

## Medical and Dental Rehabilitation of Esthetic and Biologically Compromised Case

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### Abstract:

Rampant caries is a suddenly appearing, rapidly burrowing type of caries resulting in early pulp involvement, in which more than 10 new lesions appear every year on healthy teeth surfaces which are generally immune to caries. This report aims to provide an aid to different diagnosis methods and treatment modalities for esthetical and biologically compromised cases. The treatment included-iron supplements, scaling, and polishing, extraction, caries intervention, tooth colored restorations, root canal treatment, orthodontic treatment, post and cores, periodontal surgery, root end surgery with mineral trioxide aggregate filling material, full ceramic crowns and fixed partial dentures. The treatment provided took about 1 year with total 45 visits and few of them unattended. The patient showed a great improvement in esthetic and function.

**Key Words:** Dental rehabilitation, endodontic, iron supplements, medical rehabilitation, post and core

### Introduction

Dental caries is an infectious and transmissible disease because it is caused by bacteria colonizing the tooth surfaces. Unlike most infectious diseases which are caused by exogenous microorganisms, caries is caused by an imbalance in the indigenous oral biota.<sup>1</sup> Almost 50% of tooth loss can be attributed to dental caries and its sequelae.<sup>2,3</sup> Increased population and growing societal changes, unhealthy oral practice, inadequate oral health care, imbalance in fluoridated water may be the cause of high prevalence of caries in Saudi population.<sup>4</sup>

Iron deficiency is the most prevalent nutritional problem in females around the globe and the most common cause of anemia in Saudi Arabia.<sup>5,6</sup>

As a health care provider, our mission is to rehabilitate the patient as a whole. We present a case of a patient with rampant caries. Special investigations such as laboratory tests, dietary analysis, caries risk test (CRT), viability tests using a refrigerant spray containing tetrafluoroethane, mounted casts and orthopantomogram were done to treat the patient through an multidisciplinary approach and different treatment modalities in a Saudi female.

### Case Report

An 18-year-old Saudi female student in secondary school, with low socio-economic status, came to Ohud hospital complaining of generalized dull periodic pain, missing teeth and black front teeth with a medical history of anemia not controlled by medications. At presentation, the patient vital signs-blood pressure, temperature, heart, and respiratory rates were all within normal limit.

The extra oral examination was unremarkable and showed no evidence of lymphadenopathy or facial asymmetry. The patients temporomandibular joint were unremarkable to palpation and had a normal range of mandibular motion. A high smile line was evident (Figure 1).

Dentition showed multiple carious lesions, defective temporary and amalgam restorations, missing teeth and remaining roots. Radiographic findings showed:

Missing #18, 26, 35, 45 remaining roots # (16), extensive caries in #17, 43, 44. Multiple metallic restorations with #15, 14, 27, 37 periapical radiolucency in #16, 15, with #46 supernumerary distal root and distal caries was noted, mesial caries in #47, with #13, 23, 25, 24, 33 defected non-metallic restorations was noted, #11 mesial-distal caries, 12 mesial-distal caries with periapical radiolucency, #21, 22 extensive caries with periapical



Figure 1: Smile line.

radiolucency, #31 mesial and distal incipient caries lesion, #32 mesial incipient caries lesion with dilacerated root, #43 mesial and distal caries, impacted #28, 38, #36 occlusal non-metallic restoration with periapical lesion, #34 rotated with extensive caries lesion (Figure 2) were noted. Intraoral examination revealed no apparent signs of inflammation, abscess or fistula. All soft tissues were within the range of normal, and there was no evidence of traumatic occlusion.

### Diagnosis

The patient was as diagnosed as philosophical patient according to House 1937 classification. Cariogram (Software program which illustrates the interaction of caries-related factors) indicates a very high caries risk and treatment plan included modification of dietary habits, iron supplement, caries intervention, scaling and polishing, extraction, tooth colored restorations, root canal treatment, orthodontic treatment, post and cores, periodontal surgery, root end surgery with mineral trioxide aggregate (MTA) as filling material, full ceramic crowns and fixed partial dentures.

### Treatment provided

Phase I (emergency and prevention): Case documentation, case presentation to the patient and expected time required for treatment was explained, oral hygiene instructions and diet recommendation were provided. Scaling and polishing was accomplished. Use of antimicrobial agent was emphasized, Intervention and excavation of carious lesions using quadrant dentistry "6" in #17, 14, 12, 11, 21, 22, 24, 25, 34, 37, 33, 32, 31, 42, 43, 44, 46, 47 was done. Extraction of remaining root #16 was done. A fixed lower appliance for space management was

given. Ferric sulfate tablets (300 mg) once daily was prescribed to treat her anemia.

