Restorative Dental NEWSLETTER

ISSUE 2/APRIL 2016

2

ISSUE 2 /May 2016

Special Edition

Special Edition

3

ISSUE 2 /May 2016

IN THIS ISSUE

CONTENT

This is your Newsletter and we value your comments. Please recommend dantal Improvement Projects in your area

Secretariat: Office of the Dental Departement (14149)
Email: Manickil@ngha.med.sa

Plaque of Recognition awarded to ***Dr. Ali Al Ehaideb, Chairman of Dental Services Central Region,*** *as a sign of gratitude and deep appreciation of the Restorative Newsletter Team for his outstanding leadership, untiring and devoted service. (Jan 2016)*

The world today is growing at an extremely fast pace. Challenges are enhancing and everything is becoming more demanding. Despite of this transformation, people today seem to close one eye on problems that goes around even the slightest. Thing like dental care was seen as a petty topic. In fact, dental care is severely important thing to care about. In reality, tooth decay is caused by our own carelessness on taking good care of our teeth. Our laxity will effects the rate of tooth decay. Everyone might be familiar with dental care but not everybody fully understands about dental care.

It is in this light that the Dental Newsletter has been designed as an approach of Dental Services, Central Region, King Abdulaziz Medical City, to communicate and reach out to the public to keep them up-to-date on the events, issues, and initiatives of importance on the field of dental. Various dentists are sharing their knowledge by providing unique, relevant, and highly useful nuggets of

information to their readers regularly. It creates a personal affinity within the community.

Any feedback on conferences attended, items of interest, publications that you have found useful or problems that you may have encountered are most welcome to be submitted to our Editorial Staff.

Finally, it is with deepest pride to endorse to you this newsletter as this is a collaboration of knowledgeable group of dentists who work with passion and energy, committed to educating people.

Wishing you an enjoyable and informative reading!

Thank you and best regards.

DR. ALI AL EHAIDEB, BDS, MSc, DABPD, FICD, FICCDE
Chairman, Dental Services, CR, KAMC-MNG-HA
Dean, College of Dentistry, KSAU-HS

Plaque of Recognition awarded to ***Dr. Ibrahim Al Awad, Deputy Chairman KADC, Dental Services Central Region,*** *with deepest gratitude of the Restorative Newsletter Team for his generosity and support. (Jan 2016)*

Plaque of Recognition awarded to ***Dr. Mohammed Al Ousaimi, Deputy Chairman PHCC, Dental Services Central Region,*** *with deepest gratitude of the Restorative Newsletter Team in helping us achieved our goals. (Jan 2016)*

Comprehensive dental treatment : A case report

Abdulmohsen Al Rabiah, BDS,SSC-ARD
Sahar Al Mansouri,BDS

Full mouth rehabilitation entails the performance of all the procedures necessary to produce healthy , esthetic and well functioning. The replacement of missing teeth with fixed restorations has changed recently. No longer its simply a choice between fixed partial denture and removable partial denture . Osseointegrated dental implants have developed into reliable treatment modalit

Case presentation

A 31 years old Saudi male medically fit was complaining from multiple missing teeth , badly decayed teeth with poor esthetic. He has poor oral hygiene, he is smoker and has undergone multiple treatments. He has unsatisfied upper anterior root canal treatment with asymptomatic apical periodontitis restore with full ceramic crowns, missing teeth #16, 15, 14, 24, 26, 37, 36, 46. Caries in teeth # 25, 27, 38, 33, 32, 47, 48. Teeth #35, 45 previously satisfied root canal treatment. Necrotic pulp for teeth # 27, 34, 44 (Figure 1&2)

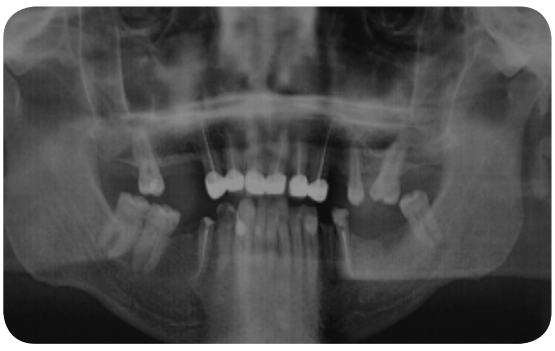

Figure 2: pre-operative OPG show over all teeth situation before treatment

Fig1: pre-treatment photograph.

After Examination and preventive treatment was done , diagnostic models were mounted in articulator. patient has Class I canine relationship right & lift side and molar relationship are not applicable . Operative treatment were done for teeth #25, 38, 33, 32, 47. Root canal treatment for teeth # 27, 34, 44 and re-treatment for teeth # 13, 12, 11, 21, 22, 23 . (figure 3)

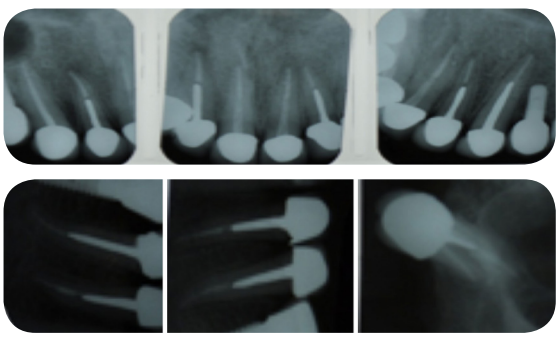

figure 3: Root canal treatment for teeth # 27, 34, 44 and re-treatment for teeth # 13, 12, 11, 21, 22, 23 .

Diagnostic Wax-up was done (figure 4) , Composite core tooth #13, fiber post teeth # 11, 21 & Cast Post and Core for teeth# 12, 22, 23, 27, 34, 35, 44, 45.

Figure 4: Diagnostic Wax-up

Surgical stent was constructed for implant replacement teeth # 16, 14, 24, 37, 36, 46 with straumann bone level implants (figure 5), take the centric relation (figure 6).

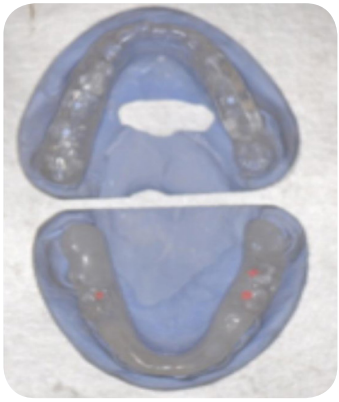

Figure 5: Surgical for implant replacement teeth # 16, 14, 24, 37, 36, 46.

Figure 6:taking the centric relation uing anterior deprograming device.

Single crown preparation for teeth # 13, 12,11.21,22,23,25,27,35,34,44,45 & final impression was taken for fabrication FPD with metal ceramic crowns. (figure 7) Proper shade matching and smile designing was done. Metal-ceramic crowns were done and cemented with glass ionomer cement. (figure 8) Patient was satisfied with the treatment. (figure 9).

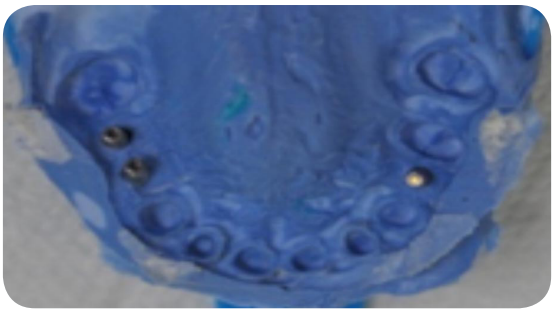

Figure 7: teeth preparation & final impression

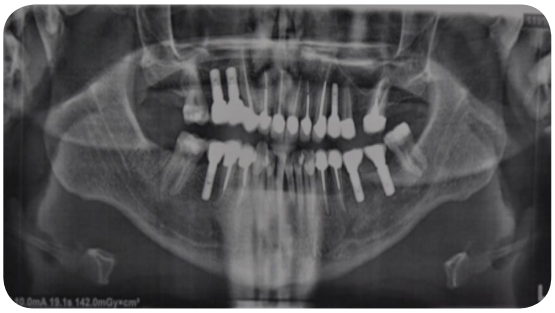

Figure 8: post-operative OPG

figure 8: pre-treatment photograph

DISCUSSION

Metal-ceramic restorations are still the most widely used type of indirect restorative system and have long history of success.1 patients with moderate to severe parafunction are best treated with porcelain-fused-to-metal crowns, which

are inherently stronger than all-ceramic crowns.2 & more resistant to fracture.3

Porcelain remains the material of choice for the esthetic veneering of teeth, metal, or high-strength ceramic copings.4

Today the continued high rate of success achieved with osseous integrated dental implants allows a greater number of patients to enjoy the benefits of fixed rather than removable dental prostheses.5-7

Reports in the literature demonstrate lower success rates for endosteal implants in smokers.8-10 Protocols have been recommended on smoking cessation before implant surgery. Smoking cessation after implant surgery has also been shown to improve implant survival.11 Ideally, the patient is instructed to cease smoking for 2 weeks before surgery to allow for reversal increased blood viscosity and platelet adhesion. Smoking cessation is continued for 8 weeks after implant surgery, which coincides with the osteoblastic phase of bone healing.12

CONCLUSION

For comprehensive dental care we should have successful treatment planning Choosing all treatment modalities , restorative material and design based on proper identification of the patient's needs.

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Functional and Esthetic Rehabilitation With Crowns and Fixed Partial Denture: A Case Report

Abeer Alrumyyan,BDS,AEGD

INTRODUCTION

The demand for the dentist to achieve excellence in esthetics and function has driven modern advances in materials and restoration fabrication. However, patient requests for more aesthetic and biologically "safe" materials that have led to an increased demand for metal-free restorations in anterior area. The following case presentation illustrates a successful aesthetic and functional application of porclain fused metal crowns and fixed partial denture.

