and another 30 were treated conventionally without using platelet rich plasma (PRP). 24 (48%) patients were males and 26 (52%) were females with the age range from 22 to 70 years (Figure 1 & 2). During the 16 weeks of the evaluation period no implant failure was reported. The pain, swelling, mobility, paresthesia and rdiolucency were disappeared early in the implants treated with platelet rich plasma than those of treated conventionally (Table 1 & 2). The periodontal indices were evaluated for 1 year after prosthesis loading. The mean value of plaque index (PI) was 0.25 mm, bleeding on probing (BOP) was 0.15 mm and probing pocket depth (PPD) was 1 mm in the implants treated with PRP, but the values were 0.5 mm, 0.5 mm and 2 mm respectively in the implants treated without PRP (Table 3). Unpaired t test was done for statistical analysis and p value was less than 0.05. So, the changes were statistically significant.

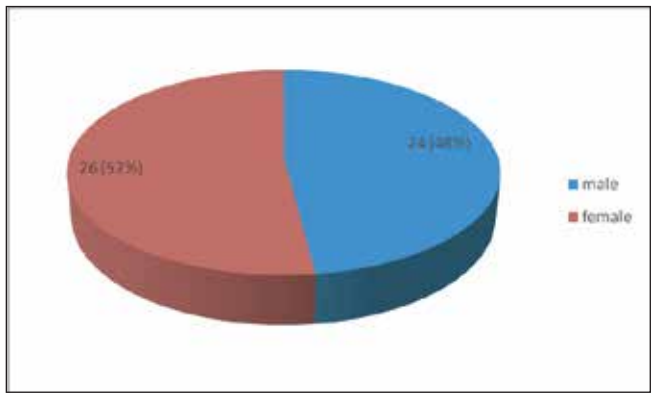

Figure 1: Distribution of patients by sex (N=50)

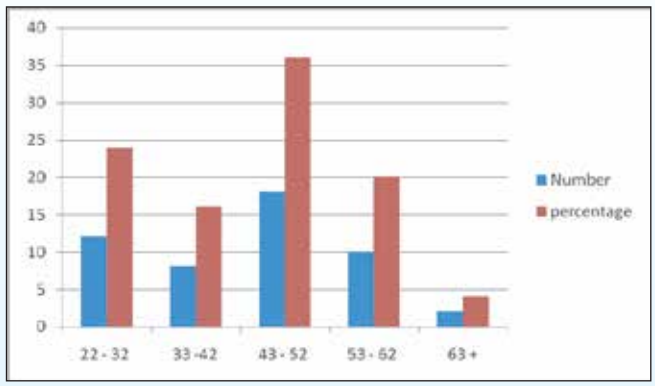

Figure 2: Distribution of patients by age group (N= 50)

Table 1: Evaluation of success criteria after implant placement with PRP (N=30)

Success criteria	After implant placement					
	Baseline	1 week	4 weeks	8 weeks	12 weeks	16 weeks
Pain	-	-	-	-	-	-
Swelling	-	-	-	-	-	-
Mobility	-	-	-	-	-	-
Paresthesia	-	– / +	-	-	-	-
Radiolucency	+	>>>	>>	>	-	-

Baseline: at the time of placement
(+) : present
(-) : absent
> : grade of narrowing

Table 2: Evaluation of success criteria after implant placement without PRP (N=30)

Success criteria	After implant placement					
	Baseline	1 week	4 weeks	8 weeks	12 weeks	16 weeks
Pain	-	– / +	-	-	-	-
Swelling	-	– / +	-	-	-	-
Mobility	-	-	-	-	-	-
Paresthesia	-	– / +	– / +	-	-	-
Radiolucency	+	>>>>	>>>	>>	>	-

Baseline: at the time of placement
(+) : present
(-) : absent
> : grade of narrowing

Table 3: The mean values of periodontal indices after prosthesis loading (N=60).

Indices	Implants with PRP after loading		Implants without PRP after loading		Difference
	Baseline	1 year	Baseline	1 year	
PI (mm)	1	0.25	1	0.5	0.25
BOP (mm)	1	0.15	1	0.5	0.35
PPD (mm)	3	1	3	2	1

PI : plaque index
BOP : bleeding on probing
PPD : probing pocket depth

Discussion

In this study, no implant failure was reported and pain, swelling, mobility, paresthesia and radiolucency between implant and bone were disappeared early in the implants placed with platelet rich plasma than those of placed conventionally (Table 1 & 2). So, the survival and success rate within the follow up period was 100%. The periodontal indices were evaluated for 1 year after prosthesis loading. The mean value of plaque index (PI) was 0.25 mm, bleeding on probing (BOP) was 0.15 mm and probing pocket depth (PPD) was 1 mm in the implants treated with PRP, but the values were 0.5 mm, 0.5 mm and 2 mm respectively in the implants treated without PRP (Table 3). Unpaired t test was done for statistical analysis and p value was less than 0.05. So, the changes were statistically significant. In all respects, the study showed early sign of osseointegration in the implants treated with PRP than the implants treated without PRP.

Andrea Enrico Borgonova et al. conducted a similar study[25]. The results of their study in terms of survival and success rate as well as periodontal indices were similar to the present study.

Kaneesh kartik and his associates reviewed the implant success in terms of mobility, pain, discomfort, and periodontal health[9]. They recommended that the success rate of 85% at the end 5 year observation period and 80% at the end of 10 year period should be the minimum levels for success of dental implants. The observation period of present study was limited within one year only. So, the long term 5 to 10 years observation is demanded to comment on the success rate of the implants.

Conclusion

The result of this study shows that platelet rich plasma enhances dental implant osseointegration. So, it can be recommended that application of PRP at the sites of implant placement can be a viable adjuvant therapy to enhance the osseointegration as well to get the better success rate in endosteal implants.

Acknowledgement

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Original Article

Facilities of Inpatient Services in an Upazila Health Complex of Bangladesh

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Abstract:

Background: The Upazila Health Complex (UHC) is the primary level hospital that provides healthcare to vast rural population of Bangladesh. Each UHC consists of an outpatient, emergency and inpatient department as well as an operation theatre with 31-50 beds.

Objective: *This study was undertaken to assess the prevailing inpatient services in an Upazila Health Complex.*

Methods: *This cross-sectional study was conducted in Tungibari Upazila Health Complex of Munshijang district. Upazila Health and Family Planning Officers (UHFPO) were interviewed for In-depth for collecting data on physical facilities, human resources, and drug and diagnostic facilities. Another, In-depth interview were conducted from the Nurses on existing equipments required for ensuring inpatient services.*

Results: *Number of working Physicians & Nurses at UHC was lower against sanctioned posts. Bed strength of the hospital was 50 but it had 150 sets of bed linen. Availability of basic equipments, drugs & diagnostic facilities for the hospital were lower than the benchmark criterion although it had adequate supply of safe water & electricity. Hospital toilets were in deplorable conditions.*

Conclusion: *Though the study findings did not generalized the all inpatient service of upazila Health complexes in Bangladesh, The facilities of this hospitals were not fulfill, deficiency present in diagnostic, medicine , equipment and human resource facilities.*

Key word: *Inpatient Service facilities.*

Rangpur Dent. Coll J 2015; 3(2): 7-10

Introduction :

Health is a basic requirement to improve the quality of life. Economic and social development of any country depends on the status of its health care facilities. A well-defined health care system reflects the socio-economic and technological development of a country and is also a measure of the responsibilities a community or government assumes for its people's health care.[1] It is the responsibility of government to provide basic health care facilities to all of its population in equal measures.

Patients are admitted into the inpatient department from emergency and outpatient department for further management by keeping them under close monitoring. Acute and seriously ill patients are admitted into the wards for supervised treatment. During admission, patients and their relatives are highly dependent on doctors and other hospital staffs for the wellbeing and comfort of patient as they are psychologically more sensitive and vulnerable to various emotional matters. Thus, beside clinical management of patients it is important to look after various behavioral aspects of the patients and their relatives for their satisfaction and confidence. Usually, inpatient department is equipped with proper facilities for diagnosis and treatment of the sick and injured patients that contribute directly to their well beings. An important benefit for the hospital that provides good quality care service of inpatient will be attraction of large number of patients.[2]

Effectiveness of a health care system depends on the availability and accessibility of services in a form which the people are able to understand, accept and utilize.[3] Complaints and problems are very often reported by the service seekers about the quality of patient care provided by government hospital. Efforts of government to improve its health care delivery system have increasingly emphasized quality of care.[4]

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This study will make an attempt to understand the current status of health care delivery at lower levels of public health facilities in Bangladesh. It will also be able to provide some information on existing facilities, availability of inputs, provision of various types of services, and products obtained from the facilities.

Materials and Methods:

The study was carried out in Tungibari Upazila Health Complex of Munshigang district. The hospital is a 50 bedded primary care hospital that provides outpatient, inpatient and emergency services. All types of patients received treatment delivered by the Consultants, Medical officers and Emergency Medical Officers.

A self-administered and semi structured questionnaire was prepared for In- depth interview with a view to collect information of the existing facilities from the hospital administrator as well as senior staff nurses.

Instruments were prepared keeping in view the objectives and variables of the study.

Result :

Health is one of the fundamental rights for every human being and an important indicator of Human Development Index (HDI). Despite allocating a good sum of money in favor of the health sector by the government, our health sector is suffering from shortage of necessary medical equipments, medicines, doctors and nurses. Annual budgetary allocation is not-sufficient from the demand perspective as well.