Phase II (endodontic treatment): Non-surgical root canal treatments of #17, 15, 14, 12, 11, 21, 22, 34, 36, 44 was done. In #36 a fourth canal (radix entomolaris) (Figure 4) was detected, instrumentation and obturation was done. #24, 25, 27, 47 were reassessed for pulp vitality. Diagnostic wax up and temporization was done.

Phase III (restorative phase): Re-evaluation of O.H. and reinforcement was done. Tooth colored composite restorations in #13, 24, 25, 27, 37, 33, 43, 46, 47 was done.

Phase IV (pre-prosthetic phase): Gingivectomy in #12, 11, 21, 22, 34, 44 was done. Cast posts and cores in #17, 11, 12, 21, 22, 34, 44 was given, fiber posts (Easy post™, Dentsply, Maillefer) and composite cores in #15, 14, 36 was done.

### Treatment modification

Root end surgery in #11 was done. Unfortunately, while doing post space preparation for a fiber post the lentulo spiral was separated inside and went beyond the apex (Figure 3), and after many attempts by using Hedstrom file size 20 which also broke at the apical 3<sup>rd</sup> the attempt of removal failed, Steiglitz was finally used to remove the lentulo spiral, but the hedstrom file moved beyond the apex, recognition by radiograph for confirmation was done, a full mucoperiosteal sulcular flap and surgical removal was done, then a small Root end Class I cavity preparation with ultra-sonic tip with depth of 3 mm was done and restored with Pro-root MTA (Dentsply, Tulsa Dental Johnson City, TN). After placing the root filling restoration a

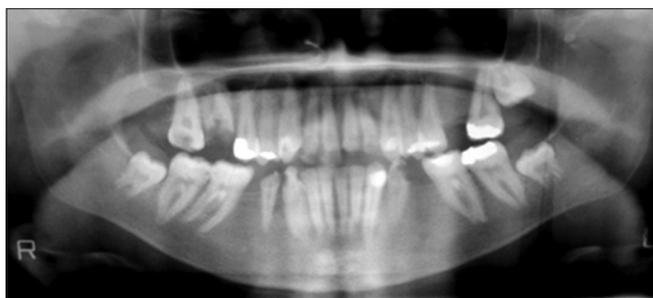


Figure 2: Pre-operative orthopantography.

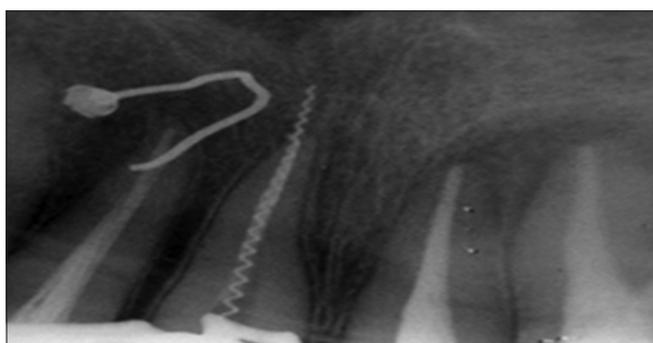


Figure 3: Separated instruments.



Figure 4: Radix entomolaris.

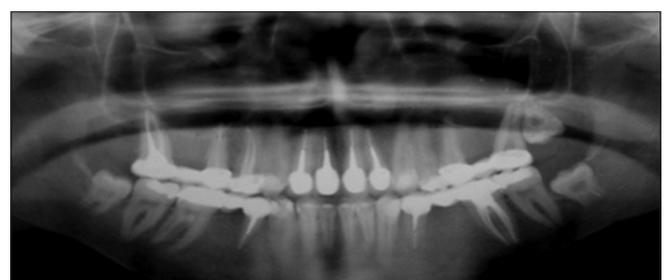


Figure 5: Post-operative radiograph.

radiograph was taken, and the flap was sutured back and post-operative instructions were given to the patient.

Phase V (prosthetic phase): A reevaluation of oral hygiene and reinforcement was done. Full ceramic crowns in #12, 11, 21, 22 were given. Ceramo-metal crown was given with #14, 3 units ceramo metal fixed partial dentures in #15-17, #25-27, #34-36, #44, 46 was provided (Figure 5).

