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CASE REPORT

LARGE RESORPTIVE LESIONS: ENDODONTIST'S DILEMMA TO TREAT OR EXTRACT?

Grandes lesiones reabsortivas: ¿el dilema del endodoncista: tratarlas o extraerlas?

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ABSTRACT

Case Report: 38-year-old male complained of discolored upper front teeth. Cone Beam CT scan confirmed the clinical diagnosis of invasive cervical resorption (ICR) teeth 11, 21. The treatment plan was a stepwise process, involving extraction of 21, immediate denture placement, followed by restoration of resorption defect tooth 11 and prosthetic replacement tooth 21. The patient was asymptomatic clinically and radiographically at 3-, 6- and 18-months intervals.

Discussion: Due to enigmatic etiology, ICR is often misdiagnosed and mistreated. Thus, proper diagnosis and treatment planning is vital for a successful outcome. This report helps in establishing standardized protocol in diagnosis and treatment of ICR.

Keywords: *Tooth resorption; Root resorption; Root canal therapy; Tooth extraction; Treatment outcome; Endodontics*

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RESUMEN

Reporte de caso: Hombre de 38 años que presentó decoloración de los dientes frontales superiores. Una tomografía computarizada de haz cónico confirmó el diagnóstico clínico de reabsorción cervical invasiva (RCI) en los dientes 11 y 21. El plan de tratamiento consistió en un proceso gradual que incluyó la extracción del diente 21, la colocación inmediata de una prótesis dental, seguida de la restauración del defecto de reabsorción en el diente 11 y el reemplazo protésico en el diente 21. El paciente se mantuvo asintomático clínica y radiográficamente a intervalos de 3, 6 y 18 meses.

Discusión: Debido a su etiología enigmática, la RCI a menudo se diagnostica y trata erróneamente. Por lo tanto, un diagnóstico y una planificación del tratamiento adecuados son vitales para un resultado exitoso. Este informe ayuda a establecer un protocolo estandarizado para el diagnóstico y el tratamiento de la RCI.

Palabras clave: *Resorción dentaria; Resorción radicular; Tratamiento del conducto radicular; Resultado del tratamiento; Extracción dental; Endodoncia*

INTRODUCTION

A relatively rare, uncommon and aggressive form of external tooth resorption is "invasive cervical resorption" (ICR), which may involve any tooth.[1] It is defined as a localized resorptive process that involves surface of root below epithelial attachment and coronal aspect of supporting alveolar process *i.e.* zone of connective tissue attachment.[2]

Clinically it shows a pinkish discoloration of the tooth owing to its invasive nature and location cervically on the crown, thus procuring the term, "pink tooth of mummery" in the literature since these pink spots were identified by Mummery as rare occurrences in 1920s.[3] The tooth may demonstrate the pinkish hue because of hyperplastic, vascular pulp tissue filling the resorbed area visible through thinned out coronal enamel and dentin.[4,5]

Etiological factors may include trauma, chemical irritation, orthodontic/periodontal trauma, orthognathic/dentoalveolar surgery.

The occurrence of ICR is observed equally in males and females, with a greater number of cases found in the maxillary anterior teeth.[6]

Treatment

A successful outcome for ICR cases generally involves early diagnosis, elimination of the resorption, and restorative management. A clear idea about the severity and extent of the resorptive lesion with advanced diagnostic imaging techniques such as Cone Beam Computed Tomography (CBCT) has proven to be instrumental in construction of a treatment plan in such cases.[7,8]

Currently, a definitive treatment plan for clinical management of Invasive cervical resorption doesn't exist in the literature.[9] However, when

ICR is diagnosed, generally 3 choices are considered for treatment:
- Access, debridement, and restoration of the resorptive lesion following surgical/orthodontic extrusion of the tooth or surgical intervention to access the resorptive defect.[10]
- No treatment with eventual extraction when the tooth becomes symptomatic.
- Immediate extraction

The following case report describes a similar case with invasive cervical resorption and its management.