Table 1: Existing Physical facilities in the hospital

Sl	Item	Total	Functional	Non Functional
1	Hospital bed :			
	Male	18	18	0
	Female	28	28	0
	Cabin	2	2	0
	For Diarrheal Patient	2	2	0
	Total	50	50	0
2	Functional back up or standby electric generator	0	0	0
3	Improver separate Toilet facilities for male/female :			
	Male (18 male bed)	4	3	1
	Female (28 female bed)	4	2	2
4	Number of bed linen	150 set	150 set	0
5	Ambulance	2	1	1
6	Air conditioner	2	2	0

Table-2 : Human Resources Facilities

Sl.	Type of personnel	Number		
		Sanctioned	Filled up	Vacant
1	Class –I (Doctors)	33	22	11
2	Class-II (Nurse)	15	11	4
3	Class-III (Medical assistant, health inspector etc)	128	127	11
4	Class-IV (Sweeper, Ward boy, Aya, Driver)	28	17	11
	Total	203	176	27

Table: 3 Existing Equipment

Equipments	Total	Functional	Non-Functional
Height machine (Child)	1	1	0
Height machine (Adult)	1	1	0
Weight machine (Child)	1	1	0
Weight machine (Adult)	1	1	0
Thermometer	8	5	3
Blood pressure cuff	4	3	1
Stethoscope	4	3	1
Baby incubator	0	0	0
Phototherapy unit	0	0	0
Fetal Monitor	0	0	0
Nebulizer machine	9	1	8
Cardiac monitor	0	0	0
Sucker machine	8	6	2

The investigator gathered information on the facilities that were essential for inpatient services like physical facilities, equipments, human resource and drug and diagnostic facilities that exist in the hospital. Investigator used the standard equipment list, drug list & diagnostic list for UHC as prepared and supplied by the DGHS.

Table - 1 shows the availability of physical facilities. This UHC had lack of backup electricity supply. In terms of water supply and availability of toilets, there had separate toilets for the female patients but half of those toilets did not have water for use. Total number of beds were 50, among which 18 were allocated for male and 28 for female. 2 toilets were allocated for diarrheal patients. Two cabins were found with aircondition facilities. Total sets of bed linen were 150. Availability of ambulance service for the inpatient service is an important indicator of improved health facility. Two ambulances were available in the hospital among which one was in functional condition.

Table-2 depicts that 176 posts were filled up against 203 sanctioned posts. Among the existing personnel, 33 were class I officers, 14 were class II, 128 were class III and 28 were class IV employees working in this Upazila Health complex. 27 posts were vacant.

Table=3 summarizes the existing equipments that were necessary for inpatient services. Weight and height machines were available in functional condition. Four blood pressure cuffs and Stethoscopes were available out of which three were functional. Supply of some essential machines like sucker machine, nebulizer machine, cardiac monitor and fetal monitor were not satisfactory for this UHC.

Existing Diagnostic Facilities:

Treatment of patients largely depends upon correct diagnosis. This particular UHC had some basic diagnostic facilities. Analysis of data indicated that only blood count, malarial parasite, HBsAg, Urine (routine), stool, sputum for AFB were done inside the hospital. For availing some sophisticated diagnostic facilities, patients need to go to the private diagnostic centers.

Existing Drug Facilities:

In this survey, a comprehensive drug list had been used. This is because the drugs supplied to the UHC should not be considered as the list of "basic" drugs. Although the availability of antibiotics appear to be quite good, availability of emergency obstetric care (EmOC) drugs were not available usually. Malaria drugs, tuberculosis drugs and the drugs for treating STIs were also low in supply. To strengthen the delivery of quality healthcare system, drug supply should be improved. It is possible that the health facilities are depending on the private pharmacies to supply the drugs to the patients. It is unlikely that private pharmacies will be able to meet the need of patients.

Discussion :

Physical facilities are one of the most important facilities for inpatient service. Regarding physical facilities safe water was available in hospital and lighting condition of hospital was good but there were lack of improved toilet and water supply in toilet. In female ward, 4 toilets were allocated for 28 beds among them 2 were non functional. This finding was consistent with the findings of Khaleda.[6] Patients had to suffer during load shedding for want of back up electricity supply. Ambulance facility was also not satisfactory as it couldn't meet up the required demand from the patients.

Treatment of patients largely depends upon correct diagnosis and medication. The study Hospital had some basic diagnostic facilities. Analysis of data indicated that all prescribed tests were not available in the hospital and for those patients needed to rush to the private diagnostic centers.

176 posts were filled up out of 203 sanctioned posts. Some of the basic equipments required for inpatient management were not sufficient as well. By using a drug list, it was found that there was lack of different drugs for which patients had to depend on private pharmacy. The purpose of the study was not to take pride in the achievements but to identify the problems and shortcomings in the existing health care facilities available in UHCs. Some of the findings of this study may act as a platform for better patient care facilities in future.

Conclusion:

Health service is an important element for human wellbeing. This study reveals that number of class 4 employees should to be increased and category wise training is also needed. For solving the load shedding problem, some sort of back up arrangements should be established. One (1) more new ambulance is highly desired to carry the seriously ill patient to other hospitals equipped with better treatment facilities.

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Original Article

Treatment of Nonvital Teeth with Periapical Lesion by LSTR 3 Mix-MP Therapy -A Clinical & Radiological Evaluation

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Background: *LSTR 3 mix MP therapy is one of the procedures for the management of nonvital tooth with periapical lesion. The principle of this therapy is the complete sterilization of the total pulp canal space thereby healing of the periradicular lesion. This non-randomized controlled trial assessed the clinical and radiological outcomes of 'Lesion Sterilization and Tissue Repair' (LSTR) for endodontic treatment of nonvital teeth with periapical lesion.*

Materials and Methods: *A non-randomization procedure allocated 40 nonvital teeth with periapical lesion, 20 teeth to experimental group (treated by LSTR 3 mix MP therapy) and 20 teeth to control group (treated by RCT). In experimental group LSTR 3 mix MP was placed at the orifice of the root canal or the bottom of pulp chamber after gaining access in the pulp chamber and removal of necrotic pulp, then sealed with Glass Ionomer cement and further reinforced by composite resin. In study group twenty teeth are treated by RCT.*

Result: *This study shows the comparative result of both control group managed by conventional RCT and experimental group managed by LSTR 3 mix MP therapy. Acceptable rate was 85.71% and 75% for group I and Group II respectively. When compared the outcome of acceptable rate between the LSTR 3mix MP therapy and conventional RCT groups it was not statistically significant.*

Conclusion: *It was concluded that LSTR 3 mix MP therapy reduced clinical signs and symptoms successfully in teeth with periapical lesion and radiologically LSTR group show more effective than conventional RCT group.*

Key word: *LSTR 3mix MP therapy, periapical pathosis, non-randomized control trial*

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Introduction:

Infection of the dental pulp occur as a consequence of caries, dental operative procedures, periodontal diseases and trauma causing total pulpal necrosis and subsequently stimulate an immune response in the periapical region.[1,2] One of the main causes of periapical pathosis is bacterial infection of the periradicular tissues. Bacteria remaining in the root dentine or in the periradicular tissue should be eliminated in order to improve the prognosis, and this should be achieved without damaging the tissues. Bacteria present in root canals may be removed by filing or by chemical irrigation during conventional root canal treatment.[3] However, bacteria in the deeper layers of infected root dentine may sometimes remain even after conventional root canal treatment, and may occasionally cause periapical complications.[4] Such bacteria should be eliminated to ensure a successful outcome. Various medicaments, including non-specific antiseptics and antibiotics, have been used in root canal treatment. The application of antibacterial drugs may represent one method of eradicating bacteria in root canal treatment.[5] In the past, cases with periapical pathology are generally managed by root canal treatment and /or by endodontic surgery. In recent years a greater awareness of the complexities of root canal system has led to the development of newer techniques, instruments and materials to control infection.[6] To eliminate bacteria remaining in endodontic lesions, the application of antibacterial drugs may be useful.[7] A large periapical lesion may have a direct communication with the root canal system and respond favorably to non-surgical treatment.[8] Non-surgical treatment with proper infection

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control can promote healing of large periapical lesion.[9] The aim of the present study was to observe the healing capacity of LSTR 3 mix MP therapy of periradicular lesion and compare clinical and radiological outcomes of LSTR 3 mix MP therapy with conventional root canal therapy.

Materials and methods:

This experimental study, non Randomized control trial was carried out for a period of 12 months from January 2010 to December 2011 in the department of Conservative Dentistry and Endodontics, Faculty of Dentistry, Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbagh, Dhaka in Bangladesh. Forty patients with periapical lesion of teeth was selected requiring endodontic treatment along with a preoperative intra oral periapical radiograph considering excluding criteria like tooth with perforated pulpal floor, radiographic evidence of excessive internal resorption, excessive bone loss in the furcation area, non restorable tooth, tooth having grade III mobility the. Inclusion criteria of patient selection were include both male and female patient of any age, patient willing to give consent to take part in the study, nonvital tooth with spontaneous pain, tender to percussion, swelling and sinus , nonvital tooth with periradicular radiolucency and endodontically treated failed tooth. After collection of data, these were screened by checking consistency, edited and were finally analyzed by SPSS. The non-randomization procedure allocated 40 nonvital teeth with periapical lesion, 20 teeth to experimental group (treated by LSTR 3 mix MP therapy) and 20 teeth to control group (treated by conventional root canal treatment). In experimental group, a mixture of Metronidazole, Ciprofloxacin and Minocycline (3 mix) in a proportion of 1:1:1 in ointment (Macrogol mixed with propylene glycol in a ratio of 1:1 by volume: MP) was placed at the orifice of the root canal or the bottom of pulp chamber after gaining access in the pulp chamber and removal of necrotic pulp, then sealed with Glass Ionomer cment and further reinforced by composite resin. In study group, twenty teeth are treated by conventional root canal treatment. On the initial evaluation, the patients were examined clinically for percussion pain, swelling and discharging sinus by present or absent and radiologically for widening of the periodontal ligament space by present or absent and periradicular radiolucency by same, increased, decreased and absent. The patients were evaluated at 3, 6 and 12 months post operatively by maintaining a standard follow up chart.

Result:

Total 40 non teeth with periapical pathology were subjected to this study. Table I shows the clinical presentation of the study patients and observed that, pain and percussion pain was present in all of the study patients in both groups. However, out of 40 study patients, swelling was found 7 (35%) and 5 (25%) in group I and group II patients respectively. Sinus was observed 3 (15%) in group I and iv (20%) in group II. Table II shows the radiological presentation of the study patients and observed that, periapical radiolucency was present in all of the study patients in both groups. Table III shows the clinical follow up of the study patients after 3rd, 6th and 12th months and observed that, out of 40 study patients, 36 33 and 26 of the study patients were present during 3rd, 6th and 12th months follow up respectively. Pain and percussion pain was observed in two patient after 3rd, 6th &12th months in group I, in two patients after 3rd and 6th months and three patients after 12th months in group II. Presence of swelling was not observed during 3rd, 6th and 12th months follow ups. Sinus was observed in one patient during 3rd, 6th, and 12th months follow up period. After 12th months follow up of treatment group I (experimental group) shows no significant difference in outcome in clinical findings when compared with Group II (control group).

