Tooth Resorption : Is Intervention Necessary?

A Case Report : A Long Term Evaluation

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Abstract

A correct diagnosis and an understanding of the aetiology and dynamics of the processes involved in tooth resorption are critical to effective management. Some transient trauma induced resorptions require no treatment but must be carefully monitored to check that there are no complicating issues such as infection. In cases of trauma induced replacement resorption, a multidisciplinary approach is usually necessary to ensure an optimal long-term solution. Hence treatment of resorption varies from case to case and depends on the type of resorption. This article presents a case of a trauma induced root resorption, with an esthetically acceptable crown, and without any significant clinical symptoms. In this case it was decided not to intervene endodontically.

Key Words : Tooth Resorption, Endodontics, Dental Trauma.

Introduction

Lindskog classification[1] subdivides resorptions into three broad groups:

1. Trauma induced tooth resorption.
2. Infection induced tooth resorption.
3. Hyperplastic invasive tooth resorption.

In all trauma induced (non-infective) tooth resorption some damage to the cementum/ cementoid-periodontal membrane complex occurs, which stimulates clastic activity.[2]

Trauma induced tooth resorption may be subdivided into:

1. Surface resorption
2. Transient apical internal resorption
3. Pressure resorption
4. Orthodontic resorption
5. Replacement resorption.

When a patient presents with tooth resorption the following basic questions must be addressed in arriving at a diagnosis and treatment plan.[3]

1. What type of resorption is present?
2. Is the resorption external (periodontally derived), internal (pulpally derived) or communicating?
3. Will the resorptive process be self-limiting or transient and not require management other than careful monitoring of healing processes?
4. If the resorptive process is progressive will there be a favourable response to treatment and, if so, what is the appropriate therapy?
5. If treated what are the short and long-term prognosis?
6. When is extraction and prosthetic therapy indicated?

Case Report

History

A 22 year old female reported to the Department of Conservative Dentistry & Endodontics, IDS & SUM Hospital, Odisha. The patient's chief complaint was pain in relation to her maxillary right lateral incisor. Her medical history was found to be non-contributory. The patient gave a history of trauma to the upper right anterior region, due to a fall at the age of 14 yrs.

Clinical Findings

On vitality testing, using electric pulp tester, the maxillary central and lateral incisors showed no response. There was no mobility, swelling and sinus tract. On percussion, the lateral incisor elicited severe tenderness. The central incisor was intruded and on percussion there was no tenderness, but it elicited a dull sound.

Radiographic Findings

The maxillary right lateral incisor showed periapical changes, widening of periodontal ligament space. The radiograph revealed the maxillary right central incisor to have a radiolucency at the CEJ, loss of PDL space and a moth-eaten appearance of the root suggesting progressive replacement of the root structure by alveolar bone (Fig.1).

Diagnosis

Based on the clinical and radiographic evidences, it was diagnosed that the lateral incisor had pulpal necrosis and the central incisor had trauma induced replacement resorption (luxation).

Treatment

It was decided that the chief complaint of the patient was to be treated first. Endodontic treatment was done for the lateral incisor (Fig. 2).

The incisal edge of the central incisor was restored with composite to the level of the left central incisor (Fig. 3). It was decided to keep the central incisor under observation.

Follow-up

The patient was examined after an interval of 3 yrs 8 months. She still had no clinical symptoms related to the maxillary right central incisor and radiographically there was no change seen in the root appearance (Fig.4-5).

Discussion

The most serious form of trauma induced non infective root resorption is replacement resorption which, as the name suggests, involves the progressive replacement of tooth structure by alveolar bone and ultimately tooth loss. Replacement resorption follows the death of viable periodontal ligament cells due to factors such as compression.[4]

On rare occasions an intact cementum/ cementoid layer may act as a biological barrier, so that ankylosis (i.e. union with bone) is not accompanied by replacement resorption. However, the usual response is that of ankylosis with replacement resorption due to the development, subsequent to surface resorption, of an interface between bone and dentine with remodeling processes occurring as part of normal skeletal bone turn-over, but at the expense of dentine. There is total loss of mobility due to this union of tooth and bone, and the tooth gives a characteristically high percussion sound but otherwise patients with replacement resorption are symptom-free.

Radiographically there will be total loss of the image of the periodontal ligament followed by evidence of the progressive replacement of tooth structure by bone in time the image of the tooth root is lost.

At present, there is no treatment possible for this type of resorption and so the clinical management from the initiation of replacement resorption to the inevitable demise of the tooth poses important challenges particularly in the developing dentition. If a tooth is in a satisfactory position in a mature dentition, there is no urgency for tooth replacement as often the replacement resorption proceeds at a slow rate in some instances taking many years to reach a stage where carefully planned intervention is necessary.[2] This provides valuable time for both the clinician to plan elective treatment, ideally in the form of implant therapy, and for the patient to prepare himself/herself both mentally and financially for that procedure.[5]

Conclusion

The diagnosis of dental resorptions and an understanding of the underlying pathosis within each group are critical to clinical management. In the present case the lateral incisor was symptomatic and hence treated endodontically, while the central incisor which was diagnosed as undergoing trauma induced replacement resorption was kept under observation.

Till date the tooth shows no further clinical and radiographic changes. May be the remaining cementum/cementoid layer is acting as a biological barrier, so that ankylosis (i.e. union with bone) is not accompanied by further replacement resorption or it is progressing at a very slow rate.

References

For a complete list of references are available on request, please mail us editor@healtalkht.com

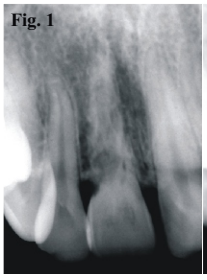
Fig. 1

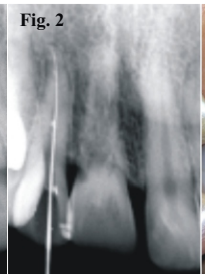
Fig. 2


Fig. 3


Fig. 4


Fig. 5