Non Surgical Endodontic Treatment of Dens Invaginatus Type 2 in Maxillary Incisors with Periapical lesion – Case Report

Ashok HK, Roopa R Nadig, Veena S Pai, Vedavathi B
Department of Conservative Dentistry & Endodontics, Dayanand Sagar College of Dental Sciences, Bangalore, Karnataka.

Address for Correspondence:
Dr. Ashok HK, Department of Conservative Dentistry & Endodontics, Dayanand Sagar College of Dental Sciences, Bangalore, Karnataka.

ABSTRACT:
Complex root canal anatomies make root canal treatment problematic because of remaining pulp tissue in inaccessible areas of the root canal system. The cleaning and debridement of such root canal systems are therefore challenging. Dens Invaginatus is one such anomaly with complex root canal. This case report presents non-surgical endodontic treatment of Dens invaginatus type II.

Keywords: Complex root anatomy, Dens invaginatus, Non surgical endodontic treatment.

INTRODUCTION
The invaginations of the enamel organ into the dental papilla during the soft tissue stage of development results in a developmental anomaly called dens invaginatus. With in the future pulp chamber, the invaginated enamel organ produces a small tooth during hard tissue formation. Radiographically the teeth show an in folding of enamel and dentine extending deep into the pulp cavity or sometimes into root and apex. Tooth crowns as well as roots may exhibit variation in size and form. This kind of tooth malformation was first described by Ploquet in 1794 (Schaefer 1955), who discovered this anomaly in a Whales’ tooth (Westphal 1965). Dens invaginatus in a human tooth was first described by a dentist named Socrates in 1856 (Schulze 1970).

DIAGNOSIS OF DENS INVAGINATUS
Detected radiographically by chance. Clinically, an unusual crown morphology or a deep foramen coecum may be important hints, but affected teeth also may show no clinical signs of the malformation. As maxillary lateral incisors are the teeth most susceptible to coronal invaginations these teeth should be investigated thoroughly clinically and radiographically, at least in all cases with a deep pit at the foramen coecum.

CLINICAL FEATURES
The invagination allows entry of irritants into an area which is separated from pulpal tissue by only a thin layer of enamel and dentine and presents a predisposition for the development of dental caries. In some cases the enamel-lining is incomplete. Channels may also exist between the invagination and the pulp. So pulp necrosis occurs early, within a few years of eruption.

CASE REPORT
A 14 year old male patient reported to department of Conservative Dentistry and Endodontics referred by a orthodontist as he had come for orthodontic treatment of upper forwardly placed tooth. Concerned orthodontist sent the pt to check vitality & for endodontic opinion wrt 21. On examination External morphology of the tooth in question had Greater dimensions and Deep invagination on palatal surface was observed.

Pre-op
Diagnosis was made as Dens Invaginatus Type II with Periapical lesion wrt 21. Treatment Plan was done to perform Non surgical endodontic treatment wrt 21 followed by Orthodontic treatment. Access opening was done using ultrasonics for both main canal and invaginatus canal. Working length determined and cleaning and shaping done. Main canal was obturated with thermafil gutta-percha using obtura II and invaginatus canal is filled with flowable composite. Follow up was done for 6 months then Patient was referred to orthodontic treatment.

**DISCUSSION**

The incidence reports of dens invaginatus have shown occurrences to be as high as 10%. Numerous articles have been published regarding treatment of dens invaginatus. To adequately treat this condition endodontically, knowledge of the different types and approaches to treatment are essential. These kind of cases have often been treated only with Root Canal Treatment, Root Canal Treatment followed by surgery and sometimes extraction. The present case demonstrates that root canal treatment of Dens Invaginatus can be successful in complicated cases characterized by an invagination, the presence of an open apex, loss of vitality with the presence of Periapical inflammation. Treatment of invaginated teeth is frequently associated with problems arising from complex variations of root canal morphology or from difficult access to regular and invaginated canals. The current case of dens invaginatus was classified as Ohelers type II because the radiographic examination showed that the invagination invaded the root but remained confined as a...
blind sac with no communication with the main canal. In some cases isolated endodontic treatment of the invagination canal had been sufficient and maintained the pulpal vitality, this was not possible in the case presented here as there was a presence of peri-apical lesion at the time of initial presentation.9,10

CONCLUSION
Historically it was impractical to treat teeth with severe Dens Invaginatus, Treatment options were then limited to extraction. Due to The improvement in endodontic concepts, armamentarium treatment of such cases is possible. This case report has shown that class II dens invaginatus with an open apex can be treated successfully by non surgical endodontic approach.

REFERENCES