Table IV shows the periapical radiolucency and found that in experimental group, 20 teeth (100%) had periapical radiolucency during pre-operative period, after 3 months of LSTR 3 mix MP therapy periradicular lesion remain same in 1 (5%), increased in 1 (5%), decreased in 18 (90%) cases, after 6 months the lesion remain same in 1(5.8%), increased in 1 (5.8%), decreased in 11 (64.7%) and absent in 4 (23.5%) cases, after 12 months the lesion remain same in 1 (7.1%) cases, increased in 1 (7.1), decreased in 4 (28.6%) and absent in 8 (57.1%) cases. In control group, 20 teeth (100%) had periapical radiolucency during pre-operative period, after 3 months of conventional root canal treatment periradicular lesion remain same in 1 (6.25%), increased in 1 (6.25%) and decreased in 7 (87.5%) cases, after 6 monthsthe lesion remain same in 1(6.25%), increased in 2 (12.5%), decreased in 10 (62.5%) and absent in 3 (18.75%) cases, after 12 months the lesion remain same in 1 (8.3%) cases, increased in 2 (16.6%), decreased in 4 (33.3%) and absent in 5(41.6%) cases.

Among 14 cases treated with LSTR 3 mix MP therapy 12 cases were acceptable, 1 case was uncertain and 1 case was unacceptable. Whereas among 12 cases treated by conventional RCT 9 cases were acceptable, 2 cases were uncertain and 1 case was unacceptable. Acceptable rate was 85.71% and 75% for group I and Group II respectively. When compared the outcome of acceptable rate between the LSTR 3 mix MP therapy and conventional RCT groups it was not statistically significant (Table VI).

Table-I: Shows the clinical presentation of the study patients

Clinical	Group I (n=40)		Group II (n=40)	
	n	%	n	%
Pain present	20	100	20	100
Percussion pain present	20	100	20	100
Swelling present	7	35	5	25
Sinus present	3	15	4	20

Table-II: Shows the radiological presentation of the study patients

Radiolucency:Periradicular	Group I (n=40)		Group II (n=40)	
	n	%	n	%
Present	20	100	20	100
Absent	0	0	0	0

Table III: Shows the clinical follow up of the study patients

	Group I		Group II		P value
	n	%	n	%	
After 3 months:					
Pain					
Present	2	10	2	12.5	0.833[ns]
Absent	18	90	14	87.5	
Percussion pain					
Present	2	10	2	12.5	0.833[ns]
Absent	18	90	14	87.5	
Swelling					
Present	0	0	0	0	-
Absent	20	100	16	100	
Sinus					
Present	0	0	2	6.2	-
Absent	20	100	15	93.8	
After 6 months:					
Pain					
Present	2	11.8	2	12.5	0.962
Absent	15	88.2	14	87.5	
Percussion pain					
Present	2	11.8	2	12.5	-
Absent	15	88.2	14	7.5	
Swelling					
present	0	0	0	0.0	-
absent	17	100	16	100.0	
Sinus					
Present	0	0	2	6.2	-
Absent	17	100	15	93.8	
After 12 months:					
Pain					
Present	2	14.2	3	25	0.845
Absent	12	85.8	9	75	
Percussion pain					
Present	2	14.2	3	25	0.845
Absent	12	85.8	9	75	
Swelling					
Present	0	0	0	0.0	-
Absent	14	100	12	100.0	
Sinus					
Present	0	0	1	8.3	-
Absent	14	100	11	92.7	

Table-IV: Shows the periapical radiolucency during different follow up of the study patients

Pariapical radiolucency	Group I		Group II		P value
B. Periapical radiolucency	**n**	**%**	**n**	**%**	
After 3 months					
Same	1	5	1	6.25	0.833
Increased	1	5	1	6.25	
Decreased	18	90	14	87.5	
Absent	0	0	0	0	
After 6 months					
Same	1	5.8	1	6.25	0.992
Increased	1	5.8	1	12.5	
Decreased	11	64.7	10	62.5	
Absent	4	23.5	3	18.75	
After 12 months					
Same	1	7.1	1	8.3	0.858
Increased	1	7.1	2	16.6	
Decreased	4	28.6	4	33.3	
Absent	8	57.1	5	41.6	

Table-V: Final outcome of the cases in the study (n= 23)

Group	Acceptable	Uncertain	Unacceptable	p value
Experimental (n=28)	12 85.71%	1 7.14%	1 7.14%	P>0.05
Control (n=24)	9 75%	2 16.66%	1 8.33%	p>0.05

Discussion:

Conventional root canal treatment is time consuming and hazardous and somewhat destructive method of endodontic treatment that has been considering the most established reliable endodontic technique for saving the teeth from extraction till date. The root canal treated tooth become brittle in long run because lack of nutrition supply from the surrounding living tissue. In LSTR 3 mix MP therapy the nutrition supply of the tooth are tried in keep in normal and the tooth structure as well as the canal wall need not to make wide. So the teeth having therapy remain stronger in comparison with root canal therapy. In endodontic diseases, bacteria may invade not only dentine but also cementum. Such bacteria are reported to be obligate anaerobes and are sensitive to LSTR therapy.[10,11] It appears to be difficult to eliminate these bacteria using conventional root canal treatment because it is not usually possible to reach the antibiotics up to the dentine cementum junction or long run of the dentinal tubules.[12] It was clearly demonstrated in this study that the use of 3 mix drug for sterilization of endodontic lesions gave excellent results. As mentioned above the present therapy apparently depends on the elimination of bacteria from the lesion but not on mechanical procedures. Therefore the clinical procedures are simple and does not require long chair side time or multi visit. The excellent clinical results of LSTR 3 mix MP therapy in the treatment of nonvital teeth with periapical

lesion may be described by the bactericidal efficacy of the mixture of the drugs (3 mix).[13] Previous studies have clearly demonstrated that 3 mix is capable of eliminating bacteria from infected dental tissue[14]. It also demonstrated in situ that the drug mixture could be carried quickly and efficiently by propylene glycol and thus penetrated into the periapical lesion and killed all the cultivable bacteria within one day, including that lesion can be sterilized by application of 3 mix drugs.[4,11,15] The study showed post-operative clinical finding after 12 months.

This study shows the comparative result of both control group managed by conventional RCT and experimental group managed by LSTR 3 mixed MP therapy. Acceptable rate was 85.71% and 75% for group I and group II respectively. When compared the outcome of acceptable rate between the LSTR 3mix MP therapy and conventional RCT groups it was not statistically significant. This result shows that LSTR 3 mix MP therapy procedure is a valid procedure with good prognosis in comparison to conventional RCT group. The result of the study was supported by a similar type of study by Moral at et and found 85% success rate. Takushiget et al found 93% success rate in endodontic retreatment using 3 mix MP without removal of previous canal obturation.

Conclusion:

It can be concluded from this study that Lesion Sterilization and Tissue Repair (LSTR therapy) is a time saving and effective technique for treating nonvital tooth with periapical lesion for saving teeth subjected to surgical treatment or extraction.

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Original Article

Periodontitis in Relation with Predisposing Factors in Rajshahi Region, Bangladesh

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ABSTRACT

***Background**: The country culture put the people to be exposed to harmful factors responsible for development of periodontitis. However, effective health education can bring encouraging result to aware them for healthy practice. **Objectives:** The aim of the study was to describe and analyse the periodontal condition and oral hygiene practices among Bangladeshi. Bangladesh is a country possessing harmful lifestyle for oral health. **Methods:** A hospital-based cross sectional descriptive study. Sample sizes total of 200 subjects. Subjects were recruited from a wide age range (06–80 years) by random and cluster samplings. A total of 200 cased were interviewed and examined. Data were collected from all patients attended the dental outpatient department. All patients were interviewed (face-to-face) using a semi-structured questionnaire. Clinical examination was performed to measure the periodontal health status using standard periodontal index. Plaque, gingival bleeding, periodontal pocket probing depth, gingival recession, and tooth loss were recorded using a mouth mirror, Williams- and WHO periodontal probes. Statistical analysis was carried out using SPSS program version 16.0. **Results:** Most of the participants were student (27%). The study showed high rate of peridontitis (63%). The worst condition was detected among diabetic patient. It was found that the prevalence of periodontitis significantly increased with decreasing social class. Gingival bleeding (GB) on probing was found in 91% of the participants. **Conclusion:** the occurrence of severe periodontal disease was low. The risk factors for periodontal diseases were age, male sex, low education, rural residence, plaque and calculus.*

***Key words:** Peridontitis, oral hygiene practices, predisposing factors, treatment need.*

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Introduction:

Periodontal diseases are the diseases that involve the periodontal structures beyond the gingiva and lead to loss of connective tissue attachment.[1] Periodontal diseases are among the most widespread diseases in mankind.[2] The oral cavity is not a sterile cavity. There are more than 500 bacterial species that are capable of colonizing in the oral cavity, and while about 150 species can be found in one individual, a number of these species are more associated with periodontal diseases than others.[3] Periodontal diseases are caused not by a single oral micro-organism but by several and the list is still being refined due to the complexity of the matter. Some of the micro-organisms are considered to be more pathogenic than others.

