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Interdisciplinary Management of External Cervical Resorption: A Case Report

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Abstract:
External Cervical Resorption (ECR) *is an uncommon but potentially aggressive form of external tooth resorption that originates near the cervical region of the tooth, just below the epithelial attachment. It is characterized by the loss of hard dental tissues (cementum, dentin) due to the activity of clastic cells, often triggered by factors such as orthodontic treatme nt, trauma, intracoronal bleaching, or periodontal therapy. This case report highlights the etiology, diagnostic challenges, and current treatment modalities for ECR, emphasizing the importance of a multidisciplinary approach in its management.*

Keywords: *external cervical resorption, clastic cells, multidisciplinary approach*

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I. Introduction:

External cervical resorption (ECR) is an uncommon and often aggressive form of external tooth resorption that originates at the cervical root surface, just below the epithelial attachment. It is typically asymptomatic in early stages and often discovered incidentally on radiographs[1]. Predisposing factors include orthodontic treatment, trauma, internal bleaching, and periodontal procedures[2].

The Heithersay classification is commonly used to assess the severity and guide treatment, ranging from Class I (small, localized lesions) to Class IV (extensive resorption with poor prognosis)[3]. Cone-beam computed tomography (CBCT) plays a crucial role in diagnosis and treatment planning by allowing three-dimensional evaluation of lesion extent[4].

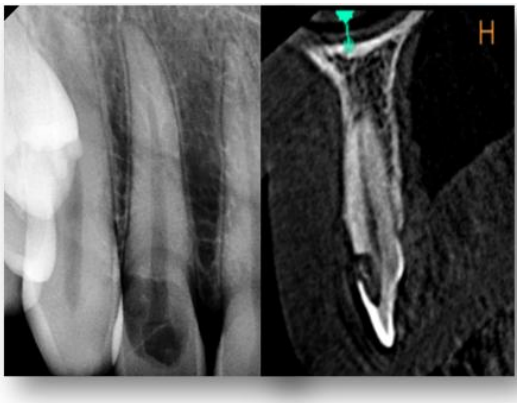
Management aims to remove resorptive tissue, arrest lesion progression, and restore the defect, often using materials such as composite resin, glass ionomer, or bioceramics like MTA[5]. This case report highlights the diagnosis and inter-disciplinary management of a Class II ECR lesion in a maxillary lateral incisor, with emphasis on preserving tooth structure and function.

II. Case Report:

A 25 year old male patient reported to the Department of Conservative Dentistry & Endodontics with the chief complaint of discoloration in the upper front region of the jaw. The patient gave a history of intermittent pain and was concerned about the discolouration and was fearful of extension of the defect. During the examination, a pinkish discoloration was observed with tooth #12. Surrounding soft tissue was normal. While performing percussion tests, the tooth was slightly tender, unresponsive to thermal and electric pulp vitality test.

Pre-Operative View

Pre-operative photograph



Pre-operative radiograph

The treatment plan was first to complete the root canal treatment followed by periodontal flap reflection and placement of mineral trioxide aggregate (MTA) over the resorptive defect.
Finally aesthetic rehabilitation was planned with crown prosthesis of #12.

Treatment

In the first appointment, local anesthesia was administered by infra-orbital nerve block.
Rubber dam isolation was achieved and access opening of #12 was done.

Working length was measured and cleaning & shaping was done with copious amount of sodium hypochlorite irrigation. In the same appointment, calcium hydroxide dressing was given to reduce the microbial load.

Working length radiograph

Master cone radiograph

Post-operative radiograph

On the next visit, dressing was removed and a master cone radiograph was taken. After confirmation, obturation was performed. Then, a papilla preservation flap was reflected which exposed the extent of the defect. Granulation tissue was curetted and removed completely after which the cavity borders were smoothened.

Papilla preservation flap reflected

Removal of granulation tissue

Placement of MTA over resorptive defect

Placement of glass-ionomer cement over MTA

Mineral Trioxide Aggregate was placed over the resorptive defect and glass-ionomer cement was given over MTA. Interdental sutures were placed and patient was recalled after 7 days for the removal of sutures.

Sutures placed and patient kept under follow up

Post-operative radiograph with 12

In the subsequent visit, sutures were removed. Patient was asymptomatic and was asked for a recall visit after a month. After 1 month, the patient did not present with any symptoms. He was referred to the Department of Prosthodontics for crown prosthesis with #12

Pre-operative photograph

3 months follow-up with crown prosthesis #12

III. Discussion

Cervical root resorption can begin and progress asymptomatically without the presence of any of the known etiological factors. When multiple teeth are affected, resorption does not necessarily occur simultaneously or at the same rate. Separate lesions can begin long periods of time apart and in different quadrants.

When resorption begins, it can proceed to destroy dentine rapidly. As the ability to maintain these teeth depends to a large extent on the amount of hard tooth tissue that is lost, early diagnosis is vital. However, due to the variable speed of progression, the management of these cases is difficult when trying to save any affected teeth.

The most effective therapy usually involves the exposure of the resorption lacunae, followed by the removal of granulation tissue. Endodontic therapy should be carried out when pulpal involvement is evident. It is important to note that due to the progression of cervical root resorption, it can be technically very difficult, if not impossible, to spare the pulp when restoring these defects as only a very thin layer of predentin is left intact around the root canal, and due to the blood from the resorptive process this is often difficult to identify.

Successful management of these patients should involve long-term monitoring of preexisting and restored lesions as well as attempting early diagnosis of new lesions through regular clinical and radiographic assessments.

IV. Conclusion

This case report showcased the successful inter-disciplinary management of external cervical resorption of a maxillary lateral incisor with Hiethersay's Class II defect. The patient is kept on long-term follow up for proper evaluation of the treatment protocol.

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