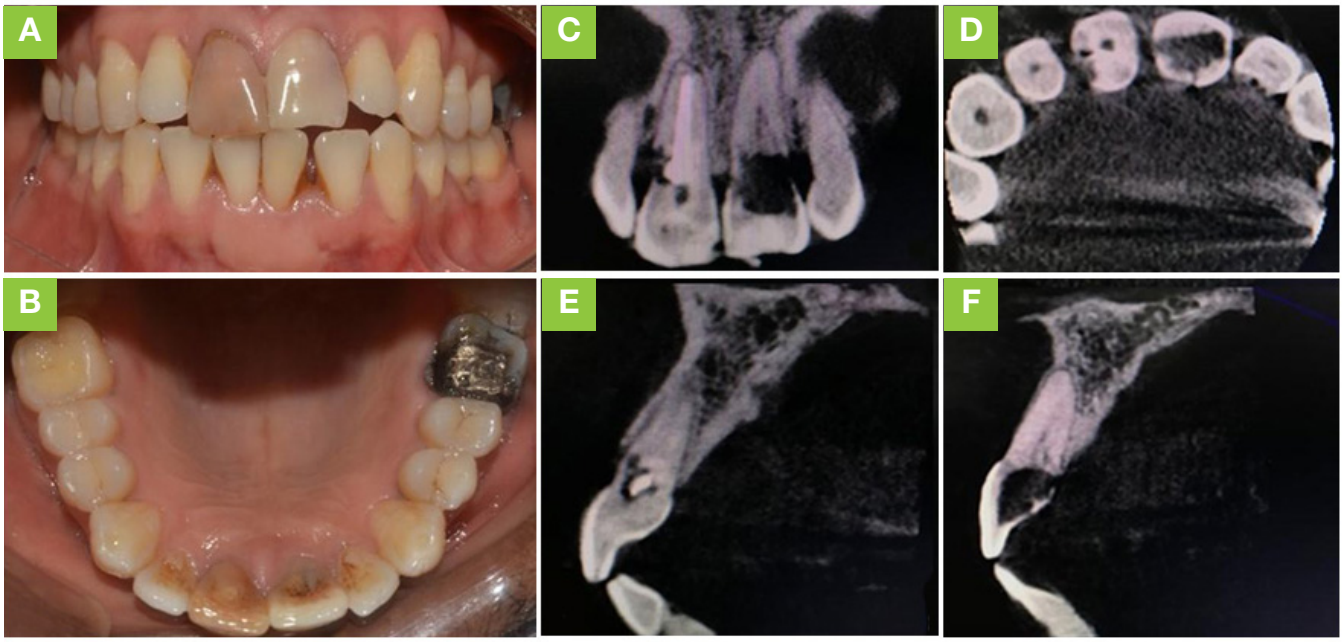
CASE REPORT

A 38-year-old male patient reported to the dental clinic with the complaint of discolored upper front teeth. Upon examination, pinkish hue was observed on teeth 11 and 21 (Figure 1).

History of trauma due to fall in childhood was reported by the patient. Clinical examination revealed no tenderness to percussion on teeth 11, 21 whereas heat, cold and electric pulp tester, gave a negative response suggesting non-vital pulp on teeth 11,21.
The clinical conditions of the anterior upper teeth pointed towards external resorption due to appearance of pinkish discoloration, owing to which a CBCT was advised. CBCT scan confirmed the clinical diagnosis of invasive cervical resorption w.r.t, 11, 21. Tooth No. 11 was endodontically treated with resorption whereas tooth 21 had aggressive resorption as seen in CBCT, extending in all the dimensions (Figure 1).

