

An Unusual Case of Root Resorption Following Orthodontic Treatment

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Abstract :

Root resorption, an unwanted sequelae of orthodontic treatment, has received much attention in the recent past. This is clearly evident from the enormous amount of literature published regarding this single iatrogenic issue. This case report describes the incidence of root resorption following orthodontic treatment and the teeth affected.

Introduction:

External apical root resorption is an undesirable as well as the least predictable sequelae of orthodontic treatment. It can occur during treatment or post treatment, raising questions about the longevity of therapy and the stability of treatment results. It has been proven beyond doubt that, along with other factors, orthodontic force application can act as a stimulus to initiate the iatrogenic response. This case report indicates the extent to which the teeth can be affected by the process of root resorption.

P- ISSN
0976 – 7428

E- ISSN
0976 – 1799

*Journal of
International
Oral Health*

Public Health Dentistry

Original Research

Received: Apr, 2010
Accepted: May, 2010

Bibliographic listing:

EBSCO Publishing
Database, Index
Copernicus, Genamics
Journalseek Database

Case Report

A 27 year old female patient reported with the chief complaint of forwardly placed anterior teeth. The patient had undergone orthodontic treatment 9 years back in a private clinic.

Clinical Examination

On clinical examination, Patient had a convex profile with incompetent lips. Nasolabial angle was acute with deep mentolabial sulcus. On palpation, no mobility was observed except in the upper left lateral incisor which was assessed to be of grade one mobility. No tenderness was observed on percussion of the teeth.

Radiographic Examination

OPG revealed extensive apical root resorption in relation to the upper and lower anteriors followed by initiation in the maxillary canines. The IOPAs confirmed these findings. The crown root ratio had been altered to a great extent. Lateral cephalograms indicated proclined upper incisors with increased overjet and class I molar relation bilaterally.

Discussion

The effect of the force system applied during mechanotherapy has been analyzed by Jarabak and Fizzell, who concluded that the magnitude of force, as well as rigid fixation of the arch-wire with brackets or the use of full-size rectangular wires in bracket slots, could be the most important factors predisposing a tooth to the resorptive process.

Evaluation of the vulnerability of specific teeth to the resorption process in the literature has resulted in common agreement among authors that the maxillary incisors are the teeth that are

the most susceptible to the process. Following the incisors in susceptibility to resorption in the maxillary arch are the molars, followed by the canines. In the mandibular arch, the most resorption vulnerable tooth is the canine, followed by the lateral and central incisors. This study does not agree with a previous study, which reported more resorption at the central and lateral incisors than at any other teeth in the mandibular arch. The case presented here also is in concordance with this study as resorption in the mandibular arch has been most extensive in the incisor region.

Conclusion

The future of orthodontic research with regard to root resorption seems to be bright, with the development of new techniques and algorithms to help clinicians identify patients with resorption tendencies. Genetic studies and the development of new biochemical assays current directions of the research process might provide us with new diagnostic tools to identify the problem. In the future, the analytic approaches in clinical practice should include: shape and length of roots, amount of overjet correction needed, extraction versus nonextraction correction, and presence of habits. These data, along with identification of gene polymorphisms, will help predict the outcome of mechanotherapy. Such predictions will never be 100% reliable, but they will definitely help clinicians to understand whether the patient has increased or decreased root resorption potential. We, as orthodontists, should take appropriate precautions in avoiding such untoward sequelae by introducing light forces and using proper mechanotherapy to achieve a healthy, well balanced ideal occlusion.

Fig 1: OPG showing root resorption of upper and lower incisors.



Fig 2: Lateral cephalogram



Fig 3: IOPA showing root resorption of upper left central and lateral incisors

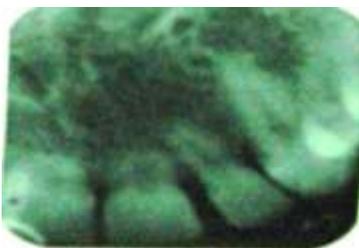
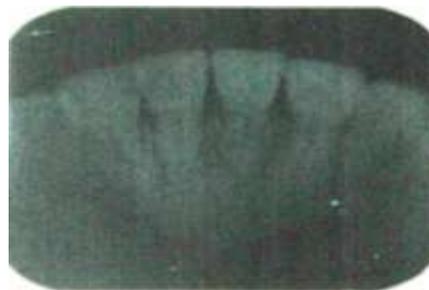


Fig 4: IOPA showing root resorption of Upper right central and lateral incisors



Fig 5: IOPA showing root resorption of lower incisors



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Source of Support: Nil

Conflict of Interest: Not Declared