As per global epidemiological data, it is clear that there is a less pronounced relationship between predisposing factors and severe periodontitis. Severe forms of periodontitis frequently affect the minority globally, in particular, in the United States,[4] in Central and South America,[5] in Europe,[6] in Asia and Oceania,[7] and in Africa.[8] The risk factors for the occurrence of periodontal diseases have been confirmed to include smoking and diabetes mellitus.[9]

Prevention of periodontal diseases is important. Strategies for prevention and periodontal control could be high risk and whole population strategies. For populations with a low level of oral hygiene and dental care, a "whole population strategy" is recommended to reduce the periodontal treatment need in the general population.[10] The "high risk strategy" for the group of people who are at higher risk for developing periodontal diseases is appropriate for populations with moderate or high standards of oral hygiene and well-organized oral health care services. The most widely accepted methods for controlling periodontal diseases and the associated conditions are personally and professionally applied mechanical oral hygiene measures.[10-12]

For personal reasons, Bangladeshi will be presented in detail as a prototype of a population with a low level of oral hygiene and dental care. In principle, it is agreed that the basic etiological factors of periodontal diseases do not differ in industrialized and developing countries. However, in countries with an "emerging economy" compared to those with an "established economy", there is a higher prevalence of gingivitis in children and slight to moderate periodontitis

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due to poor oral hygiene standards. In Bangladesh, the situation show similar trends.[10]

So, it is important to increase awareness among the people about periodontal disease and its predisposing factor to control periodontitis among general people. So the study plays an important role to control and prevent periodontal disease among the people of Rajshahi in Bangladesh. The aim of this study was to establish a preliminary picture of the periodontal condition of the people in Rajshahi by determining the occurrence and the predisposing factors of periodontal diseases, community periodontal treatment needs, and oral hygiene practices.

Methodology:

The study was cross-sectional and descriptive in design. The data were collected from 200 participants related to the occurrence of periodontal diseases, oral hygiene practices, predisposing factors for periodontal diseases, periodontal treatment needs, and tooth loss. The target population included all outpatients at Rajshahi Medical College Hospital Outdoor, RMC Dental Unit Outdoor, UDC Outdoor and UHC, Raninagar, Naogaon. All registered patients at Rajshahi Medical College Hospital Outdoor, RMC Dental Unit Outdoor, UDC Outdoor and UHC, Raninagar, Naogaon are taken into consideration and started from latest to backward until it reaches 200. The period of the study was about 8 month, from May, 2014 to December 2014.

The data were mainly on the presence of plaque, gingival bleeding, periodontal probing pocket depths (4–6 mm and >6 mm), gingival recession (4–6 mm and >6 mm), and tooth-cleaning devices, all of which were recorded separately to reflect the state of each condition. However, based on the aims of the study the study approach was considered to be useful as they provided information on the periodontal status of the people in Rajshahi. In order to obtain representative samples, a purposive sampling technique was applied in selecting the study participants among the targeted total population in among the areas. Nevertheless, it is important to take note of the limitations caused by such methods, in particular the selection bias. To collect the data, direct interview method with respondents is used in this study. Data are collected following pre-designed and approved questionnaire by study supervisor.

Periodontal status and oral hygiene practices:
In the study of periodontal status and oral hygiene practices, the interview form, included questions on tooth brushing practices, use of plastic toothbrush, use of chewing stick for tooth cleaning, frequency of tooth cleaning per day, time of tooth brushing either before or after meal, before going to bed, and the use of dentifrices such as toothpaste.

Predisposing factors for periodontal diseases:
The study of risk factors for periodontal diseases was done in the study when the interview form was geared to collect demographic information and other data on tooth brushing practices, the use of a traditional tooth-cleaning device, the chewing stick or miswak, as well as the use of a modern manual plastic toothbrush, and residency, for example, rural, urban or mixed. The periodontal conditions assessed were the presence of plaque, calculus, gingival bleeding, and periodontal pockets.

Periodontal conditions and the scoring criteria:
Each periodontal condition that was assessed was examined and scored separately as an individual entity. The periodontal conditions that were assessed include plaque, calculus, gingival bleeding, periodontal pocket depth and gingival recession. To scoring the variables relevant for CPITN, the study participants were also examined for the presence of microbial dental plaque, as this is not part of the CPITN/CPI.[13,14]

The completed questionnaire was collected and checked for the completeness and clarity of the information to exclude missing or inconsistent data and then compiled together. Data was edited properly before analysis. A Excel Spreadsheet as master document was prepared first. Data analysis was done through SPSS 16.0. Final analysis of the data was carried out using percentage, absolute numbers for categorical variables in IBM SPSS 16.0. For some purpose Excel program was also used.

Results:

The factors assessed in all the study were utilized to describe the occurrence of periodontal diseases and related conditions among the studied populations.

Tooth-cleaning devices and tooth brushing method:
The tooth-cleaning devices were mainly manual plastic tooth brushes which were more commonly used (95.5%). The main method of tooth brushing was reported to be of horizontal strokes (98%) and to a lesser extent, vertical brushing strokes (2%). The use of dental toothpicks was very high (99.4%), but the use of dental floss was negligible (0.6%) in the urban population (figure 1).

Frequency of tooth cleaning:
The frequency of tooth brushing varied between 1 and 3 times per day but most of the study participants did brush once per day in the study is 53% (table I).

Time of tooth cleaning:
In this study, it was found that most of the study participants brushed their teeth before breakfast (45%), and after meal or before.

Tooth-cleaning dentifrices:
Use of dentifrices included toothpaste in about 92% of the study population and tooth powder about 6%of the study population.

Risk factors for periodontal diseases:
Among the study populations, it was found that the risk factors for periodontal diseases include age >45 years, male sex, lower education status, occupation, presence of plaque, calculus, gingival inflammation, and rural residency. These factors were also found to be possible risk factors. Tobacco smoking, alcohol consumption, dental visits, presence of DM is significant factors for the occurrence of periodontal disease. Although the type of tooth-cleaning device, either chewing stick (miswak), plastic toothbrush or both, did not appear to be a significant factor for the occurrence of periodontal disease (Table II).

In the study about, 64.42% of the male patient has periodontitis and about 61.45% of the female patient has periodontitis. Among the male patient's about 5.76% male patient has severe periodontitis who has PPD>6mm and among the female patient's about 4.16% female patient has severe periodontitis who has PPD>6mm. So, the relationship between periodontitis and sex of the participants is not significant (table III).

Among the participants 69.5% respondents did not have any disease and among them gingivitis present about 35.25% , mild periodontitis present about 43.88% and moderate periodontitis present about 7.91% of the respondent. In Bangladesh there is limited number of HIV/AIDS patient so the study did not contain any HIV/AIDS patient. Among the respondents about 15.5% respondents were DM patient. Among the DM patient gingivitis present about 3.22%, mild periodontitis present about 9.67%, moderate periodontitis present about 54.83%, and severe periodontitis present about 32.25% of the respondent. So the relationship between periodontitis and presence of disease of the participants is significant (Table IV).

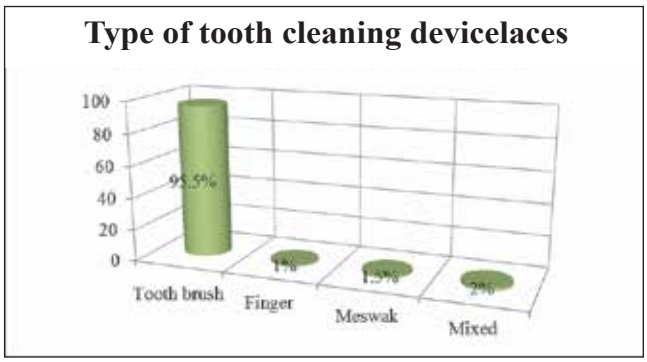

Figure-1: Type of tooth cleaning device used by the study participants.

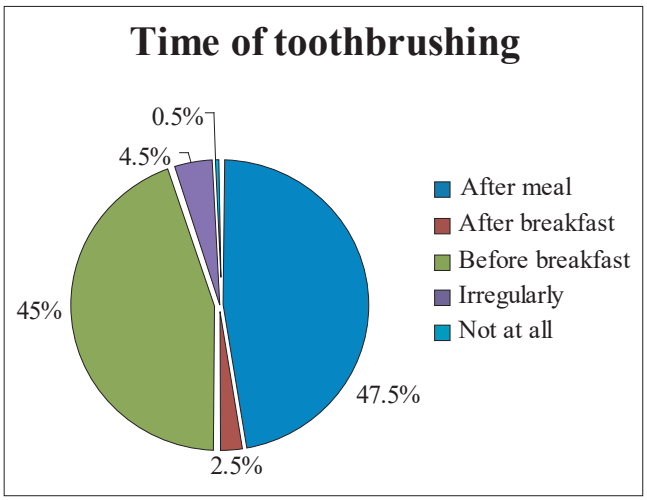

Figure-2: Time of tooth cleaning among the study participants

Table -I: Distribution of the study participants by frequency of tooth brushing

	Frequency	Percent
Once	106	53.0
Twice	84	42.0
Thrice	8	4.0
None	2	1.0
Total	200	100.0

Table-II: Distribution of the study participants by the use of dentifrices

	Frequency	Percent
Tooth paste	185	92.5
Tooth powder	12	6.0
Coal/Ash	0	0
Other	0	0
Mixed	3	1.5
Total	**200**	**100.0**

Table-III: Distribution of the study participants by their sex and periodontal index

Sex of the patients	Patient's periodontal index					Total
	Score 0	Score 1	Score 2	Score 3	Score 4	
Male	10 (9.61%)	27 (25.96%)	41 (39.42%)	20 (19.23%)	6 (5.76%)	104 (52%)
Female	8 (8.33%)	29 (30.20%)	42 (43.75%)	13 (13.54%)	4 (4.16%)	96 (48%)
Total	**18 (9%)**	**56 (28%)**	**83 (41.5%)**	**33 (16.5%)**	**10 (5%)**	**200(100%)**

x^2=1.874 df=4 p<0.759

Table IV : Distribution of the study participants by their disease and periodontal index

Presence of other disease of the patient	Patient's periodontal index					Total
	Score 0	Score 1	Score 2	Score 3	Score 4	
DM	0 (0%)	1 (3.22%)	3 (9.67%)	17 (54.83%)	10 (32.25%)	31 (15.5%)
HIV/AIDS	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Others	0 (0%)	6 (20%)	19 (63.33%)	5 (16.66%)	0 (0%)	30 (15%)
None	18 (12.94%)	49 (35.25%)	61 (43.88)	11 (7.91%)	0 (0%)	139 (69.5%)
Total	**18 (9%)**	**56 (28%)**	**83 (41.5%)**	**33 (16.5%)**	**10 (5%)**	**200 (100%)**

x^2=1.874 df=4 p<0.000

Discussion:

This study on the occurrence of periodontal diseases and predisposing factors was performed on the people in Rajshahi region who resided in rural and urban areas and therefore comprised rural and urban, as well as mixed populations. The study was based on data collected from four different places among populations of different age groups and sex at different times in 2014, using different established methods including the basic methods for Oral Health Surveys.[15,16] The findings from this study collectively provide an insight into aspects of the periodontal status of the people in Rajshahi region but because of some limitations, they cannot be compared to each other and cannot be considered to represent a comprehensive epidemiological survey of periodontal diseases in Bangladesh. The study was conducted in four regions of Rajshahi division in Bangladesh out of seven divisions in Bangladesh.

