Idiopathic Cervical Resorption: A Diagnostic Di-lemma

Abstract: Idiopathic cervical resorption is a rare form of external resorption, usually with no external signs, and can be misdiagnosed as dental caries or other types of tooth resorption. Here we report a case in which, during routine radiography, an asymptomatic lower right third molar presented with a radiolucency at the cervical region, with no obvious aetiologic factor identified.

Clinical Relevance: This paper emphasizes the aetiopathogenesis and differential diagnosis of this rare and asymptomatic form of pathologic resorption, which can be encountered in dental practice.

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Case report

A 22-year-old female, final year engineering student reported with a complaint of repeated food lodgement in relation to her partly erupted lower left third molar for the past 5 months. This was associated with discomfort in the form of a continuous, pricking type of non-radiating pain, which was relieved only on removal of the lodged food particles. Her medical history and family history were non-contributory and she reported having undergone scaling of her teeth one year previously.

Intra-oral examination revealed satisfactory oral hygiene, dental and gingival condition. Her lower left third molar and lower right third molar were partially erupted, with food debris beneath the pericoronal soft tissue on the lower left third molar with minimal inflammation. No other abnormalities were evident on the clinical examination.

Intra-oral periapical radiographs (IOPAs) of the lower third molars were taken to assess their eruption status. Radiograph 1 revealed horizontal impaction of the lower left third molar and mesioangular impaction of the lower right third molar. An IOPA of lower right first molar showing a radiolucent defect along the cervical region (see below).
Electric pulp testing showed slightly delayed response.

Considering the above mentioned facts, the only possibility that could not be ruled out was of a pathologic resorption, which might have been initiated by periodontal tissue trauma during oral prophylaxis done a year previously. However, as the panoramic radiograph showed good generalized bone levels, it was unlikely that any aggressive periodontal treatment was carried out. As the lesion was typically at the cervical region and no factor could be contributed to its cause, a diagnosis of idioopathic cervical resorption (ICR) was made. In view of the extensive nature of the lesion and poor long term prognosis, extraction was advised. But, as the tooth was asymptomatic, the patient did not give her consent for the same. Follow-up after 3 months was advised, but the patient relocated after completing her college education and was lost to follow-up.

Discussion

Tooth resorption is a multifactorial process. Resorption can be either:

- Physiologic, which is associated with shedding of the primary teeth; or
- Pathologic, which can be due to chronic periapical or periodontal inflammation, herpes zoster infection, dental trauma, cyst, tumor, and excessive mechanical or occlusal forces. Pathologic resorption can be either external or internal. External resorption can be either the inflammatory or replacement type.

ICR is considered as a type of external inflammatory resorption, which was first reported by Mueller and Rony as mentioned by Liang et al. ICR is a process whereby an unprotected, locally destroyed or altered root surface becomes susceptible to resorbing elastic cells during an inflammatory response of the periodontal ligament (PDL) to a "stimulus" and a bowl-shaped invasion of cementum and dentine in the cervical region of a root by resorptive fibrovascular tissue. It has been suggested that the potential for resorption is inherent within the periodontal tissues of each patient, based mainly upon the tooth morphology (dentine defects at cemento-enamel junction), individual susceptibility to resorption being the most important factor. Pre-dentine possesses resistance to resorption owing to its organic phase, which contains an enzyme inhibitor against resorption. But, in the case discussed, it was considered to be of the replacement type, as for inflammation to occur there should have been an exposure of resorptive lesion to the oral cavity.

Although knowledge of the exact mechanism causing cervical resorption is limited, factors implicated in the aetiology are trauma, bleaching with hydrogen peroxide, periodontal treatment, orthodontic treatment, dento-alveolar or orthognathic surgery, idiopathic, etc. Generalized cervical resorption has been reported in a patient with periodontal disease and maintaining a high acidic diet. It has also been associated with many systemic disorders, like hereditary haemorrhagic telangiectasia, and endocrine disorders, as is a known fact that periodontal tissues are sensitive to hormonal fluctuations. Multiple ICR has been observed in young females. In this case, only a single tooth was involved, whereas in systemic problems, usually multiple teeth would be involved. Studies have identified deep scaling and root planing as a major potential predisposing factor.
condition with no external-Signs and observed as an incidental finding on a routine radiograph, as in this case. It usually preserves a layer of dentine immediately around the pulp, whereas internal resorption starts from the pulp and extends towards the external surface. The radio-opaque layer around the pulp helps in differentiating external from internal resorption. ICR may involve a single tooth, multiple teeth or rarely, the entire dentition. It is slightly more prevalent in lower teeth than in the upper teeth and primarily involves central incisors, followed by canines and premolars. Deciduous dentition involvement has been reported in only two cases so far. Clinically, even after a considerable loss of the tooth structure, the tooth in question is frequently firm in the dental arch. On probing, the exposed dentine is hard, which distinguishes it from caries; the vascular tissue may bleed on probing. Electric and thermal pulp tests remain positive till the later stages.

Radiographically, there is characteristic widening of PDL and loss of adjacent lamina dura. ICR may have a ‘moth eaten’ appearance in a long-standing lesion in which some repair has occurred in the form of new bone formation. It results in loss of tooth structure with ragged, poorly defined borders, involving the external surface of the tooth, with its progression directed inward and lateral, but it leaves the root canal intact. There is no known method for prevention of ICR, but early detection allows a more conservative management. The best approach is to treat ICR as soon as possible, with a continued long-term follow-up, guided by clinical and radiographic examination.

The management of ICR is based on many factors:
- Identification and elimination of the known accelerating factors.
- In case gingival tissue inflammation is the cause, periodontal care (debridement of plaque and calculus) and maintenance is indicated. Periodontal curettage done alone has led to failures.
- Knowledge of the prognosis for success of specific treatment regimen.
- Complete removal of the fibrovascular tissue and restoration of the lost tooth structure.
- The extent of involvement.

Conclusion

ICR, although a rare occurrence, poses a diagnostic challenge and may be difficult to treat for the dental practitioner.

References