CASE PRESENTATION

17 years old Saudi female, medically fit, her chief complaint was carious teeth plus pain, she did not like her smile, and she cannot eat or chew food properly. she had poor oral hygiene, multiple carious teeth, multiple restorations with recurrent caries and multiple extractions, (fig. 1). She received root canal treatments on teeth #7 and # 15 but poorly shaped and obturated (fig.2).

Fig.1: preoperative views are showing the smile, anterior unpleasant composites, multiple caries and extractions, and multiple posterior restorations with recurrent caries.

Fig.2: preoperative OPG are showing root canal treatment on teeth #7 & #15, multiple poor restorations and mesially tilted # 17. Periapical RL on # 20.

First treatment plan was discussed with patient to choose between implant or fixed partial denture to replace missing teeth # 28,29, the patient chose FPD because of limited resources and the need of bone augmentation. diagnostic casts and wax up was mounted on semi adjustable articulator to study and analyze the occlusion. Clinical tests was done to all teeth with big restorations and RCT.

Oral hygiene instructions were given to the patient. Pulp extirpation of teeth with irreversible pulpitis #2,#30 was done . then Excavation and temporization of all carious teeth.

Root canal treatment was done for teeth # 2, 12, 13, 14, 4, 20 and root canal retreatment for teeth # 7, 19 (Fig.3).

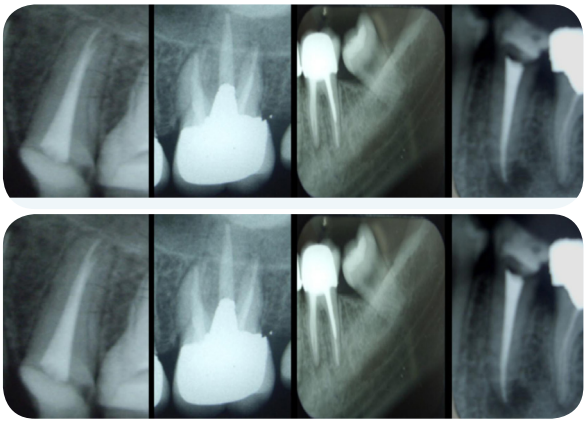

Fig 3: are showing Root canal treatmente for teeth # 2, 12, 13, 14, 4, 20 and root canal retreatment for teeth # 7, 19.

Composite restorations were placed on teeth # 1,3,5,7,16,17,32 and amalgam core build up on # 14.

Osseous crown lengthening surgery was done for tooth # 2 because it has short clinical crown as shown on fig.1 RT view.

Cast post and core were done for teeth # 2,4 (fig.4),12,13 (fig.5) ,19,20 (fig.6),30 (fig.7) because no enough remaining tooth structure. Then single crown preparation was refined for teeth # 2,4,12,13,19,20 and for teeth 27, 30 as abutment of 4 units FPD. Final impression was taken with irreversible hydrocolloid material after the placement of gingival retraction cord to receive porcelain fused to metal crowns and FPD and all ceramic crown for tooth # 7 (fig.8)

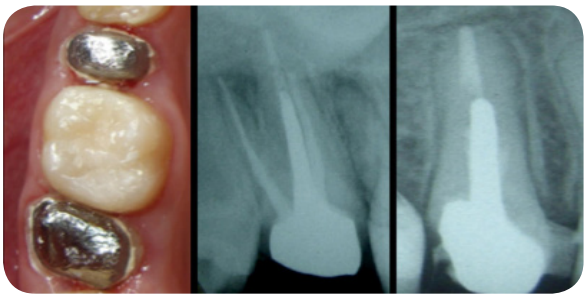

Fig 4: are showing cast post and core for teeth # 2,4.

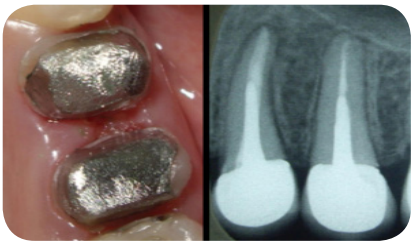

Fig 5: showing cast post and core of teeth # 12,13.

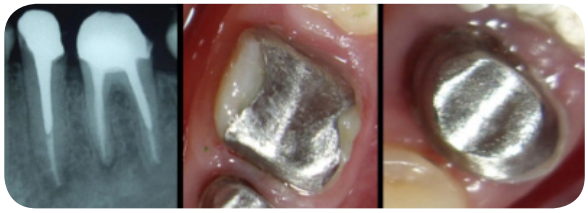

Fig. 6: showing cast post and core on teeth# 19,20.

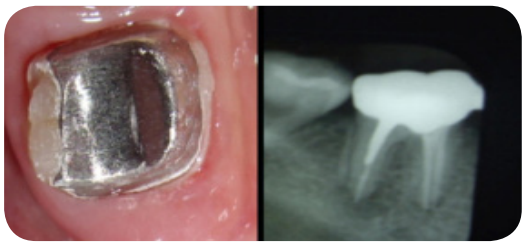

Fig 7: showing cast post and core on tooth # 30

Fig 8: showing postoperative views of upper, lower , RT,LF, and frontal with patient smile.

DISCUSSION

- Full ceramic crowns with opaque cores are superior in strength, with good esthetic, When restoring anterior teeth with these crowns, it is advisable to end the margin subgingivally as there could be a mismatch in shade between the tooth margin and the restoration (1).

- It is difficult to make direct comparisons from cited studies to advance a clear argument in support of one treatment modality. However, it is judged that a conventional endodontic retreatment approach is the most appropriate in the first instance, providing access to the root canal is possible. This does not preclude a subsequent surgical approach. Teeth that are permanently restored soon after retreatment are more successful than those which are not. There are significant challenges in setting up prospective research studies to directly address the problem of the failed root filing (2).

- With the improvement in materials, careful case selection and application of the restorative techniques, posterior composites placed under appropriate conditions and monitored routinely can be expected to last 10 years or longer (3).

- Invaded the biologic width during tooth preparation can result in chronic inflammation, loss of alveolar bone ,recession and pocket formation. The chronic inflammation compromises both esthetic & periodental health . In order to keep margins of restoration supragingivally the distance from marginal bone to margins of restoration should not be less than 3 mm. Ideally the margins of restoration should be supragingivally or in the same level as marginal gingiva. When the margins of restoration are prepared subgingivally, the distance from marginal gingiva to margins of restoration should not be more than 0.7 mm. To continue dental treatment in operated area is recommended not earlier than in 4 weeks, and making restorations in esthetical area - not earlier than in 6 weeks (4).

- Cast metal post-and-core foundations have a long history of successful use due to their superior physical properties (5).

- Based on these 3-year outcomes, root canal treatment is considered a reliable treatment in practice routine under the conditions of the German national health insurance system suitable to salvage most of the affected teeth (6).

- A 5-year retrospective study of fixed partial dentures showed that Fifty-eight (58.6%) of the FPDs were successes requiring no intervention (7).

CONCLUSIONS

The development of a pleasing esthetic and functional ability for the patient depends upon the dentist ability to replace the missing teeth, restore badly decayed teeth both in contour and color especially for the anterior teeth.

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Special Edition

15

ISSUE 2 /May 2016

Management of Non Carious Cervical Lesions (NCCL): Case Report

Dr. Tariq Suliman Alswayyed, Assistant Consultant, Advance Restorative Dentist
King Abdulaziz Medical City, Ministry of National Guard-Health Affairs

INTRODUCTION

Cervical Lesion is a defect found on the gingival third of labial, buccal, lingual, or palatal surfaces of any tooth. these lesion could be carious or non- carious.

Caries lesion is caused by specific types of bacteria produce acid that destroys the tooth's enamel and its underlying layer, the dentin. while the non- carious lesion is defined as abnormalities occurring on the surface of teeth that do not fall under the category of dental caries lesions.

NCCLs are unique to modern man. In an anthropologic study no NCCLs were found for skulls of humans living in the Copper Age and Middle Ages1.

NCCLs now can be found in children as well as in adult teeth. Prevalence ranges from rare to 89%. 2 Most studies show incidence increasing with age2-3. With every 10-year increase in patient age, the lesions became more common. Cervical wear was identified in 48% of subjects older than 65 years of age, after exclusion of restored facial surfaces 4.

The entire etiology of NCCLs has not been determined. While the various possible causes and their degree of involvement may be controversial, there is oerwhelming evidence that the cause is multifactorial 5-10. these factors primarily was mechanical or frictional forces (Abrasion) or from chemical dissolution (Erosion).

In 1991, Grippo introduced a new category called (abfraction-stress corrosion) which he referred to the pathological loss of dental tissues caused by biomechanical forces or due to occlusal forces11.

As the first goal of any treatment is to remove the causes of the NCCL(s). extensive data collection from patient history and examination to determine possible causes for the lesions should be made. failure of indentify the cause will lead to failure of the treatment.

This article is reporting a successful and comprehensive management of NCCLs with 18 months recall.

CASE REPORT

A 72 years old Saudi Male patient was referred from periodontal clinic to restore multiple cervical lesions. Patient chief complaint was esthetic.(Fig. 1&2)

Upon reviewing medical history with the patient he was not aware of any medical problem.

Patient lost most of his molars within last 10 years because of periodontal problem. that's why he was careful to clean his teeth after each meal.(Fig. 3) During analyzing patient diet, he used to eat lemon or orange slices after lunch and dinner.