The practice and frequency of oral hygiene practices mostly in the form of tooth brushing as self-reported by the study participants during the face-to-face interview was found to be very high. Tooth cleaning is a common practice among urban and rural populations in Rajshahi and the proportion of regular tooth brushing has been well over 90% and even close to 100%. However, the oral hygiene status of most of the participants was very poor. There are reports indicating that primary school teachers preferred parents to teach their children how to do tooth brushing, and at the same time, it was found that the teachers themselves had poor knowledge of and skills in tooth brushing.[17] In such a situation where most of the study population also had only primary education or no formal education, then it could be expected that they would be less efficient at tooth brushing. Another approach would be needed to elucidate the real practice in daily life, either by observation or by group discussion studies. Furthermore, there is a need to reinforce the practices and to emphasize effective tooth brushing based on systematic performance with a light pressure,[18] and with a frequency of at least twice per day, for example, after breakfast and before going to bed as recommended elsewhere.[19] Less than one third of the rural population and more than ninety percent of the urban population used toothpaste during tooth brushing. However, depending on their availability and affordability, fluoride-containing dentifrices should be advocated for both dental caries prevention and gingivitis.[20-22]

Common predisposing factors:

The risk factors for periodontal disease in the study population were age of the patient, rural residence, plaque and calculus, and therefore these factors should be considered in the prevention of periodontal diseases. It is known that microbial plaque is the cause of gingival and periodontal diseases.[23] There are also studies showing strong association between calculus and periodontal diseases.[24,25] The surface of calculus is always covered by viable microbial plaque with periodontal pathogens, and therefore it is considered to be a secondary etiological factor for periodontal disease.[26] The proportion of study participants that exhibited these predisposing factors was higher in the rural than in the urban populations, and therefore population-based preventive measures should be directed to the rural population as a priority. Although tobacco smoking, alcohol consumption, and dental visits[27] have been reported as risk factors for periodontal disease in other populations, these factors did not appear to be significant for the occurrence of periodontal diseases in these baseline study populations in Rajshahi. Dental visits among the study participants were mainly related to demand for pain relief rather than for dental check-ups. In such instances, however, those who visit the oral health facility may be advised on oral health and regular dental checkups.

The community periodontal treatment needs were assessed using the CPITN index, and though they looked attractive to the professionals, the needs were far beyond their reach particularly due to constraints in resources. For this reason, the emphasis of the WHO has been on the assessment of periodontal status using CPI without treatment needs. The CPITN/CPI have been used extensively globally to such an extent that it has been possible to compare the findings from different countries.[28] However, the current CPI index still bears the inherent shortcomings such as unrealistic hierarchical scoring of the periodontal conditions, in addition to the use of partial recording, where only ten CPI index teeth are considered. The decision to use it or not will depend on the objectives of the study which will have to weigh the benefits of the index at the cost of the information lost.

Conclusion:

Predisposing factors for periodontal diseases in Rajshahi included age >45 years, male sex, low level of education, rural residence, plaque and calculus. Gingival recession, when seen in the study population, was associated with age, calculus and gingival inflammation rather than with tooth-cleaning practices. This study has provided an insight into the periodontal status and predisposing factors for periodontal diseases of selected groups over eight months. As such they provide valuable information to help plan a full national study, should resources be made available for such a study.

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Case Report

Recurrent Erythema Multiforme- A Dental Case Report

Solanki J[1], Gupta S[2]

Abstract:
Erythema multiforme is a rare acute mucocutaneous condition caused by a hypersensitivity reaction. It can be triggered with the use of certain drugs or infectious agents, mainly Herpes Simplex virus. It is important to know the etiological factor behind the disease in order to cure the disease or even to prevent attacks in case of recurrent form. This article illustrates a case report of patient with recurrent form of erythema multiforme who responded to antiviral treatment after taking ineffective steroid treatment.

Keywords: *Acyclovir, Dapsone, Ulcers, Erythema*

Rangpur Dent. Coll J 2015; 3(2): 20-23

Introduction:
Erythema multiforme (EM) is a rare acute mucocutaneous condition caused by a hypersensitivity reaction with the appearance of cytotoxic T lymphocytes in the epithelium that induce apoptosis in keratinocytes, leading to satellite cell necrosis. A number of factors can be associated with EM, but it is found to be mostly associated with preceding infection with herpes simplex virus (HSV). Most other cases are initiated by drugs.[1] when recurrent herpes simplex is an important etiologic factor in EM minor, EM major is often preceded with mycoplasmal infections and drug intake. The various etiological factors are given below:[2,3]

Table -I : Causative and infectious agents of EM.

Drugs	Antibacterial; anticonvulsants; analgesics; nonsteroidal antiinflammatory drugs; antifungals
Infectious agents	Virus; Herpes simplex, Epstein-Barr virus, Cytomegalovirus, varicella-zoster virus, Mycoplasma pneumonia, hepatitis viruses, Bacterial; Mycobacterium, streptococci, Fungal; parasites

Other than these, Nasabzadeh TJ et al in his case report have stated that the precise trigger of a given patient's recurrent EM often remains elusive. He has pointed towards a hormonal influence interpreted as autoimmune progesterone dermatitis (APD).[4]

Case Report:
An 18 year old male patient came to the OPD with the complaint of ulcers on lower lip since 15 days. Patient was apparently alright uptill 15 days back when he noticed 2 pin point size ulcers on lower lip in the night. Next morning when he got up, the ulcers had markedly increased in size with blood crustations. He gives history of similar ulcers which had developed for the last 2 years in summers, but now they have appeared in winters and are worse. He got relieved with the treatment that he had taken for those ulcers. But this time no relief was achieved. Although ulcers are not associated with pain or burning sensation but were predisposed with an episode of fever for 2 days. Patient gives no history of any change in toothpaste or lip cosmetic in the past one month. Patient is under systemic and topical steroids since 5 days but no relief is achieved (tab. Betnisol fort 1 TDSx 5 days, cefadox 500mg 1 BD x 5days, tab. Bfolien plus 1 BDx 7 days, flutibact ointment T/A x 7 days). He smokes occassionaly (1-2 cigerettes a

Figure-1: Widespread fibrin covered erosions with surrounding erythematous area seen on lower lip

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2. Sarika Gupta, Postgraduate Student, Oral Medicine and Radiology, Vyas Ddental College & Hospital, Jodhpur, Rajsthan, India.

Table-II : Clinical features of various types of EM:(3)

CATEGORY OF EM Features	FEATURES
Erythema multiforme minor	Typical target lesions or raised atypical target lesions. < 10% of the body surface area is affected. May affect only the oral mucosa with mild to severe erythema, erosions and ulcers.
Erythema multiforme major	Cutaneous lesions and at least 2 mucosal sites (typically oral mucosa) affected. < 10% of the body surface area involved. Typical target lesions or raised atypical target lesions or both; symmetrically distributed. Severe, widespread oral lesions.
Stevens-Johnson syndrome	Differs from erythema multiforme major in terms of typology and location of lesions and the presence of systemic symptoms. < 10% of the body surface area is involved. Primarily atypical flat target lesions and macules. Widespread lesions involving multiple mucosal sites with scarring. Prodromal flu-like systemic symptoms are common.
Overlapping Stevens-Johnson syndrome and toxic epidermal necrolysis	No typical targets; flat atypical targets are present. Up to 10%–30% of the body surface area affected. Prodromal flu-like systemic symptoms common.
Toxic epidermal necrolysis	When spots are present, characterized by epidermal detachment of > 30% of the body surface and widespread purpuric macules or flat atypical targets. In the absence of spots, characterized by epidermal detachment > 10% of the body surface, large epidermal sheets and no macules or target lesions.

day) since 1 year. All his vital signs were within normal limits. Lymph nodes were non tender and non palpable. On inspection lower lip was grossly swollen, cracked, with split crusted bleeding. Widespread fibrin covered erosions were seen with surrounding erythematous area. (Figure-1) Similar lesion was seen on the upper lip but involvement of the lower lip was more. On palpation, the lesion was tender on touch and bleeded profusely. Labial mucosa was Reddish and erythematous. Posteriorly on hard palate a reddish erythematous area was seen which was non tender on palpation (Figure-2).