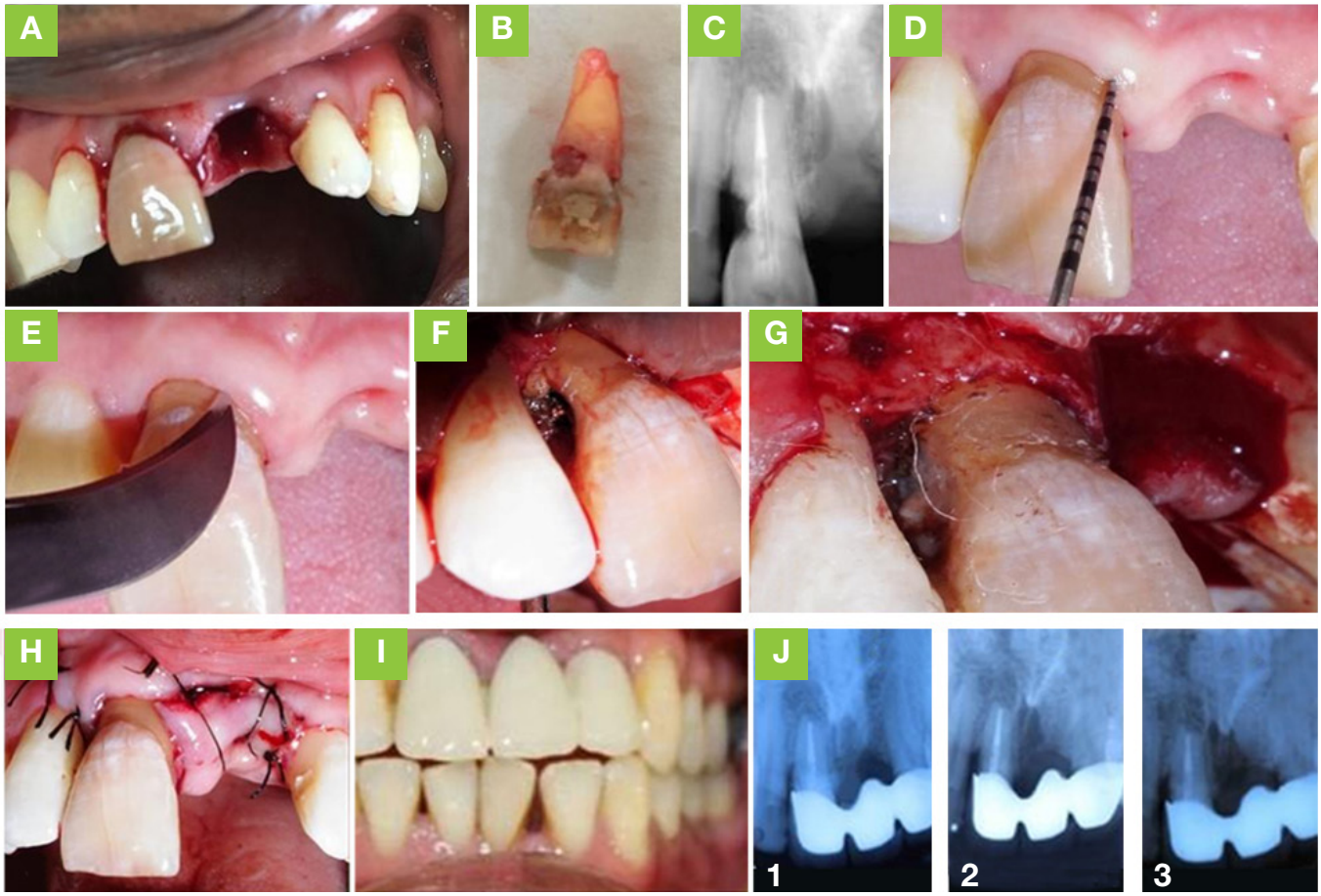
Due to the enormous extent of resorption of tooth 21, in bucco-lingual and mesio-distal direction, it would be next to impossible to save the tooth by conventional means due to complete absence of pulp chamber and

Figure 1.
Preoperative imaging.



A and B: Preoperative intraoral photographs. **C:** Sagittal view. **D:** Coronal view. **E:** Coronal view. **F:** Axial view.

Figure 2.
Intra-procedure and post procedure imaging.



A: Extraction socket after surgical extraction of 21. **B:** Extracted tooth (Note the excessive cervical resorption filled with the granulation tissue). **C:** Glass fiber post cementation tooth 11. **D:** (Surgical procedure) Measurement of gingival sulcus depth. **E:** Sulcular incision using No. 12 surgical blade. **F:** Exposure of the resorption defect. **G:** Restoration of resorption defect upon curettage of granulation tissue. **H:** Sutured surgical site. **I:** Prosthetic replacement of missing tooth No. 21. **J1:** 3 months follow up. **J2:** 6 months follow up. **J3:** 18 months follow up.

root canal, therefore, patient was advised extraction of tooth 21 and treatment for 11 was further carried out. Thus, the treatment plan was a stepwise process, involving surgical extraction of 21 (Figure 2), followed by immediate denture placement which was then followed by restoration of resorption defect of tooth 11 and final prosthetic replacement of tooth 21.