Fig. 1

Fig. 2

Fig. 3

After collecting these data etiology of these lesion was clear :

1. loss of posterior support : that made mastication forces only disturbed only on the reaming anterior teeth and periodontally involved molars.Sci. 2015 Apr; 7(Suppl 1): S282–S284.
2. Erosion : from the acidity of the lemon and orange slices
3. Brushing immediately after exposing the teeth to acids from lemon and orange which cause acceleration of teeth wear

These factors where explained to the patient and treatment plan were formulated which include :

1. Advice to minimize eating the orange and lemon slices and delaying brushing by at least 1 hour after each meal.
2. Extraction of teeth # 16,&46 (grade III mobility) and replacement with PFM crowns supported by implant to distribute forcing among the anterior and posterior teeth which will result in reducing occlusal load on upper and lower anterior teeth and premolars.
3. Restoring all NCCLs with tooth colored restoration.

Because of esthetic concern of the patient, NCCLs were restored before replacing the extracted molars. and he was informed about possibility of deboning of restoration.

Teeth # 13,11,21,22,23,24,25 was isolated with rubber dam and cleaned with pumice and brush, etching of tooth structure using phosphoric acid 37 % (Scotchbond Etchant Phosphoric Acid from 3M) for 15 sec. then washing acid for 5 sec.

Blot excess water, leaving tooth moist, flowed by using a fully saturated brush tip for each coat,2 consecutive coats of 3M Single Bond adhesive to enamel and dentin applied , it was dry gently for 2-5 seconds then light cure for 20 seconds. finally 3M Filtek Z250 Universal composite restoration was placed in increments.

Finishing and polishing done using composite finishing burs and 3M™ Sof-Lex™ Finishing and Polishing discs.

Same procedure were performed on next visit for teeth # 32,41,42,43 & 45. and composite restoration on tooth # 34 was replaced due to recurrent caries.

in the week after an implant were done in area of tooth # 36 and restored with screw retained PFM crown.

Fig. 4

Fig. 5

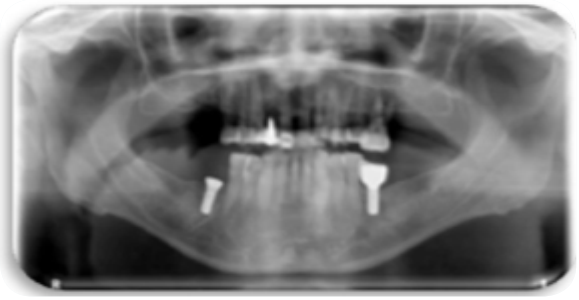

Fig. 6

after 2 month implant were placed in the area of # 46, patient were came back to my clinic complaining from some restorations that were fell down earlier.(Fig 4,5&6)

composite restoration were redone using same technique and material used before.
Implant # 16 and 46 restored by screw retained crowns 6 months later.
a follow up after 18 months of screwing implant shows intact composite restorations and stable occlusion.(Fig 7,8&9)

Fig. 7

Fig. 8

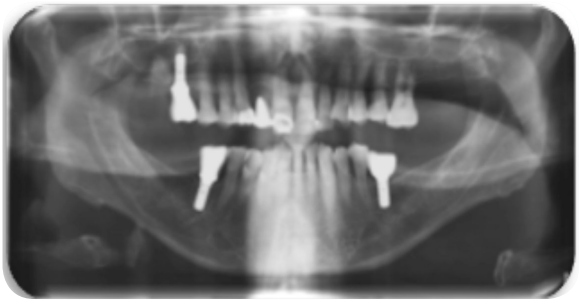

Fig.9

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Special Edition

19

ISSUE 2 /May 2016

Removal of metal post and core followed by endodontic retreatment and endodontic surgery of tooth with failed Endodontic Treatment

Dr. Aziza Al Turki, BDS,MSc.
Department of Endodontics, Dental Faculty of National Guard Hospital, King Abdulaziz City Dental Clinic

ABSTRACT

Endodontic retreatment, when properly indicated, allows the maintenance of dental elements. The evolution of endodontic techniques and materials has reduced the indication of surgical procedures even for teeth with intracanal posts. Case study: A 34 year-old male patient related uncomfortable sensation and swelling under his upper lip associated with maxillary right central incisor tooth. After radiographic examination, the presence of a smooth tapered post and an over-extended root canal filling associated with a periapical radiolucency and radiolucency on the distal part of the coronal third of the maxillary right central incisor tooth. The mesial margin of the crown did not fit well. The aim of this article is to highlight the possibility of the successful outcome of a combination of non-surgical and surgical retreatment involving orthograde super EBA of a maxillary central incisor.

KEYWORDS

removal of metal endodontic post, endodontic retreatment, apicoectomy; retrofilling.

INTRODUCTION

Teeth treated in conventional ways, which presents persistent periapical lesion, may have retreatment as first therapeutic alternative. Especially, accidents during conventional treatment may have negative effect over success, contributing to infection establishment in inaccessible apical areas, requiring surgical intervention (Wu et al. 2006, Gilhe et al. 1994). Failure factors in root canal conventional treatment are frequently related to presence of residual bacteria (persistent infection) or reinfection in a previously disinfected canal (secondary infection) (Siqueira 2005). Scientific evidence indicates that some factors may be associated with the unsatisfactory outcome of well-treated cases. They include microbial factors, comprising extraradicular and/or intraradicular infections, and intrinsic or extrinsic nonmicrobial factors (Nair et al.1999).

Parendodontic surgery comprehends a set of procedures recommended in periapical diseases treatment, when traditional endodontic therapy does not obtain favorable outcomes. Periapical surgery indications are:

root canal obliteration impeding endodontic instrumentation access to apical region; endodontic material apical extrusion impeding radiolucent lesions repair and/or causing clinical symptoms; unsuccessful endodontic treatment and retreatment impossibility due to prothesis; root perforation impeding root canal hermetic sealing. The surgery goal is periapical lesion removal and the apical third sealing, allowing soft and hard tissue regeneration (Matherne et al.2008, Von et al.2001).

MATERIALS AND METHODS

A 34-year-old male patient was referred to the Department of Conservative Dentistry and Endodontics with pain and labial swelling in the upper anterior region. Patient gave a history of trauma to front teeth more than 11 years ago. At that time the tooth number 8 and 9 had root canal treatment followed by placement of post crowns. The tooth number 7 was missing and space was closed by movement of tooth number 6. Patient complained of uncomfortable sensation and swelling under his upper lip associated with tooth number 8.

His medical history was noncontributory. In clinical examination, the oral hygiene and general periodontal status were fair and soft tissue revealed a firm labial swelling over tooth number 8 The tooth number 8 and 9 were restored with metalo-ceramic crown. Radiographic examination revealed that the tooth number 8 had an over extended root canal filling associated with a periapical radiolucency and the mesial crown was poor. Periapical review (Figure 1).

Figure 1. Periapical Radiograph shows an over extended root canal fillinf associated with Periapical Radiolucency

Radiograph showed presence of smooth tapered posts in tooth number 8 and 9. Patient was instructed regarding the risks inherent to the technique of intraradicular post and core removal and the possible failure in endodontic retreatment due to anatomical and bacterial problems within root canals, or diverse causes. Moreover, the probability of a new paraendodontic surgery still exists. Patient decides to undergo the aforementioned treatment, as his first choice, prior to an osseointegrated dental implant.

Treatment was initiated by removal of the crown and intraradicular post and cores by

using of ultrasonic tip with Ruddl ® of the tooth number 8 (Figure 2 and 3).

Figure 2. The crown was sectioned and removed

Figure 3. Post removal using the Ruddel system

The next step was re-do root canal treatment. Gutta-percha points and endodontic cement was easily removed (utilizing Gates Glidden drills, and hand instrumentation with Hedstrom files), since they present a soft consistence and lack of condensation. The irrigants (2.5% sodium hypochlorite) was delivered carefully and passively. After chemomechanical preparation of root canal system, the canal was dried with absorbent paper points and filled with non-setting calcium hydroxide paste (Metapex, Meta Biomed Co.Ltd., Chungcheongbuk-do, South Korea) was dispensed into the canal. Access cavity was sealed with cavit (Cavit W, 3M ESPE, Germany). A second appointment was scheduled for the subsequent week; the root canal systems of tooth number 8 was obturated with Roth's 801 sealer and warm lateral condensed gutta-percha with formed cones (Figure 4).

Figure 4. Post operative radiograph after treatment

The temporary post crown was cemented with TempBond™ (Figure 5).

Figure 5. Temporary post crown

Post-operative follows up, the patient reported the same sensation, and the tooth was tender to percussion (presence of pathological inflammation involving the

periodontal ligament).

To perform the surgical procedure, supraperiosteral and subperiosteral anesthetic techniques were adopted. Under local anesthesia lidocaine 2% with 1:80,000 epinephrine (Xylocaine; Dentsply, Oklahoma, USA) , a full-thickness mucoperiosteal flaps were raised in the area of tooth number 8 with vertical incision from the distal of the tooth number 6 to the distal of tooth number 9. On the reflection of the flap (Figure) there was a defect in the cortical plate associated with the apex of the root. The tissue in the defect was removed by curettage (Figure 6)

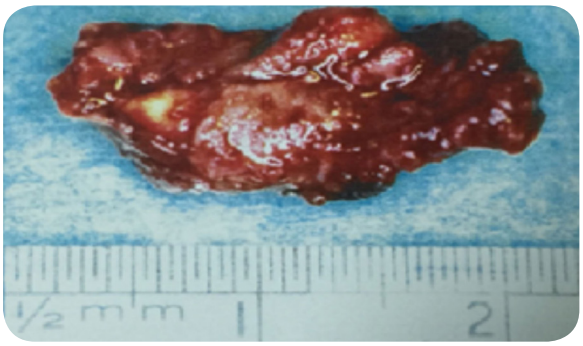

Figure 6. The tissue in the defect area

and sent for histological examination to the Department of Oral Pathology. Hemostasis was obtained with the assistance of sterile compresses impregnated with ferric sulfate (Astringedent; Ultradent Products, South Jordan, UT, USA). The apical 3mm of the root was resected. The retrograde cavity was prepared with CT5 ultrasonic tip (Hu Friedy, Chicago, IL, USA). The retro preparation was performed in the long axis of the root using ultrasonic inserts (Apical Surgery set; Satelec, Mérignac, France) to a depth of 3–4 mm (Figure 7).