Figure-2: Reddish erythematous area seen on hard palate

Discussion

Based upon its clinical spectrum, erythema multiforme has been further grouped into recurrent erythema multiforme and the rare persistent erythema multiforme.[5] According to a study by Schofield JK et al who reviewed the clinical features and treatment of 65 patients with recurrent EM, noted that the mean number of attacks per year was six with the mean duration of 9.5 years, which reflected its chronicity. Maximum patients had oral mucous membrane involvement with mostly viral etiology. Therefore, antiviral drugs, mostly acyclovir was found to be the most effective first-line treatment. Patients who did not respond to acyclovir responded to a small proportion of dapsone. The most resistant patients were treated with azathioprine with complete disease suppression in all cases.[6] On the other hand, a study by Tatnall FM et al have shown that continuous acyclovir therapy can completely suppress attacks of recurrent EM and may even lead to disease remission.[7]

The pathophysiology behind herpes simplex virus associated EM (HSV-EM) is cell-mediated immune reaction against viral antigen-positive cells that contain the HSV DNA polymerase gene (pol). It is associated with typical target lesion showing concentric zones of color change.[2] Histopathologic testing and other laboratory investigations may be used to confirm the diagnosis of EM and to differentiate it from other similar clinical conditions.[2] The pathogenesis of Herpes associated EM includes a virus-triggered autoimmune component.[8]

1. Primary or recurrent HSV infection which may be subclinical or accompanied by visible vesicular lesions.

2. Macrophages and/or $CD34^+$ hematopoetic progenitors engulf HSV and DNA is fragmented resulting in generation of DNA fragments that encompass HSV genes including pol.
3. Peripheral extravasation of PBMC carrying HSV DNA fragments possibly related to ICAM-1 expression on endothelial cells
4. Deposition of HSV DNA at distant skin sites
5. Expression of HSV DNA in keratinocytes. The length of HAEM eruption depends upon the duration of gene expression.
6. Infiltration of HSV-specific $CD4^+$ Th1 cells in the dermis/epidermis of HAEM lesions Activated T cells have a restricted TCR repertoire and include increased proportion of Vb 2 cells.
7. HSV-specific T cells respond to HSV antigens and generate IFN-g
8. Generation of cytokine and chemokines amplification cascade, including TGF-b, Mig, IP10 and RANTES and recruitment of NK cells, monocytes and leukocytes
9. Recruitment of auto reactive T cells to the lesion site resulting in an autoimmune amplification loop
10. Epidermal cell damage results from attacks by cytotoxic T cells, NK cells and monocytes and/or chermokines in varying combinations
11. TGF-b and $p21^{waf}$ are expressed in keratinocytes at the site and adjacent to the epidermal damage, thereby possibly contributing to apoptotic cell death

Clinically, EM can be confused with urticaria, Stevens-Johnson syndrome, fixed drug eruption, paraneoplastic pemphigus, bullous pemphigoid, Sweet's syndrome, polymorphus light eruption, Rowell's syndrome and cutaneous small-vessel vasculitis. Antiviral prophylaxis is required for patients with HSV-associated recurrent EM and idiopathic recurrent EM. For patients with severe mucosal involvement, hospitalization is considered since it leads to poor oral intake and subsequent fluid and electrolyte imbalance.[2]

Studies have proven the efficacy of corticosteroids in the treatment of EM but their use as maintenance therapy is not clearly indicated because of the associated side effects. Remission of herpes associated EM can occur by oral acyclovir with short-course which represents a safer, more effective treatment for many patients with recurrent EM. However, EM cannot be prevented if administered after a herpes simplex recurrence has occurred. Repeated topical treatment with acyclovir to sites of recurrent herpes infection is said to prevent erythema multiforme. It has been seen in several studies that acyclovir completely suppress recurrent EM in the majority of patients and produce partial suppression in others.[9]

Continuous acyclovir therapy in patients who have a clear-cut relationship between HSV and EM are often effectively treated with acyclovir (200 mg 5x/day for 5 days) started at the earliest sign of a herpes attack. But patients who have frequent attacks of EM, whether HSV-related or not, should receive a trial of continuous acyclovir before alternative therapies are tried. It is not clear whether failures of acyclovir are related to viral resistance to acyclovir or to non-HSV-induced recurrent EM. One case report discussed a patient with frequent post-herpetic recurrent EM resistant to continuous acyclovir treatment but responsive to valacyclovir.[9] The use of thalidomide should be reserved for severe cases.[10] The efficacy of dapsone in treating recurrent EM has been reported earlier. Antimalarials (mepacrine or hydroxychloroquine) have also resulted in disease suppression where acyclovir treatment has failed. But it is recommended as a second line treatment due to the associated side effects. Mycophenolate mofetil has been shown to be an effective and relatively safe immunosuppressive agent in recurrent EM in case of failure to anti malaria's. However, its high cost limits its use.[11]

Conclusion:

The most important step in the management of erythema multiforme or similar cutaneous lesions is proper history taking. This is done to rule out the correct etiology of the disease. Treatment is aimed based upon the causative factors like virus or drug related. The use of corticosteroids is most prevalent in case of erythema multiforme. However, many side effects have been reported with its use for a longer duration. In the present case report when the patient could not be cured with steroids a treatment plan consisting of antiviral drug helped. Therefore, it is important to rule out the etiology before forming a proper treatment plan.

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Case Report

Hemisection of A Multirooted Tooth - A Case Report

Haque MR[1]

Abstract:

In this case report 30 years old lady present with pain for 6 weeks. On clinical examination gross caries was present on permanent 1st molar and second premolar and discharging sinus on buccal sulcus. Radiological examination reveals internal root resorption in the mesial root of lower right 1st permanent molar with furcation bone loss and pulpal involvement of adjacent 2nd premolar tooth. The distal root was firm having sound bone all around it. Hemi section and crown fabrication was performed. These report suggested that surgical intervention can save tooth.

Key word: *Hemisection, Multirooted tooth, Endodontic restoration.*

Rangpur Dent. Coll J 2015; 3(2): 24-26

Introduction:

A terminal abutment molar with extensive decay may be unsuitable for restoration. In such cases, the treatment options are limited and may include a removable partial denture or a dental implant to replace the missing tooth.[1] Alternatively, if the decay is limited to one root, a hemisection procedure may be possible. This procedure represents a form of conservative dentistry, aiming to retain as much of the original tooth structure as possible[2]. Hemisection refers to sectioning of a mandibular molar into two halves followed by removal of the diseased root and its coronal portion.[2]

Weine FS[3] has cleary explained some situation where tooth resection are indicated as follows- severe vertical bone loss involving only one root of multi-rooted teeth through and through furcation destruction. Unfavourable proximity of roots of adjacent teeth-preventing adequate hygiene maintenance in proximal areas. Severe root exposure due to dehiscence. Endodontic and restorative indications are prosthetic failure of abutments within a splint: If a single or multirooted tooth is periodontally involved within a fixed bridge, instead of removing the entire bridge, if the remaining abutment support is sufficient, the root of the involved tooth is extracted. Endodontic failure: Hemisection is useful in cases in which there is perforation through the floor of the pulp chamber, or pulp canal of one of the roots of an endodontically involved tooth which cannot be instrumented. Vertical fracture of one root: The prognosis of vertical fracture is hopeless. If vertical fracture traverses one root while the other roots are unaffected, the offending root may be amputed. Severe destructive process: This may occur as a result of furcation or subgingival caries, traumatic injury, and large root perforation during endodontic therapy. Endodontic restorative contraindications are strong adjacent teeth available for bridge abutments as alternatives to hemisection. Inoperable canals in root to be retained. Root fusion-making separation impossible.

Hemisection (removal of one root) involves removing significantly compromised root structure and the associated coronal structure through deliberate excision.[4] This procedure represents a form of conservative dentistry, aiming to retain as much of the original tooth structure as possible. The results are predictable, and success rates are high if certain basic considerations are taken into account[5].

Case Report:

A 30-year old married lady was visited to the Hammersmith Dental and Implant Center. She had a complaint of pain in her right lower quadrant since last six weeks. She also worried about the presence of a sinus tract in between lower right permanent 1st molar and second premolar. She had gross caries on both teeth. Her medical history was noncontributory. Extra- oral examination did not show any abnormality. Intra-orally, all the teeth were present. Oral hygiene was very poor and significant amount of plaque and calculus were present. Lower right permanent 1st molar was tender on percussion and a sinus tract was visible on

1. Dr. Mohammad Raziul Haque, BDS, MSc, Assistant Professor & Head, Dept. of DPH, Kumudini Women's Medical College (Dental Unit)

the buccal sulcus. Intra- oral periapical radiograph revealed that an internal root resorption in the mesial root of lower right 1st permanent molar with furcation bone loss and pulpal involvement of adjacent 2nd premolar tooth. The distal root was firm having sound bone all around it. (Fig 1)

Fig-1: Working length measwing radiograph

The patient was offered two options; either to get her full tooth removed or half of it. She chose the second option. It was therefore decided to go for hemisection. Thorough scaling and polishing performed before the hemisection. The patient was briefed on strict oral hygiene instructions for future maintenance.

RCT was started on both teeth. Canal preparation was done up to no 40 instrument following step back technique and calcium hydroxide dressing was given during RCT until teeth became asymptomatic. Obturation was done by gutta percha and ZnO eugenol sealer following lateral condensation technique. (Fig 2)

Fig-2: Core build up

The crown was sectioned at the level of furcation using high speed handpiece and diamond point of an appropriate size. The mesial root was extracted under local anesthesia. A finishing bur was used to smooth on the margins of the remaining structure. (Fig 3)

Cavity was packed in the occlusal part of distal portion of the hemisected tooth and necessary antibiotics were prescribed. Occlusal adjustment was performed to avoid fracture during the healing period. At a follow up appointment, one week later, normal healing was noted. Tenderness on percussion was disappeared.

The crown was build up by miracle mix and post was inserted on 2nd premolar and crown cut was given. (Fig 3)

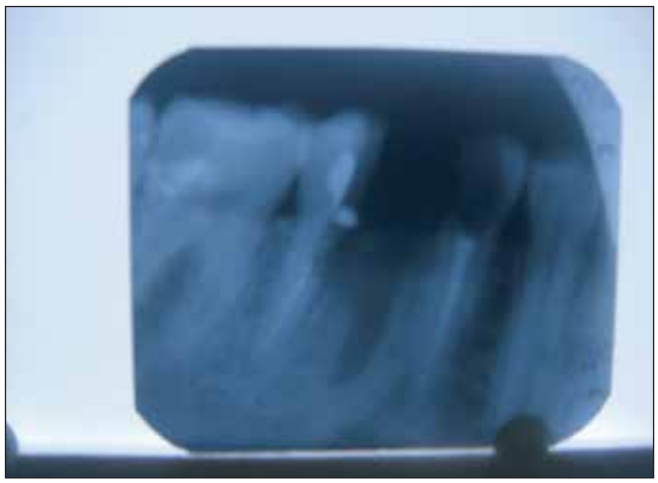

Fig-3: Hemisection due

Impression was taken by alginate and the impression was sent to a laboratory for the manufacturing of prosthesis. The prosthesis was received from lab after two days. A three unit porcelain fused to metal fixed bridge was inserted and the occlusion was thoroughly checked for any discrepancy. (Fig 4)

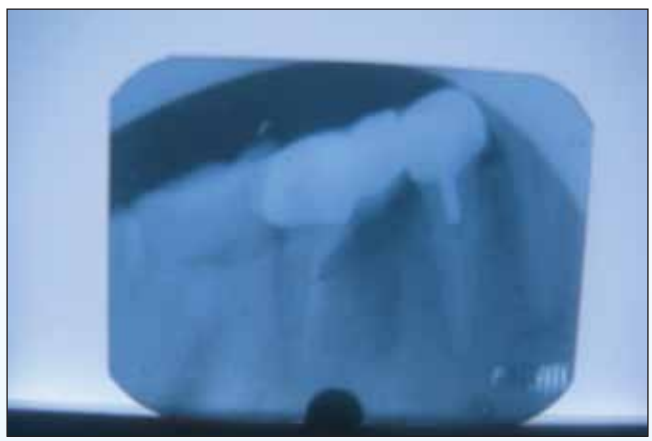

Fig-4: Fixed Partial Denture

Discussion:

Hemisection was chosen since patient didn't want a complete extraction and replacement by an implant. Mesial

root was removed since it was the diseased half.