Following extraction, after healing of the extraction site, glass fiber post was cemented upon post space preparation tooth 11 and resorption defect was surgically accessed by raising a full thickness access flap, using No. 12 surgical blade. The granulation tissue in the defect, located proximally was thoroughly curetted using surgical curette and finally restored with conventional type II GIC (GC Fuji II) using plastic filling instrument, over which application of two coats of bifluoride varnish was carried out using micro applicator tip and the flap was sutured back.

Fixed partial denture w.r.t11,21,22 was given to the patient as prosthetic treatment upon healing of the surgical site. The patient was followed up at 3 months, 6 months and 18 months intervals, where radiographic hea-

ling was evident regarding the resorption defect along with absence of any symptoms clinically. (Figure 2)

DISCUSSION

Invasive cervical resorption can be managed well if the tooth has sufficient periodontal support. Newer aesthetic modalities of treatment and the materials which are biocompatible will help us to restore the teeth with clinical acceptability. This will help the patient to have better prognosis with prolonged survival of the tooth in the arch to postpone the extraction to a later date.

Hence, the present treatment modality was chosen to manage the case with ICR. Other treatment modalities such as extraction of central incisors followed by implant could have been chosen but survival rate of endodontic treatment is like implants.[11] Present treatment postpones implant until periodontal breakdown of endodontically treated teeth.

In case of tooth No. 21, extraction was done due to overextending resorption defect, complex internal-anatomy, and questionable restoration.

In the present case, glass fiber post was chosen to be placed at tooth 11 since its modulus of elasticity is like that of dentin, proving more suitable to withstand the masticatory forces in all directions.[12] Cone beam computed tomography was found to be particularly useful in the diagnosis of the lesion. The position, depth in relation to the root canal along with its restorability was assessed objectively before the treatment.

This allowed the operator to be confident of the best treatment strategy with better impression of prognosis. Moreover, it enabled better understanding of cases with 3D imaging, resulting in cooperative patient behavior. The importance of CBCT over other imaging modalities in the diagnosis of cervical resorption cases has been stated earlier.[13-16]

Bifluoride application over the restored resorptive defect immediately before replacement of the flap helped in encouraging the attachment procedure of PDL fibers over the tooth surface. Studies have shown, 0.1% stannous fluoride solution brings about increase in periodontal ligament cell proliferation, encouraging fiber reattachment and elimination of inflammatory resorptive process in 85% root surface among subjects.[17] Although having better biocompatibility, MTA/Biodentin were not chosen to restore the resorptive defect due to poor mechanical handling properties and poor access to the exposed surgical site due to location of the defect which was located palatally.

Glass ionomer cement, also called bone cement was the choice of material due to its biocompatibility and better flow characteristics, which aided with poor accessibility.[18,19]

CONCLUSION

The present case describes efficient clinical management of aggressive ICR. CBCT was used as a conservative and economical method to enhance diagnostic accuracy, and glass fiber post for better esthetics with an interdisciplinary approach to prevent/postpone the extraction, thereby enhancing the functional and aesthetic rehabilitation. Teeth associated with large resorptive lesions can potentially be salvaged with advanced diagnosis and interdisciplinary management focused on maintaining dental functionality and aesthetics.

CONFLICT OF INTERESTS

There is no conflict of interest to disclose with respect to this manuscript.

ETHICS APPROVAL

Kindly include "Consent" after informed in the statement. (Informed consent was obtained from the patient)

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AUTHORS' CONTRIBUTIONS

Shivangi Vats: Conceptualization, Investigation, Methodology, Resources, Writing – original draft. **Vinod Jathanna:** Formal analysis, Project administration, Writing – review and editing.

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