Figure 7. The retrograde cavity

The prepared cavity was dried with sterile paper points and reinspected to verify that the canal walls were free of debris. The retrograde cavity was filled with Super EBA (a reinforced zinc oxide cement; its liquid contains 32% eugenol and 68% ethoxy benzoic acid). The filling was smoothed with a fine grit diamond- finishing bur. The flap was sutured with ETHILON® 5-0 sutures. The material was then inserted into the cavity and compacted with a condenser. A series of increments were introduced into the canal and packed so as to fully fill the cavity. Radiographs were taken immediately after the operation to check the quality of the obturation.

The patients were given post-surgery guidelines for care, and prescriptions for analgesics. Review appointments were scheduled after 1 week for suture removal

and soft tissue healing assessment. At the review appointment a week later, the patient reported no problem and on examination the soft tissues appeared to be healing well. The sutures were removed and the histopathological examination of the biopsied tissue had shown the lesion to be a periapical granuloma.

Figure 8. Satisfactory retrograde fill

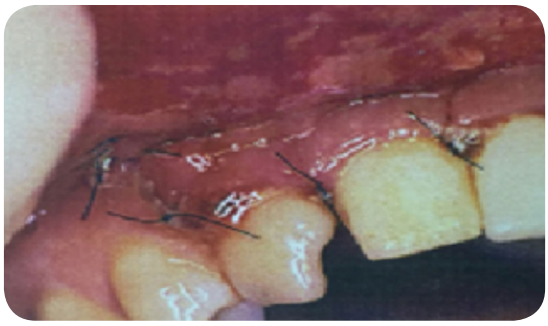

Figure 9. Flap Designs, Suture Techniques and Soft Tissue Management

Figure 10. Reduction in the size of the lesion

Figure 11. Post surgical treatment

DISCUSSION

The aetiology of periapical (periradicular) periodontitis is microbial :(Kakehashi et al.1965, Sundqvist 1976, Moller et al. 1981) intra-radicular microorganisms induce an inflammatory and immune response within the periradicular tissues, resulting in bone destruction. Contamination of the periradicular tissues by microorganisms and root-filling materials may compromise healing (Nair 2004).

A mandatory requirement of root canal therapy is that the obturation and restoration of the tooth must seal the root canals both apically and coronally to prevent leakage and percolation of oral fluids and to prevent recontamination of disinfected canals. Surgical endodontics is indicated to obtain an apical seal. Apicoectomy (apicectomy / root-end resection) with retrograde obturation is a widely applied procedure in endodontics, when all efforts for the successful completion of orthograde endodontic therapy have failed (Gutmann and Harrison 1999). Apicoectomies were performed in linguo-buccal bevel in a

45-degree related to tooth long axis (Gilhe et al.1994). This procedure could decrease the crown-root ratio and also increase the apical leakage, due to the permeability of the dentinal tubules that are more exposed by the bevel angle (O'Connor et al.1995, Torabinejad & Pitt Ford 1996), but a beveled resected root is necessary for good visibility and Ultrasonic instruments are used for the class I cavity preparation.

Surgical endodontics is a reliable method for the treatment of teeth with periapical lesions that do not respond to conventional root canal treatment or when orthograde treatment is not feasible (Harrison 1992). A wide range of success rates for surgical endodontics has been reported (44–95%) (Rahbaran et al.2001). Systematic reviews comparing the outcome of non-surgical root canal retreatment and surgical endodontics (Del Fabbro et al. 2007, Torabinejad et al.2009). The data from this limited evidence suggests that although surgery may offer a more favourable outcome in the short term, non-surgical retreatment offers a more favourable long-term outcome (Del Fabbro et al. 2007, Torabinejad et al.2009).

Retrograde filling is necessary to fill the apical canal space and to obtain a three dimensional seal between the periodontium and root canal system. In this clinical case, the chosen treatment was apicoectomy with curettage and planing, because it was found that the filling was well compacted and then it was chosen to apply retrograde filling (Super EBA).

Super-EBA was developed in the 1960's; it was originally manufactured by Staines in England. Super EBA shows high compressive strength, high tensile strength, neutral pH and low solubility. A comparative study of the solubility of some root-end filling materials done by Poggio et al in 2007 showed that IRM, Super-EBA and MTA showed no signs of solubility in water. Reinforced zinc oxide-eugenol cement (Super EBA) has become an alternative to amalgam, and it is generally accepted as an effective root-end filling material.

It has also been shown to have good sealing characteristics. An in vitro microleakage study done by Yaccino et al in 1999 suggested that fast set or regular set super-EBA used in various consistencies may be acceptable as root-end fillings. It adheres well to tooth structure even in moist conditions. Reports show a good healing response to super-EBA with minimal chronic inflammation at the root apex. But, super-EBA is radioluscent and technique sensitive. The eugenol content of super-EBA may be a source of irritation to the tissues (Poggio et al.2007).

Understanding the patient-, treatment- and tooth-related prognostic predictors can help the clinicians in appropriate case selection for apical surgery against treatment alternatives. These factors should be considered in the process of decision making. Apical surgery is option to save a tooth with apical pathology that cannot be managed by conventional, non-surgical endodontics.

CONCLUSION

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Special Edition

27

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Surface treatment of tooth color indirect restorations

Dr. Maha A.Alturki

Department of Rertorative, Dental Faculty of National Guard Hospital, King Abdulaziz City Dental Clinic

The purpose of this article was to know different types of indirect tooth color restoration and the protocol of surface treatment for each type before cementation. Since the clinical longevity of indirect tooth colored restorations depends on their successful treatment and cementation.

The cementation technique is determined by the type of restorative material thus their intaglio surface treatment should perform according to their particular compositions.

PRETREATMENT OF THE INTERNAL SURFACE OF THE RESTORATION:

A good adhesion to the internal surface of the restoration requires:

1. Roughening of the internal surface of the restoration to increase the surface area for bonding.
2. Increasing the wettability of the cement to the restoration and forming chemical bonds between the ceramic, the fillers and the cement.
3. The first procedure is done through air abrasion, sandblasting or etching with a hydrofluoric acid.

The second procedure is achieved by applying a silanating agent on the etched porcelain or composite. The silane makes the ceramic chemically adhere to the resin cement through covalent and hydrogen bonds (1).

As restoration pretreatments differ from material to material, knowledge of the different types of tooth-colored materials (ceramic or composites) used in dentistry can simplify pretreatment procedures for tooth-colored indirect restorations.

CLASSIFICATION OF DENTAL CERAMICS

Dental ceramics can be classified into two broad groups based on their composition:

1. The silica-based ceramics also called glass-ceramic systems referred to as low to moderate- strength ceramics.
   The silica-based ceramics further classified into:

Feldspathic porcelains

Leucite-reinforced ceramics

Lithium Disilicate ceramics

2. The non-silica based ceramics are called polycrystalline ceramics they are a high strength ceramics such as Zirconia and alumina.

Silica- based ceramic restoration:

Silica-based ceramic restorations, because of their optical and esthetic properties, are used to a great extent for porcelain laminated

veneers, inlays and onlays, and full coverage crown restorations.

Proper surface treatment of the ceramic surface prior to cementation is therefore rudimentary for their long- term clinical success. Bonding to silica based ceramics is usually obtained by the application of hydrofluoric acid (HF) which attacks the glassy phase of the ceramic material, dissolving the surface and exposing the silicate crystals in the matrix (roughen the inner surface and increase surface energy) . The application time depends on the crystalline content of the specific ceramic substrate. (Table 1).

Should not over etch the porcelain with hydrofluoric acid as it may weaken the bond between the ceramic and resin cement. Some times after etching with HF a white residue form on the surface of the porcelain this white is a potential contaminant and should be removed prior to silane application. Recommended methods of removing this residue include immersing in an ultrasonic cleaner for 5 min , steam cleaning ,or using alcohol solution (2)

The silane is applied on the internal ceramic surface; the usual application time is between 60-90 second. The silanated ceramic should appear dull and not shiny. The shiny surface is indicative of excessive sailane and can affect the bond of the ceramic to the resin cement.

Non silica-based ceramic restorations

Such as alumina and zirconia have polycrystalline phase and should not be etched as they are highly resistant to chemical attack from HFor silanated as it might destroy the crystalline structure and weaken the material (3).

The preferred pretreatments for alumina or aluminum oxide ceramics include:

1. Airborne abrasion with 50-110um aluminum oxide particles at 2.5 bars
2. Application of a primer that contains phosphonate or phosphate monomers form covalent bonds with zirconia surface and have polymerizable resin terminal ends that copolymerize with the resin cements.

Currently, there are several ceramic primer systems for zirconia surface preparation available such as Monobond Plus (IvoclarVivadent), Clearfil Ceramic primer (Kuraray) AZ- Primer (ShofuDental)Metal/ZirconiaPrimer(Ivoclar Vivadent);and AZ-Primer Plus(Bisco)Air particle abrasion with small aluminum oxide particles before application of a ceramic primer is recommended.