Retention of distal half has various advantages. Placement of a longer post is possible. It is also broader and straighter and accepts the load better.[6] Mesial root has a longitudinal groove which decreases the surface area and makes adequate post placement a challenge.[7] Three unit bridge was provided to restore occlusal function that involved the adjacent second premolar and retained distal root of mandibular first molar. In-vitro studies have proven a near normal return of biting force when such a prosthetic design is chosen.[8] This design along with Retention of distal part of the tooth helped in keeping the size of the prosthesis (fixed fixed bridge) small, since the second molar was spared. Smaller sized prostheses are better and preferable as they accumulate less plaque than bigger prosthesis and have better survival rates.[9] Adequate plaque control is one of the biggest determinants in ensuring long term success of this prosthetic design[10].

Conclusion :

This endodontic surgery is the alternative restorative treatment of choice.

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Case Report

Malignant Melanoma of The Oral Cavity - A Case Report

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Abstract:

Oral malignant melanoma (OMM) accounts for 5% of all oral malignancies. It is a rare aggressive neoplasm usually found on the hard palate and gingiva with the maxillary arch being affected 80% of the time. The etiology is unknown, but tobacco and chronic irritation are suggested as probable causative factors. Over 30% of the cases have been reported to arise from pre-existing pigmented lesions. A biopsy is required to establish the diagnosis and the treatment of choice is surgery which may be affected by several factors such as size of the lesion and anatomic location. Despite aggressive resection and adjuvant treatments such as chemotherapy and immunotherapy, the five-year survival rate of this malignancy is poor. This article describes a case of mucosal malignant melanoma in the oral cavity & briefly reviews the relevant literature that represents the nature of the tumour.

Key Words: *Melanoma, Oral mucosa, Oral Cavity.*

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Introduction

Melanocytes are neural crest-derived cells that migrate to the skin, mucous membranes and several other sites. Variation in the density of melanocytes is seen in different parts of the body and mucosal epithelia, for example, the ratio of melanocytes to basal keratinocytes in the gingiva is 1 to 15. Melanoma cells are round to spindle shaped and may demonstrate some features of nevus cells such as lack of dendritic processes and loss of contact inhibition. These malignant cells are pleomorphic, with large, irregular hyperchromatic nuclei, prominent nucleoli, and conspicuous mitotic activity.[1]

The age range for patients with oral malignant melanoma is from 40 to 70 years, the average age being 55 yrs.[2] The most frequent site of occurrence is the hard palate followed by the maxillary gingiva.[3] Other oral site include the mandibular gingiva, buccal mucosa, the floor of the mouth.[4] The incidence of melanoma has been steadily increasing in the past several decades with an annual increase of 3 to 8%, worldwide.[5] Melanoma infrequently arises from mucosal surfaces most commonly head and neck (typically involving the nasal and oral cavity); vulva; and anorectal mucosa.[5,6] Head and neck mucosal melanomas are much less common than their cutaneous counterparts and probably represent less than 1-8% of all melanomas.[6,7]

Intra oral malignant melanomas are easy to diagnose clinically as they are pigmented & have an irregular shape & outline.[8] These lesions usually remain asymptomatic & may be detected only when there is ulceration of the overlying epithelium & or haemorrhage.[9] This delayed detection may be the reason for the poor prognosis of oral malignant melanomas with the five year survival rate being between 15-38%.[10,11] Invasion of the bone occur, increasing the likelihood of metastasis.[8] In addition, the rich vascular supply in the oral cavity may further contribute to the dissemination of the melanomas.[12]

Case report

A 45 years old female patient attended in Oral & Maxillofacial Surgery Department of Dhaka Dental College & Hospital in 2011, presented with the complaints of blackish swelling on the right upper jaw for the last 1 month & pain on the same side for the same duration. On clinical examination, a blackish polypoid swelling on the right sided palate of maxilla extending from upper right first premolar to upper right 2nd molar involving palatal mucosa including gingiva not crossing the midline, measuring 3×2 cm in diameter, margin irregular, firm in consistency & mild tenderness present. The teeth 2 & 3 were 2nd degree mobile. Lymph node examination revealed no cervical lymphadenopathy.

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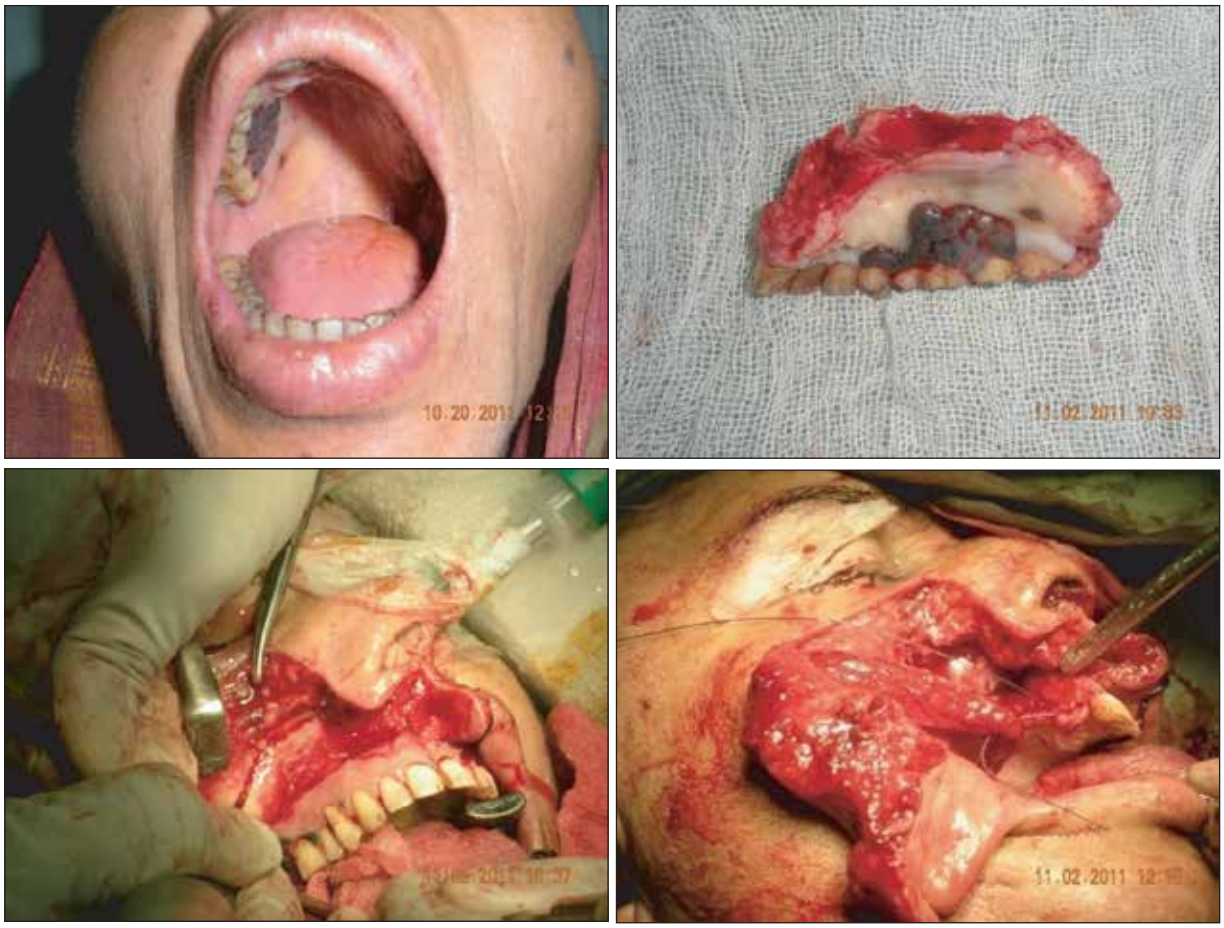

Fig 1: Showed clinical image, operative procedure & the resected specimen with the tumour.

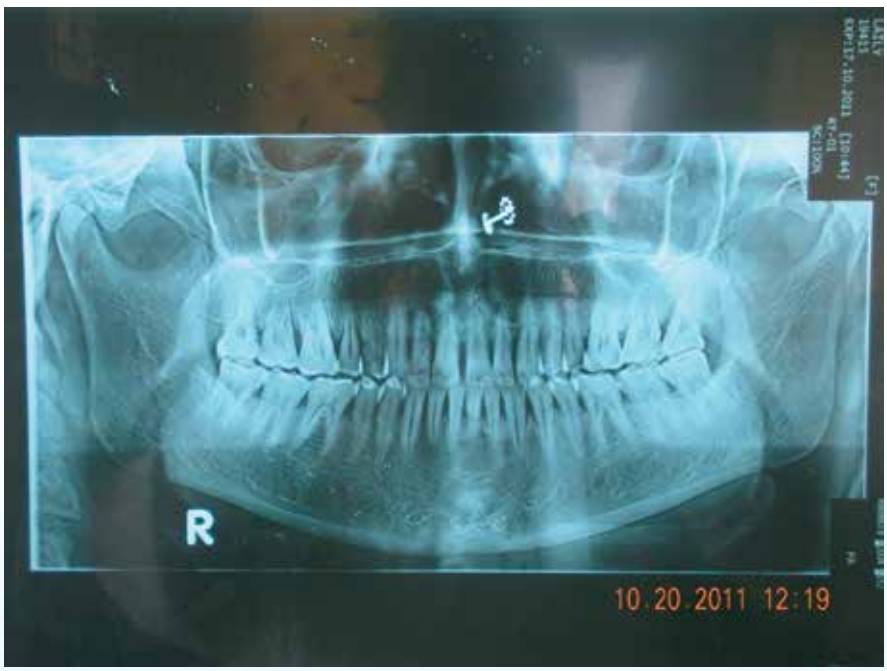

Fig 2: Orthopentomograph showed widen of the periodontal space & alveolar bone loss at right posterior region of upper jaw.