### Discussion

Rampant caries in adult patient is common in Saudi Arabia.<sup>7</sup> The main objective of rehabilitation is to gain the patients confidence and cooperation relieving their pain, restoring esthetics, maintaining good dental health with functional integrity and also increase their awareness.

An effective treatment plan depends on recording information from the history, examination and special tests such as radiographs, CRT (Ivoclar Vivadent), viability tests and mounted diagnostic casts. The dentist must be aware of patients' expectations and priorities. Very often the patient expectations of treatment are different from our own. In our case, every attempt was done to have a definitive diagnosis that would aid in accomplishing our goal of establishing good esthetic and biological stability. A cariogram was used to detect the caries risk. The cariogram program is effective and aids in preventive care and increasing patient motivation. Its pie chart presentation is a simple aid in the caries risk assessment. In our case, we used MTA as a root end filling material and the results were acceptably good. MTA, a refined "Portland cement" - calcium aluminosilicate cement, is less cytotoxic and is biocompatible with less microleakage and good sealing ability, as compared to other root-end filling materials.<sup>8</sup>

After consultation with physician, our patient was prescribed with Ferric sulfate tablets (300 mg) once daily to treat her anemia. It is found that different iron supplements such as Fer-insol, Ferotonic, Feromin, and Ferose have a cariostatic effect.<sup>9</sup> Anemia usually resolves within 8 weeks to 6 months of the treatment, after the hemoglobin has returned to normal, low dosage of iron for additional 1-2 months can be given to replace the iron store and decrease the like hood of recurrence.<sup>10</sup>

Treatment provided started in March 2010 up to end of February 2011 it took around 1 year with few numbers of unattended visits. Follow-up was done after 2 months, 5 months and 7 months of treatment. The patient showed

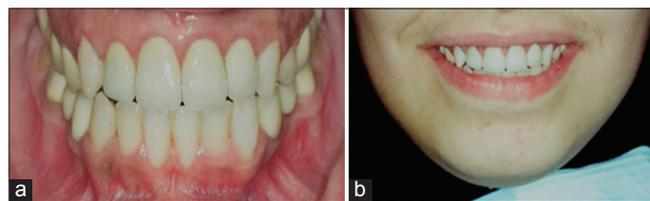


Figure 6: (a and b) Post-operative photographs.

a great improvement in both esthetic and medical health (Figure 6).

### Conclusion

The three most important factors in successful treatment are knowledgeable and skillful dentist, properly selected materials and patient-dentist communication. The periodic follow-up with a good compliance to a good oral hygiene and diet control affects positively to achieve a good result in anesthetic and biologically compromised case.

### References

1. Caufield PW, Li Y, Dasanayake A. Dental caries: An infectious and transmissible disease. *Compend Contin Educ Dent* 2005;26 5 Suppl 1:10-6.
2. Shay K. Infectious complications of dental and periodontal diseases in the elderly population. *Clin Infect Dis* 2002;34(9):1215-23.
3. Capelli D, Mobley CC. *Prevention in Clinical Oral Health Care*, 1<sup>st</sup> ed. St. Louis: Mosby; 2008.
4. Saudi Arabian Central Department of Statistic and Information. *Preliminary Results of General Population and Housing Census, A.D. 1431 A.H.*; 2010.
5. Al-Sayes F, Qari M, Qusti S, Bagatian N, Abuzenadah A. Prevalence of iron deficiency and iron deficiency anemia among females at university stage. *J Med Lab Diagn* 2011;2:5-11.
6. Chandra S, Chandra S, Chandra G. *Text Book of Operative Dentistry*, New Delhi: Jaypee Brothers Medical Publishers Ltd.; 2007.
7. Nahass M, Akpata ES. Management of rampant caries in Saudi Adults case report. *Saudi Dent J* 1996;8(3): 145-9.
8. Kim S, Kratchman S. Modern endodontic surgery concepts and practice: A review. *J Endod* 2006;32(7):601-23.
9. Al-Shalan TA. *In vitro* cariostatic effects of various iron supplements on the initiation of dental caries. *Saudi Dent J* 2009;21(3):117-22.
10. Cook J. The nutritional assessment of iron status. *Arch Latinoam Nutr* 1999;49 3 Suppl 2:11S-4.