Silica coating of the inner surface of the restoration with Co Jet Sand (Rocatec/CoJet System(3M ESPE) followed by an application of a silane coupling agent(ESPE Sil).The application of a silica layer to high-strength ceramics such as zirconia creates binding sites for the silane molecules while the silane provides wettability and chemical coupling

with the methacrylate based cement.(4)

Indirect composite or laboratory composites

Were developed in an attempt to improve on the physical and mechanical properties of direct composite as well as facilitate carving of adequate proximal contours and contacts and occlusal anatomy .Indirect composites have microhybrid fillers and are highly filled with less of the organic matrix to minimize polymerization shrinkage (5).

This class of composites undergoes secondary curing either by heat polymerization or high-intensity light polymerization. Secondary curing has been found to decrease bonding of the restoration to the resin cement as secondary curing leaves no available monomer for subsequent bonding to resin cements (6).

Suggested pretreatments for indirect composite include sandblasting followed by phosphoric acid etching the internal surface of restoration .The sandblasting roughens the internal surface, while phosphoric acid etching cleans the sandblasted surface of debris(7) followed by application of sailane.

Clinical considerations for surface treatment of ceramic material

There are several consideration factors for the surface treatment of ceramic material .It is important to avoid contamination of pretreated ceramic surfaces, since organic contamination such as saliva or figure residue can decrease bond strengths. However, if the restoration is contaminated surface should be cleaned with a phosphoric acid solution for 15 seconds.

Conventional silane coupling agents and resin composite luting agents provide excellent long term durable chemical bonds to silica –based ceramics such bonds, however are not possible to high-strength ceramics that do not contain silica. (8)

It is important to know that silane coupling agents used for silica- based ceramics can have different chemical compositions however, they must be compatible with the bonding agent and resin cement .In addition silane coupling agents are dispersed in single bottle products typically contain greater amounts of solvents and are therefore more susceptible to solvent evaporation hydrolysis and polymerization that renders the solution in effective. Thus, it is essential to review shelf life remember to seal containers immediately after use.(9)

Classification	Sub types	Brands	Flexural strength	Surface treatment
Silica-based ceramics:1st generation ceramics	Felds pathic porcelain	CEREC, Blocs , Eris, Kiss, Classic , Lava Ceram, Creation	65-120MPa	1-sandblast with30-50m=umAL2O3 particles 2-Etch with 9.5%HF acid for2-2.5 min, wash , and dry 3-Apply silane for1 min and dry 4-application of resin cement
	Leucite reinforced ceramic	IPS Empress I,Ivoclar-Vivadent	120-140MPS	1- Sandblast with30-50um AL2O3 2-Etch with 9.5%HF acid for 60 secs , wash, and dry 3-Apply silane for 1min and dry 4-Application of resin cement
	Lithium disilicate	IPS Empress2 E-Max	300-400MPa	1-Sand blast with 30-50umAL2O3 2-Etch with9.5%HF acid for 20 secs , wash, and dry 3-Apply silane for 1min 4-Application of resin cement
Non-silica based ceramics (polycrystalline ceramics)	Alumina Aluminum oxide ceramic	Porcera	650MPa	1-Airborn abrasion50-110uAlO2at2.5 bars **or** use an MDP containing resin cement and primer(PanaviaF,2.0,universal Bond)or
	Zirconia	Lava Cercon In Ceram Zirconia IPS emaxZirCAD	800-1500MPa	3-Silicacoating (tribochemical surface treatment) 4-APA or silicacoating +use an MDP containing resin cement 5-Use a phosphoric acid monomer containing primer (Z-Primer, Metal/Zirconia Primer)
Indirect composites (Laboratory-processed composite)	Artglass, Sinfony, Tescera, Ceramage		280 MPa	1-Sandblasting with Al oxide for 10 sec, 2-Application of silane **or** sandblasting followed by phosphoric acid etching 3-application resin cement

CASE REPORT

A40 years –old man in a good health complain of one of his incisor teeth rotated, and spaced (figs.1, 2 &3). The maxillary lateral tooth was free of dental caries and restoration. Patient has extrinsic stain on his teeth from drinking black tea. The patient was offer several treatment options, patient was not interested in orthodontic treatment, because of the estimated length of the course of treatment and the fact that he would need fixed appliance. , because of maxillary tooth was caries and restoration free the relatively aggressive option of full coverage crown was not considered. The only remaining option was veneer.

Occlusion was analyzed preoperatively, both clinically and with the aid of mounted study models on a semi adjustable articulator .A diagnostic wax up was done, veneer without tooth preparation of the rotated tooth #10. A waxed up model demonstrating the corrected position and anatomic features of the tooth was used to discus the expected treatment out come with the patient. The patient agreed on the treatment.

Final full arch impression was made with poly vinyl siloxane ,an impression of the opposing dentition was also made with irreversible hydrocolloid (Jeltrate, Dentsply/Caulk). An interocclusal record of the opposing dentition ,Shade was determined with the shade guide (Vitapan 3D Master Vita ,bad Sackingen Germany) E-max ceramic veneer was manufactured at dental lab center (K.A. M. C., Riyadh).

Figure1: Anterior view: of the maxillary anterior teeth. There is a diastma between the central and lateral incisors, and the lateral incisor appears rotated and out of alignment

Figure2: A full smile

Figure 3: Lingual aspect of the maxillary teeth, showing misalignment rotated lateral tooth

Figure 4: Occlusal view: Try-in ceramic veneer

Figure5: Anterior view: of the maxillary anterior teeth after cementation of the veneer

Figure 6: A full smile before

Figure 7: A full smile after

Porcelain veneers were tried on the working model. The tooth surface was first cleaned with slurry of fine flour of pumice. The intimate adaptation, margin, and shade of porcelain veneer were checked.

The inner surface of porcelain veneers was treated with air-particle abrasion using 50 μm Al2O (Korox, Bego, Germany) bar for 10 s. Then, surface treatment was followed by acid etching with 9% hydrofluoric acid (Pulpdent Corporation, USA) prior to silanization. A silane coupling agent (Pulpdent Corporation, USA) was applied to the internal veneer surface for 20 s and air-dried. During cementation procedure, tooth was etched for 15 s using a 37% phosphoric acid etch-gel (Alpha-Etch 37, Dental Technologies, USA).

Subsequently, the tooth surface was rinsed thoroughly and air-dried gently, adhesive was applied, according to the manufacturer's instructions (Clearfil, Kuraray). Following the bonding application, a thin layer of light polymerizing composite resin luting cement was applied at the intaglio surface of the veneers, placed onto the prepared tooth and light-polymerized for 40 s (Elipar Free Light, 3M ESPE) from palatal, labial, and incisal sides. Excess luting cement was removed. Restoration was checked to avoid any occlusal interference. The patient was satisfied with his new smile line and good view of the anterior teeth [Figure 4]. Patient was recalled in 2 days and encouraged for better dental flossing and also recalled every 3 months for periodical controls.

DISCUSSION:

Minimal-preparation to no-preparation veneers have resurfaced in the dental literature as topics for clinical discussion. Recent marketing and advertisements by dental manufactures and laboratories aimed at the public and the profession recommends no- preparation veneers as the optimum option to conserve the tooth structure and achieve the most esthetic results compared to conventional tooth preparation. . According to the supporting evidence, no-preparation veneers are indicated for selected cases only, and can't be generalized for all patients seeking esthetic rehab and each case should be evaluated individually, regardless of the a dvertizing claims.

Bonded porcelain veneers have a number of significant advantages over metal-ceramic or all-ceramic crowns. Conservation of tooth structure is a major factor in determining the long-term prognosis of any restorative procedure. Another remarkable advantage of porcelain veneers is their durability.

As long as sufficient tooth structure remains to provide adequate support for the bonded porcelain the incidence of fracture is very low. This durability allows minimal reduction resulting in decreased potential pulpal involvement.

CONCLUSION

The case presented in this article demonstrates the use of no–prep veneers as the preferred minimally invasive option, and one that took into account all the best interests of our patient.Veneer restorations do not typically provide coverage or protection for the lingual tooth structure, but they defi nitely improve labial esthetics.

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Repair of Long Standing Iatrogenic Perforation with Mineral Trioxide Aggregate: A Case Report

Dr. Maha A.Alturki

Department of Restoratives, Dental Faculty of National Guard Hospital, King Abdulaziz City Dental Clinic

ABSTRACT

Iatrogenic perforations through the floor of the pulp chamber are undesirable complications and unfortunate incidents that occur most commonly during endodontic procedures. On the basis of the recent physical and biological property studies of the relatively new introduced mineral trioxide aggregate, this material may be suitable for closing the communication between the pulp chamber and underlying periodontal tissues. The purpose of this case report was to describe the treatment of long standing iatrogenic perforation in molar tooth. The perforation of the molar tooth had been done in ER dental clinic four months ago, periodontal surgery and removal of granulation tissue were performed, the perforation was cleaned with saline solution and sealed with MTA placed cotton pellet and placed temporary filling. Finally, the tooth was endodontic ally treated and restored with amalgam build up and covered by crown. After three months and six months follow up no pain and swelling along with functional stability, radiograph shows absence of periradicullar radiolucent, and absence of lesion formation of PDL at the perforation site indicated a successful outcome of sealing perforation.

