Management of Perforating Invasive Cervical Resorption: Two Case Reports

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ABSTRACT
Invasive cervical resorption (ICR) is a type of external resorption that is not well understood or well known in the dental community. It is often misdiagnosed, leading to improper treatment or unnecessary loss of the tooth. Treatment may involve the periodontium as well as the tooth and pulp, and management can be complex. Early diagnosis and appropriate treatment are the keys to a successful outcome. This case report elaborates the surgical management of the perforating ICR.

Keywords: Cervical resorption, Endodontic treatment, Resin-modified glass ionomer cement, Periradicular surgery.


Conflicts of interest: Nil

INTRODUCTION
Invasive cervical resorption (ICR) is a clinical term used to describe a relatively uncommon, insidious, and often aggressive form of external root resorption. It is seen in most cases as a late complication of traumatic injuries of the teeth, but it may also occur after orthodontic movement, orthognathic and other dentoalveolar surgery, periodontal treatment, bleaching of teeth, and a wide variety of traumatic conditions.

Frequently, cervical resorption lesions are confused and misdiagnosed as caries or internal resorption. As a result, inappropriate treatment is often initiated. The following case report describes the surgical closure of the ICR defects by resin-modified glass ionomer cement (RMGIC) following endodontic treatment.

CASE REPORTS
Case 1
A 31-year-old female patient presented with pain and discoloration in her upper right front tooth. Patient gave a history of trauma 10 years ago. Oral examination revealed the presence of mild discoloration with respect to 11 in the cervical region with an associated abscess (Fig. 1). Tooth was tender on percussion and nonvital. Radiograph showed central incisor with a bayonet root having a large resorptive defect in the cervical region extending till its curvature and continuous with the pulp space. Periapical ligament widening was also found (Fig. 2). Since the defect was subgingival in nature and inaccessible clinically, a surgical approach was planned.

Detailed medical history was taken. After completion of the root canal treatment a crevicular incision done and a full thickness envelope mucoperiosteal flap raised labially. Resorptive defect located in the distoproximal surface of 11 (Fig. 3). The lesion debrided using low speed no. 6 carbide bur and the gutta-percha removed till the defect with the heated plugger. All the obvious resorptive tissue is removed until smooth, clean dentin is present, except a few small spots that are discolored, which represent communication of the resorption with the PDL. The dentin is then scrubbed for 1 minute with 90% aqueous trichloroacetic acid (TCA) on a cotton ball. The remainder of the canal was packed with RMGIC followed by repair of the resorptive defect by the same cement (Fig. 4). After radiographical confirmation the flap is replaced and sutured (Fig. 5). Periodical radiographic evaluation was done for 2 years and found evident periapical healing (Fig. 6).

Case 2
A 19-year-old male patient presented with a pain in the upper right front tooth. Patient had met with trauma 5 years ago and restored his broken tooth with composite resin. Oral examination revealed a discolored 11 with old resin restoration, tender on percussion and gave negative response to vitality tests. Radiograph depicted a moderate sized radiolucent lesion at the cervical region of the root surface (Fig. 7).
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Fig. 2: IOPA showing the resorptive defect

Fig. 3: Envelope flap reflected showing the resorptive defect

Fig. 4: Defect restored with RMGIC

Fig. 5: IOPA confirming the sealing of the defect

Fig. 6: IOPA after 2 years of treatment

Fig. 7: Preoperative IOPA showing the resorptive defect with large periapical lesion

Fig. 8: Distoproximal surface of 11 extending palatally

Fig. 9: Defect with heated plugger

Fig. 10: Radiographical confirmation

Fig. 11: Flap replaced and sutured

Detailed medical history was taken, after completion of the root canal treatment a crevicular incision done and a full thickness envelope mucoperiosteal flap raised palatally for the better access. Resorptive defect located in the distoproximal surface of 11 extending palatally (Fig. 8). The lesion debrided using low speed no. 6 carbide bur and the gutta-percha removed till the defect with the heated plugger. The dentin is then scrubbed for 1 minute with 90% aqueous TCA on a cotton ball. The remainder of the canal was packed with RMGIC followed by repair of the resorptive defect by the same cement (Fig. 9). After radiographical confirmation the flap is replaced and sutured. Periodical radiographic evaluation was done for 2 years and found evident periapical healing (Figs 10 and 11).

DISCUSSION

Treatment of ICR presents a challenge to the clinician. Treatment prognosis depends mainly on the extent of the

with a big periapical lesion measuring of 5 mm (Fig. 7). As the lesion was subgingival and clinically not accessible a surgical approach opted to repair the resorptive lesion.
resorptive process. The literature describes several treatment options for solving this pathologic process. The extent of resorption gives as a guide for the clinician in selecting the correct treatment, also on the basis of the patient’s esthetic needs and demands.

In severe cases, it is advised to use the rapid extrusion technique, that is forced eruption combined with fiberotomy, thus pulling the lesion away from the alveolar socket and the bone crest. Once the lesion affords easy access for treatment, 90% TCA is placed on the infected margins to necrotize the granulation tissue.

Dentin that has been treated with TCA is severely demineralized and is not suitable for bonding with either dentin-bonding agents or glass ionomer materials. It must be ‘refreshed’ with a bur before bonding procedures. The area of resorption should be restored with the proper material, depending on the indications and esthetic needs, extraction might be the treatment of choice in severe cases in which the tooth cannot be saved, and the lesion area cannot be controlled.

Mineral trioxide aggregate (MTA; Dentsply International, York, PA) has been recommended in several case reports as the restorative material of choice because it is ‘biocompatible’. The authors use resin-modified glass ionomer materials or composite resins because they are stronger, they bond to tooth structure, and they can be exposed to the oral cavity. There are no known benefits to the use of MTA to restore ICR lesions.

In the present case reports, the cervical lesions were accessible to sulcular probing proving their patency in to the oral cavity, since MTA is slow setting and dissolves easily when exposed to saliva and GCF, we considered to seal the lesion with the RMGIC because of its fast setting, better bonding and sealing properties. It is important for endodontists to understand the periodontal and restorative aspects of treating ICR. Teeth with ICR are often structurally compromised and may eventually fail even though the endodontic treatment is successful. The endodontic treatment is irrelevant if the resorption is not eliminated, and the restorative aspects are not managed properly.
CONCLUSION

These two cases show that perforating ICR arrested using the ‘Heithersay approach’ to treatment (i.e. mechanical debridement, treatment with TCA, and restoration). Prudent case selection and proper execution can lead to the successful treatment and long-term retention of the tooth. Prognosis of the treatment depends on the location, size and accessibility of the lesion and the structural integrity of the tooth and periodontium after treatment is completed.

REFERENCES


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