Radiographically, orthopentomograph showed widen of the periodontal spaces & alveolar bone loss from the right upper 2nd premolar to right upper 2nd molar.

An Incisional biopsy of the lesion was done under local anaesthesia & the specimen sent for histopathological examination. The histopathology revealed as suggestive as malignant melanoma showed scattered round to

polygonal cells having vesicular nuclei, prominent large nucleoli & modest to abundant cytoplasm.

Some of the cells show intra-cytoplasmic melanin. Background shows RBC's.

The patient was then treated with wide excision with right partial maxillectomy & right side selective neck dissection followed by palatal reconstruction with temporalis myofacial flap followed adjuvant radiotherapy. The excisional biopsy revealed as malignant melanoma that is free from surrounding bone & salivary gland invasion

Discussion

Berthelsen et al identified first the symptoms of intra oral melanoma are asymptomatic swelling & occasional bleeding. Only two patients (14%) had pain. In 9 (64%) of the oral melanomas, the tumour was located in the palate[13]. Because most melanomas are painless in their early stages, the diagnosis is unfortunately often delayed until symptoms resulting from ulceration, growth, and or bleeding are noted.

The "ABCD" system of evaluation is used to differentiate malignant melanoma from benign pigmented lesions. These features are as follow: A, Asymmetry; B, Border irregularity frequently including a notch or irregular indentation; C, Color variations such as red, white and blue; and D, Diameter greater than 0.6 mm. Regarding the different colors in melanoma, shades of blue are considered to be the most ominous. White, pink, and gray shades have been related to the ability of melanomas to undergo spontaneous regression, while red and pinks are suggested to reflect inflammation.[14]

The International union against (UICC) has no proposal of clinical TNM classification for malignant melanomas, but Westbury[15] describes a clinical classification as follows: I-only primary tumour present. II-metastasis present (II a-adjacent-adjacent skin involved, II b-regional lymph nodes involved, II ab adjacent skin & regional lymph nodes are involved), & III-metastasis beyond regional lymph nodes. The patient presented in this article falls into the classification of I because regional lymph nodes were not involved.

Melanoma is notorious for its unpredictable and widespread metastasis. Metastatic spread to bone, usually the vertebrae, is a frequent finding in terminal disease, and may be accompanied by multiple metastasis to the lymph nodes, central nervous system, lungs and liver.[16,17] Metastasis to the oral regions is uncommon and usually involves soft tissues, notably the tongue.[18]

Regression of melanomas may account for many cases of metastatic melanoma with occult primaries.[19] Partial regression of melanoma is relatively common, but complete regression is considered rare & relatively few cases are well documented.[19] Regression is considered to be mediated by the immune system (22) & usually occurs only in the primary coetaneous region.[21] A further feature of regression is its association with a poor rather a good prognosis.[22]

Batsakis[23] presented that there is no evidence that a preliminary biopsy of the primary lesion increases the risk of metastatic dissemination or unfavorably affects the prognosis. Incisional biopsy for large lesions of intra oral melanomas is acceptable & must be performed in the darkest & thickest area of the lesion. But in many cases, melanomas may appear relatively innocuous.[8,23]

The primary mode of treatment is wide surgical resection.[9,24] In a review of the outcome of primary mucosal melanoma treated only with radiation [25], 44% of patients survived for a period of 4.5 years of follow up. When metastasis is not determined after examination & investigations, surgery would be the preferred option for treatment. Advances in surgical technique may allow extensive resection & reconstruction. Although melanoma is classically not radiosensitive, occasional patients have shown a good response to radiation therapy especially in early or in situ melanomas. Other treatment modalities are similar to those used for cutaneous melanoma. Immunotherapy has been successfully used but chemotherapy has demonstrated a relatively low response rate.[26,27] Radiation is most often used as a supplementary mode of treatment after surgery or after a failure of previous management. Consideration should also be given to radiation therapy or combined therapy.

Most melanomas of the oral cavity are large at presentation and have a poorer prognosis than cutaneous melanomas.[6,28] Melanomas with a high clinical stage at presentation, a thickness of greater than 5mm, vascular invasion, absence of melanosis and nodal and/or distant metastases are considered to carry a worse prognosis than those that lack these features.[6,28,29] Careful oral examination & early biopsy will usually result in an early diagnosis thus improving the prognosis to a significant extent.[30]

Conclusion

Early diagnosis & treatment is mandatory for better prognosis with regard to malignant melanoma of the oral cavity. Clinicians must examine carefully examine the oral cavity & any growing pigmented lesion must be biopsied. Melanotic melanomas can be diagnosed by immunohistochemical examination of tissue from the lesion. In addition public education about self examination of the oral cavity with periodic oral checkup is important for early detection of such lesions.

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Case Report

Orthodontic Management of A Young Girl with Class-I Malocclusion with Crowding - A Case Report

Habib MA[1], Mahamud AMS[2], Leena LR[3], Hossain MT[4], Das JK[5], Hossain MZ[6], Rahman MZ[7]

ABSTRACT

This article describes the treatment of a young girl, age 14 years, of Class I malocclusion with anterior crowding. The patient was treated by extracting all 4 first premolar and followed by fixed orthodontic therapy. Treatment consisted mainly of leveling and alignment, canine retraction & arch contraction with Edgewise fixed appliances by multiloop technique. The treatment resulted in Class I molar occlusion with proper alignment of both upper and lower anterior segment, an ideal overjet, overbite and incisor angulations.

Key Words: *Class I malocclusion, Crowding, Edgewise orthodontic therapy.*

Rangpur Dent. Coll J 2015; 3(2): 31-32

Introduction:

Crowding of the teeth is the most common type of malocclusion at present.[1] Crowding usually occurs as a result of disproportion between tooth size and arch length. A relative decrease in arch length or an increase in tooth material can result in crowding. Crowded teeth require space for there normal alignment. On an average for every 1 mm of crowding, an equal amount of space is required for correction. Thus the amount of crowding should be calculated and the means of obtaining the space should be determined. The various methods of gaining space include proximal stripping, expansion, extraction, molar distalization, derotation and uprighting of posterior teeth and proclination of anteriors.[2] Treatment approach for tooth-arch length discrepancies by extraction of permanent teeth reduces total tooth mass and allows the relationship between the dentition and the skeletal bases.[3-5]

The aim and objectives of the treatment are to eliminate the crowding present in the upper and lower arch, establish and maintain a Class I molar and canine relationship, establish normal overjet and overbite, establish and maintain occlusal harmony and interdigitation for improved aesthetics and proper function.

Case Report:

A 14 years old female came to the Department of Orthodontics at Dhaka Dental College and Hospital with the chief complaint of her ugly look during smile and difficulties to bite due to her crowded teeth. She had no relevant dental, medical or family history and had no history of previous orthodontic treatment.

On extra oral examination we found that she had a symmetric face with a convex profile, competent lip morphology (Fig:1). Her TMJ was alright and had a normal path of closure

On intraoral examination we found that the patient was in the permanent dentition. She presented with an overjet of 5 mm, and the overbite was 2mm and complete. Both upper and lower anterior segment of jaws were crowded. Molar & canine relationships were Class I on both sides (Fig:2). There was no premature contact or any other pathology (Fig:3A).. Her oral hygiene was good.

On model analysis, the arch length deficiencies were (-6mm) in the maxillary arch and (-8mm) in the mandibular arch. Panoramic radiographs reveled that all the permanent teeth were present (except 3rd molars). No pathological lesion is noted (Fig:3A). Cephalometric evaluation showed that she had a skeletal class I relationship. (Fig:4A)

Patient's major reason for seeking treatment was to improve her dental esthetics and function. Due to the severity of crowding, the first option of treatment plan was to extract all the first premolars to provide space for alignment. Standard edgewise 0.018-inch slot bracket was bonded. Initial leveling was done with the use of 0.014-inch stainless steel arch wire with multiloop. Then canines were retracted by using elastomeric chain on 0.016-inch stainless steel archwires. The remaining extraction space on both arches was closed with tear drop contraction loops on

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0.016x 0.022 inch rectangular stainless steel arch wires. Arch coordination & interdigitation of both arches was done by using vertical elastic. After arch coordination and finishing, the appliance was removed, retention involved upper and lower removable begs retainer.

Fig 1: Pre-treatment extra-oral facial photographs

Fig-2: Pre-treatment intra-oral photographs

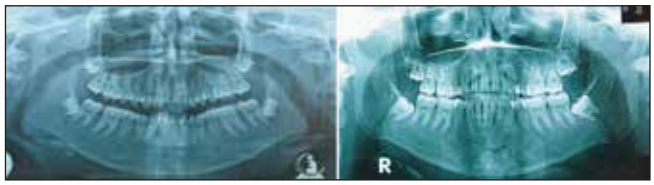

Fig-3: Pre and post treatment OPG

Fig-4: pre and post treatment lateral cephalogram.

Fig-5: post treatment Intra Oral photographs

Fig-6: Post treatment Extraoral photograph

Result and discussion:

Total treatment time was 24 month, this is partly related to the long treatment time required to totally retract the canines. Post treatment records show that the treatment objectives were achieved. Facial photographs (Fig.6) show an improved profile. Class I canine and molar relationships were established. Ideal overjet and overbite were achieved (Fig.6).

Post treatment panoramic radiographs (Fig.3B) show good parallelism of roots and normal structure of the periodontium. No sign of root resorption was seen.

The post-treatment lateral cephalometric radiograph (fig.4B) showed a balanced facial profile. Cephalometric analysis showed a Class I skeletal relationship. Dental measurements did not change significantly.

Conclusion:

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

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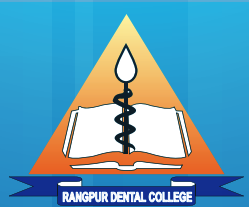

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