INTRODUCTION

One of the most difficult cases in clinical treatment is iatrogenic perforations. Often, the cause is iatrogenic as a result of misaligned use of rotary burs during endodontic access preparation or during search for root canal orifices. Iatrogenic perforations can occur at different levels. The result is a chronic inflammatory reaction of the periodontium (formation of granulation tissue)that can lead to irreversible loss of attachment apparatus. Factors that affect the prognosis of perforation repair include: the location of the perforation, size and shape of perforation, time delay prior to perforation repair, proper isolation techniques, previous contamination by microorganisms and the biological and

physical characteristics of the restorative materials.

Mineral Trioxide Aggregate (MTA) is dental cement which has been recommended to seal artificial communications between the teeth and periodontal tissues.

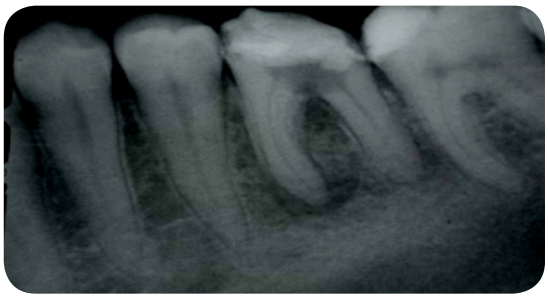
MTA has an ability to facilitate normal periradicular architecture by inducing hard tissue barriers. Formation of surrounding MTA was observed even after extrusion of MTA into a furcation.

The following case report demonstrates the use of MTA as a sealing material to promote healing of a mandibular first molar with a longstanding furcal perforation.

CASE REPORT

A 27 year old man presented to the clinic complaining of slight pain in tooth 36.

Patient gave history of dental treatment on the offending tooth four months back by a general dental practitioner after which the pain started. Intra oral examination revealed large cavity on 36 restored with temporary restoration. Periodontal breakdown in the furcal region of tooth 36,the tooth was tender on both percussion and palpation. The mean propping depth was within normal level except at the mid lingual and buccal were five mm in depth. The radiographic examination showed a radiolucent area in periapicals and furcal region of tooth36. (FIG 1)



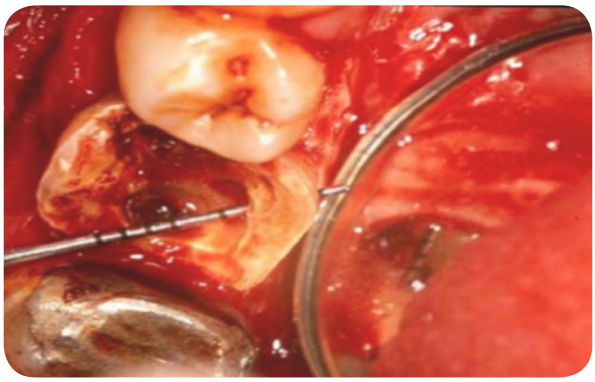
(Fig1)tooth 36 show a radiolucent area in periodicals and furcation region

Considering the time passed since iatrogenic perforation, size and position of the defect a clinical decision of repairing the defect with periodontal surgery to remove the granulation tissue and using Mineral Trioxide Aggregate (MTA) along with endodontic treatment of 36 was taken. The patient was informed about the condition and possible consequences were explained. Inform consent was obtained from the patient.

The temporary restorative material was removed and the perforation area was detected clinically.

With1:80,000 adrenaline containing 2% local anesthesia. A full thickness flap was reflected to expose the lesion (FIG 2&3).

(Fig 2) Tooth 36with furcal perforation



(Fig 3) Periodental prop passing through the perforation

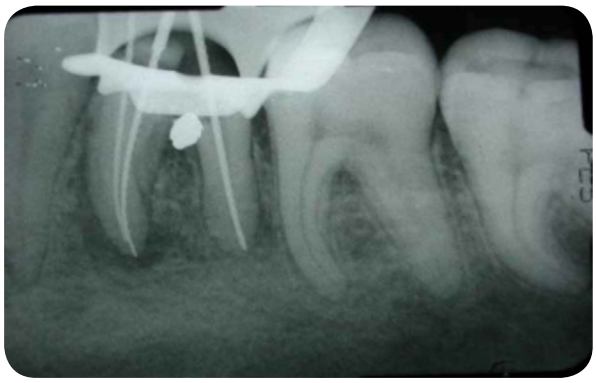
Removed granulation tissue, and The perforation was sealed with mineral trioxide aggregate- sterile saline paste ProRoot MTA(Dental Tulsa; DENTSPLY, DE Trey Konstanz, Germany) mixed in a 3:1 proportion. In this appointment, which MTA was applied with the help of a MTA carrier, a damp cotton pellet was then placed in the pulp chamber to produce a humid ambient for the MTA with the aim of achieving solidification, and the tooth was temporary filled with cavity temporary restoration material.

Suture the flap, cover patient with antibiotic and anti-inflammatory drugs (Ibuprofen 500mg).

Two weeks later checked the solidification of the MTA (Fig 4).

(Fig 4) The MTA sealing the furcal perforation

Isolate the tooth with rubber dam then perform root canal treatment, the canals orifices were found and negotiated with no 15 K file(main) working length was determined radio graphically (Fig 5).



(Fig 5) Working length of the roots

The mesial and the distal canals were cleaned and shaped using manual files crown down technique and copious irrigation with

2% sodium hypochlorite. Placed calcium hydroxide in the canals, then placed cotton pellet covered the cavity by temporary filling. A week later removed temporary filling, cotton pellet, irrigate with 2% sodium hypochlorite Master Cone selection was done and the root canals were then obdurate with gutta-percha points and AH Plus (Dentsply, DeTray Konstanz, Germany) using lateral condensation technique. Placed Glass ionomer cement as a temporary restoration Fig 6.

(Fig 6) The tooth after obturation

Amalgam build up done, gain retention from pulp chamber and two to three mm from the canal orifices . The final restoration was porcelain fused to metal crown Fig 7.

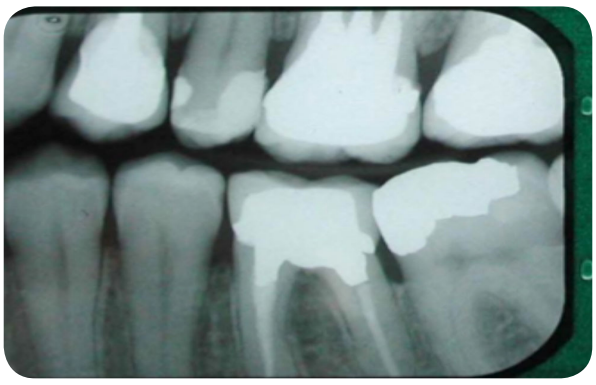


Fig 7: Tooth 36 post crown cementation and formation of PDL around the furcation

Fig 8: Clinical picture of tooth 36 with final Restoration PFM crown

Fig 10: Tooth #36 after 3months

DISCUSSION

Perforations in the furcal region of molars are particularly challenging, but yet prognosis was favorable even after few months. The prognosis of perforation depends on prevention or treatment of bacterial infection at the perforation site. In addition, the use of a non-irritating material that seals the perforation will limit periodontal inflammation(1).

In the present case the long standing perforation was in the midlingopulpal floor, more circumscribed characteristic of accidental perforation with a diamond bur, the perforation site repaired surgically to remove a granulation tissue to ensure an environment free of microbial contamination and necrotic tissue.

The prognosis strongly depends on the treatment of bacterial infections at the perforation site. A poor prognosis is probably due to lack of biocompatibility and sealing capacity.2For this reason, the selection of a suitable sealing material is essential for the successful management of a root perforation.3MTA was reported to be an ideal material for retrograde filling and perforation repair.4Main et al5concluded that MTA provides effective sealing of a root perforation and can be considered a potential repair material that enhances the prognosis of perforated teeth.

MTA was developed as a root-end filling material in surgical endodontic treatments contact with adjacent tissues may increase the sealant capacity of MTA, since an acidic environment (such as tissue) may increase this property.6

It has been used for both surgical and nonsurgical applications, such as root-end filling, resorptive defect repair, direct pulp cap- ping, apexification, and perforation repair.7MTA has many advantages as a material for perforation repair, including good sealing characteristics, biocompatibility, bactericidal effects, radiopacity, and the ability to set in the presence of blood.,8,9Perforated roots treated with MTA showed a non-inflammatory tissue layer and root cementum attached to the MTA.10 In our patient, MTA was used as a sealing material after removing the granulation tissue from around the perforation site. The follow-up radiographic and clinical evaluations indicated that MTA was a good sealing material and promote formation of PDL at the furction area.

CONCLUSION

1. The prognosis of perforated teeth is better nowadays than it was in the past,and this is due to theMTA that can be successfully utilized in the surgical management of perforation.
2. This case highlights the need for particular attention during open access to decrease the risk of tooth damage.

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Esthetic Management Of Discolored fluorosed Teeth with Ceramic Crowns And Veneers

Fasial M. Al Sonbul, BDS AGED SSCARD **Amani Manzalwi BDS**

Department of Restorative, Dental Faculty of National Guard Hospital, King Abdulaziz City Dental Clinic

INTRODUCTION

Anterior teeth are the mirror of aesthetic appearance of the mouth. Discolored ,malformed ,malposed,unsightly anterior teeth could make the individual psychologically depressed and socially less active. Ceramic restorations either crowns or veneers are the most predictable and durable solutions to correct most of teeth defects if indicated and no parafunctional habit like clenching or bruxism found.

CASE PRESESNTAION

39 years old female Saudi patient seeking treatment of faulty upper crowns and discoloration of lower teeth(fig1).

Fig 1:Preoperative frontal view

Upon clinical and radiographical examination she has teeth #22,21,11and12 with defective crowns, teeth #16,11,21,22,23,25and 26 need root canal treatment. In addition to that,all upper and lower teeth have fluorosis which is score 5 according to TSIF fluorosis classification (Discrete pitting of the enamel exists, unaccompanied by evidence of staining of intact enamel. A pit is defined as a definite physical defect in the enamel surface with a rough floor that is surrounded by a wall of intact enamel. The pitted area is usually stained or differs in color from the surrounding enamel(fig2)

Fig 2 Discrete pitting of the enamel of teeth

Table 1: Classification of dental fluorosis according to Thylstrup and Fejerskov Index*,

TFI (7) TFI Features on enamel surface

0 Normal creamy surface after drying

1 Faint white lines

2 Distinct white lines, with some merged

3 Cloudy opacities with white lines in between

4 Paper white opacities on entire surface

5 Pitted and opaque surface

6 Merged pits form rows

7 Irregular pattern of enamel loss

8 ½ surface enamel lost, remaining enamel being opaque 9 Cervical rim of opaque enamel

9 Cervical rim of opaque enamel

- Primary alginate impressions were done for study models, mounted daignostic casts on a semi adjustable articulator, provisional crowns and wax up models(Fig3 &4) .

Fig3 mounted study casts

Fig4 Daignostic wax-up

Smile analysis was done to evaluate the incisal plane,buccal corridor, incisal curve and lip line.

- Dental analysis was preformed to evaluate midline,gingival line, axial inclination and gingival zenith points
- Starting with upper teeth, all defective ceramometal crowns removed by sectioning the crowns labiolingually using flat-end tapered diamond bur and root canal treatment initiated for all indicated teeth needed using crown down technique with rotary machine using K3 then obturation by gutta percha and AH sealer using lateral compaction technique (Fig5).

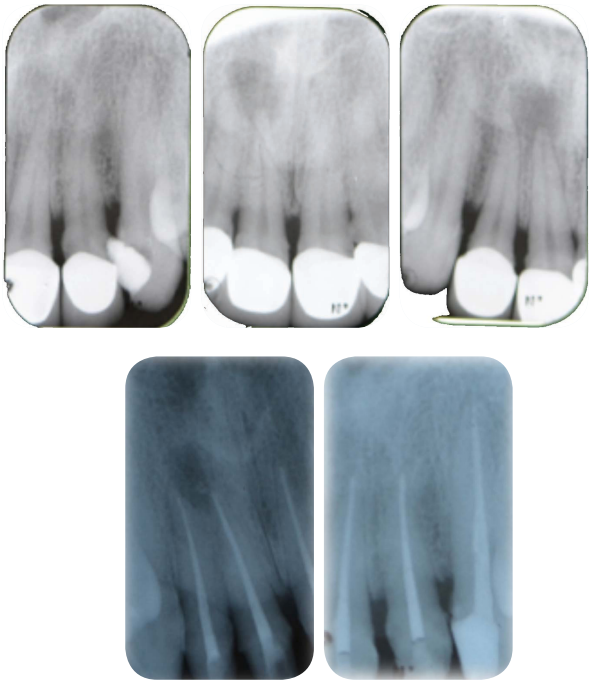

Fig 5 preoperative and postoperative radiographs of root canal therapy

- Composite build up without post Teeth # 12 11, 21, 22, 23, 25 and cast post and core #16 and # 26 cemented by glass ionomer cement
- Teeth preparation for Ceramic crowns on : teeth #12,11,21,22,23,25 using chamfer

diamond for axial reduction(1mm) and occlusal reduction(2mm) and chamfer finish line. Vita shade was used and B1 was selected

- Teeth preparation for Porcelain Laminate Veneer (PLV) on : teeth # 15,14,13,24 overlap design ith axial reduction (0.7mm) and occlusal reduction (1.0 mm)
- Polyvinyl silicone impression material was used after double size (00) retraction cords placement (fig6).

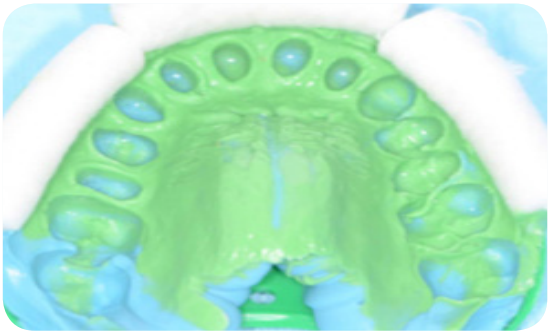

Fig 6 prepared crowns with retraction cords and final impression

- Polycarbonate temporary crowns and composite restoration
- Cementation of upper Ceramic crowns and porcelain laminate crowns by variolink II Starting with centrals inscirs , laterals , canines then premolars
- For lower fluorised teeth , porcelain laminate veneer option was selected , incisal lapping preparation started by insicial cutting by 2 mm and labial reduction 0.7 mm and chamfer finish line, single retraction cord size 00with aluminum chloride was placed ,polyvinyal silicone impressoion material was used for final impression and all prepared teeth were temporized with composite (fig7).

Fig 7 prepared lower teeth and final impression

- Cementation of lower porcelain laminate veneers by variolink II starting with centrals incisors,laterals, then premolars
- Centric Occlusion and eccentric occlusion(lateral and protrusive movements) were checked.

Fig 8 Postoperative picture and periapical radiograghs

DISCUSSION

Based on the clinical and radiographical examination of dental fluorosis ,the treatment planning is produced.

Akpata suggested that mild fluorosis with T-F score of 1-2 should be managed by bleaching, as the subsurface porosities may be sufficiently superficial for entrapped extrinsic stain to be removed by bleaching agent.1

At T-F scores of 3 – 4, Akpata in 2001 suggested microbrasion because the subsurface porosities may be so deep-seated that entrapped extrinsic stain may not accessible to the bleaching agents

TFI = 5 – 7 veneering is suggested, but more than 50% of enamel surface has been lost, as in teeth with TFI = 8 – 9, the fluorosed teeth should be crowned.2

Ceramic restorations can mask extremely discolored teeth from older fillinf and root canals which can not be done with composite filling and other technique 3

The prognosis of endodontically treated teeth depends not only on the treatment itself, but also on sealing the canal and minimizing the leakage of oral fluids and bacteria into periradicular area by prompt placement of coronal restoration.When the remaining cavity walls are 4 its consider class I. If all the axial walls of the cavity remain and have thickness greater than 1mm it is not necessary to insert posts.4

CONCLUSION

Ceramic veneers and crowns will provide successful esthetic and functional long-term service for patients. Color match, porcelain, and marginal integrity are most satisfactory. Care needs to be taken during clinical examination to determine the successful treatment modality in order to have predictable outcome.

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Treatment of severe sinus infection after sinus lift procedure: A case report

Dr.Bandar Almaghrabi,BDS,MS,Diplomate of ABP *
Assisitant consultant at National guard hospital,Dental clinics of the central region, Periodontal division.

INTRODUCTION:

The maxillary sinus is a pyramidal in shape air cavity located in the maxilla. The size of the sinus can vary on individual bases. Adults have a mean width of 35 mm at the base and a mean height of 25 mm [1]

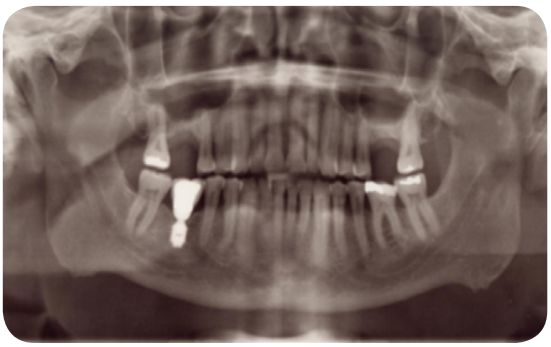


Fig 1:Pre-operative pictures during initial examination

After tooth extraction, there will be some bone remodeling which leads to decrease in bone width bone plate and as the edentulous area continues to atrophy, this will lead to loss of bone height and density and an increase in antral pneumatization [2];[3].

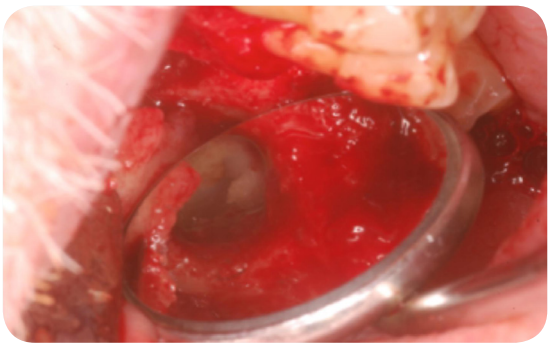
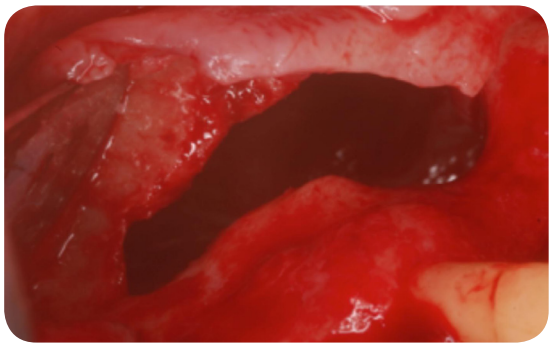


Fig 2: Loose particles inside the sinus with some pus discharge.



Fige 3:Sinuse after curetting the graft and inflamed scheinedrian membrane.

This pneumatization will affect the future placement of implant and need to be managed with sinus lift techniques. These techniques are discussed broadly under lateral window and osteotome techniques However, These technique has complications and one of the most common intraoperative complications of this technique is perforation of the schneiderian membrane while separating it or when making the osseous window for reaching the sinus[4].

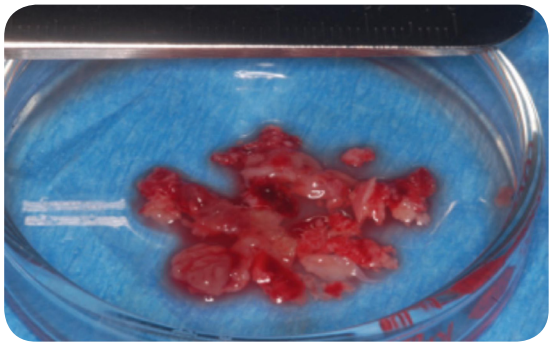


Fig 4: Polyps removed along with bone grafting material after maxillary sinus membrane enucleation

Post operative Sinus floor augmentation consist of variety of complications which include disturbed wound healing, hematoma, sequestration of bone, and transient maxillary sinusitis[5].

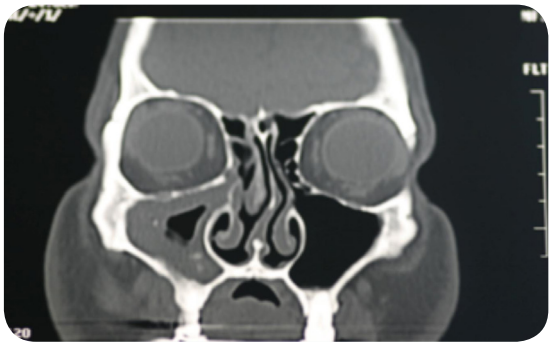


Fig 5: Pre-Surgical CT scan showing some remnants of the grafting material with thickened Schneiderian membrane and ostium stenosis.

Previous investigations have reported that out of these complications maxillary sinusitis reaches up to 20% of patients after Sinus floor augmentation [6].

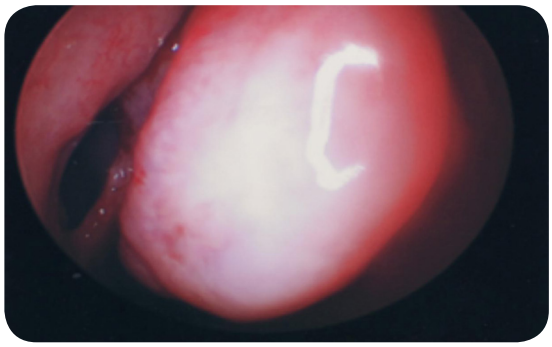
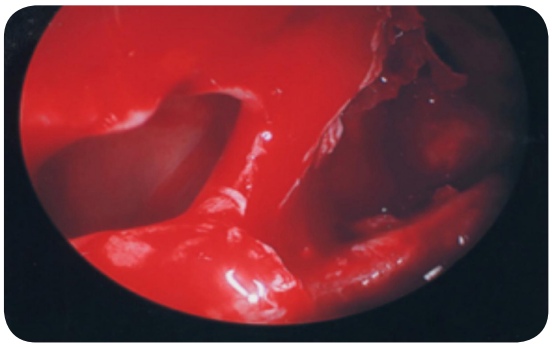


Fig 6:Nasal endoscopy :Ethmoidal thickening with ostium stenosis

Some articles justify that those complications which occur after performing this procedure tend to be associated with pre-existing sinus disease or documented susceptibility to sinus disease.[6-7].



Figer 7: sinus ostium after enlargement using inflatable device and shaving the ethmoidal thickening

Ostium stenosis is one of those defects where it showed in one of the studies that about 24% of the patients have it [8].

Figer 8:Post surgical radiographic image.

This case report presented in this article will show one of the maxillary sinus lift complication, some of the causative factors and how it is important as a team work between the dentist and the ENT specialist to approach an ideal management for such cases.

THE CASE:

A 50 years old patient came to the Buffalo dental school to seek dental treatment and replacing missing teeth at the area of teeth 3 and 14.Mediedical history shows that he is allergic to penicillin and using Multivitamins, some medication for anxiety and asthma.

The patient x-ray showed pneumatization at the area of teeth 3 and 14(upper first molars) due to previous extraction. The treatment plan was discussed with the patient and decided on doing a sinus lift procedure with lateral approach before placing the implants. During the procedure, Schneiderian membrane ruptured(Less than 5mm) and it was treated using collagen membrane [12]. The intact side of the membrane was fully reflected to achieve an ideal sinus lift. Before placing the allograft bone material, the perforation was checked for complete coverage. Bone graft was placed after that at the cavity and then collagen membrane was placed at the window opening. The first week post surgical, patient showed no sign of pain or discomfort but two weeks after the surgery, patient started reporting some pain and discomfort with drainage from his nose going to the nasopharengeal area pertaining to the right side. The yellow mucus discharges were taken from the patient and cultured in Agar plate where it showed a mixture of Aerobic and anaerobic bacteria with more anaerobic bacteria formation. The patient was given Metronidazole 250 mg to reduce the possibility of having anaerobic bacterial infection. The regimen showed no improvement and the patient was put on a broad spectrum Antibiotic, Tetracycline 500 mg, for ten days. By the second day of using Tetracycline, the patient reported some swelling at the right area, pain on palpation, malaise and fever. Immediate intervention was done by Incision and drainage for the puss collection. Once soft tissue healed, a full thickness flap was reflected and the access was made from the previous lateral window where it showed some puss accumulation and unattached bone grafting material and multiple polyps attached to the thickened schneiderian membrane that were also removed during the surgical procedure. The area was curetted and irrigated with saline. Suturing was done using a PTFE with interrupted technique. The symptoms of yellow mucus discharges still coming through the patient nose and consultation with the ENT doctor for examining the patient and perform a surgery if necessary. With CT scan, images showed some remnants of the bone grafts and ENT surgery using surgical sinus therapy was performed via the functional endoscopic endonasal surgery technique to reestablishing sinus ventilation and drainage due to the edematous appearance of the inflamed ostium and to examine the possibility of having some unattached bone grafts in the inner surface of the schneiderian membrane. After the surgery the patient has shown some improvement and was put on follow ups and showed no symptoms so far.

DISCUSSION:

Maxillary sinus pneaumatization after tooth extraction can make it challenging for dentist to place implants. In order to increase the bone height on the posterior areas of the maxilla, several techniques were proposed and one of those techniques is the lateral

window techniques [4] Which originally explained by Tatum in 1986.[5] .This article discussed a sever type of maxillary sinusitis post operatively and some of the causative preoperative factors that can be associated with that complication.

There are several factors which could lead to such a type of complication. According to Proussaefs et al. (2004) and Schwartz-Arad et al. (2004) The major intraoperative complication that the surgeon might face is perforation of the Schneiderian membrane. [13, 14], with an incidence of membrane perforation which could varies from 12% to 35.[15, 16] , According to the literatures, Membrane Perforations are strongly associated with the appearance of postoperative complications such as acute or chronic sinus infection, bacterial invasion, swelling, bleeding, wound dehiscence, loss of the graft material and a disruption of normal sinus physiologic function. [17-21]

Another factor could be the anatomical variation of osteo-meatal complex in nasal cavity. This could be affecting the drainage function and cause some disturbances.[8] .One of these variations is ostium stenosis which has a prevalence of 24 %[11]. That reduced size of the maxillary ostium showed a close relation to diminished maxillary sinus drainage. That reduction is also increased in cases with acute and chronic sinusitis and nasal polyps/cysts.[22, 23] .

Patient selection is an important factor. Those patients who suffer from previous symptoms of sinusitis or predisposing factors should be preoperatively evaluated. This in order to rule out any structural drainage problems of the paranasal sinuses. If the sinus drainage is already compromised, once sinus lift procedures is performed, this may provoke exacerbation of sinusitis.[8].

It is recommended that preoperative evaluation referral to ENT specialist and possible imaging system like CT scan can be done before any sinus elevation to rule out the possibility of sinus diseases [24]. A team work evaluation with the ENT specialist and treating the possible sinus diseases will reduce the possibility of post operative complication of a sinus lift procedure. Once those symptoms resolved, it is time to proceed with sinus lift procedure.

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News

Dental Students got the 1st Place prize for the extraordinary presentation of the Abbasi Caliphate

In February 9, 2016 King Saud bin Abdulaziz University for Health Sciences had the closing ceremony for the Annual Cultural Program in its fourth year.

This Cultural Program is considered as an excellent opportunity to share and exchange traditions and cultures between the students of KSAUHS and all other universities in Saudi Arabia. It is also a golden stage to show the wonderful talents of the university students.

The Cultural Program started in 2013 and it continued through the years with a different theme in each one. And this year chosen theme was to focus on the ancient civilizations under the title (Eye on the Past).

And as an annual tradition, all colleges participated in the program to represent a chosen culture such as the Pharaohs Era, Othmani Empire and the Abbasi Caliphate which was represented by College of Dentistry Students in KSAUHS.

After a fair competition lasted for three days to attract the visitors and represent the details of each culture, the Dental Students got the 1st Place prize for the extraordinary presentation of the Abbasi Caliphate starting with the history and the part of its scientists in developing and enhancing the Educational and Medical fields at that time in addition to a live poetry show which was the main attractive element for the both.
In other hand, the College of Dentistry also participated in the competition with the ancient China culture which was represented by the female students branch.

At the end of the program, His Royal Highness Prince Muteb bin Abdullah, Minister of National Guard joined the students with a surprising attendance to the closing ceremony to support them and Award the winners in all program categories.

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55
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