

TAURODONTISM OF PRIMARY AND PERMANENT MOLARS : REPORT OF A RARE CASE

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ABSTRACT:

Taurodontism is a developmental anomaly of teeth affecting the shape of a tooth. It is characterized by an enlarged body and pulp chamber with significant apical displacement of pulpal floor. Taurodontism affects permanent teeth more frequently than deciduous teeth. In this case, both permanent and deciduous molars were involved, which is a rare condition. Taurodontism has been listed as a 'Rare Disease by the office of Rare Diseases of the National Institute of Health. This condition is normally seen in the teeth of cud chewing animals, hence also called as "Bull's Teeth". It is a challenge when tooth exhibiting Taurodontism undergoes endodontic treatment, as in the present case. Both mandibular right and left deciduous second molars exhibiting Taurodontism needed pulp therapy.

Keywords: Taurodontism, Developmental anomaly, Endodontic treatment, Deciduous molars.



INTRODUCTION

Taurodontism is a developmental anomaly of teeth in which there is a morphoanatomical change in the shape of a tooth, which usually occurs in multirooted teeth. An enlarged body and pulp chamber, as well as apical displacement of the pulpal floor are the characteristic features.^[1] It is thought to arise when the Hertwig's Epithelial Root Sheath fails to invaginate at the proper time. Similar condition I seen in the cud of chewing animals. "Taurus" Stands for "Bull" and "Odons" means "tooth". It is also called as "Bull's Teeth" because on radiographs the images of such teeth look

like bull's head with horns, hence the name. Taurodontism was presumed to be only in pre-historic men but there have been reports which established that it could be either in primary or permanent or both dentitions with or without pathological conditions.^[1] Taurodontism in permanent teeth is more frequent than deciduous teeth. It is a rare condition in deciduous teeth. Taurodontism has been listed as a Rare Disease by the office of Rare Diseases of the National Institute of Health. Taurodontism was classified as mild (Hypotaurodontism), moderate (Mesotaurodontism) and severe (Hypertaurodontism) based on the degree

of apical displacement of the pulpal floor by Shaw in 1928.^[Error! Bookmark not defined.]

CASE DETAIL

A five year old female patient reported with the chief complaint of pain in association with lower right second deciduous molar. Radiographic evaluation revealed carious exposure of mandibular right second deciduous molar with Taurodontism. In addition, Taurodontism was seen in all primary and permanent molars. Previously taken case history did not reveal any significant sign or symptom. Patient was apparently normal physically and mentally. Growth and development was satisfactory for the age.

Radiographic evaluation with Orthopantomograph (OPG) revealed Hypotaurodontism in all permanent first molars, Mesotaurodauntism in all deciduous first molars (Fig-1). Deep caries were present in mandibular right and left second deciduous molars. Pulpectomy was performed where removal of pulp was done which was time consuming due to enlarged pulp chamber and constant hemorrhage. Exploring and handling the root canals for pulp removal was also tedious due to apical displacement of the pulpal floor. Biomechanical preparation of root canals was done using K-files. With extra care, the obturation was done using the conventional technique with Zinc Oxide Eugenol cement (Fig – 2 and fig- 3). After the successful endodontic treatment of mandibular right and left second deciduous molars, those teeth were restored using stainless steel crowns.

DISCUSSION

Term “Taurodontism” was given by Arthur Keith in 1913,^[1] although Gorjanovic Kramberger in 1908 had first described this type of tooth. It was considered to be typical of Neanderthal men, hence it is of anthropological importance. Incidence of this condition is found to be 1 % in modern Caucasians and 3% in those who lived in primitive conditions e.g. Eskimos, American Indians and South African [i]. The etiology of Taurodontism is unclear. The possible cause of taurodontism as enumerated by Mangion are as follows ^[2] :

1. A specialized or retrograde character
2. A primitive pattern
3. A mendelian recessive trait
4. An atavistic feature
5. A mutation resulting from odontoblastic deficiency during dentinogenesis of roots.

Taurodontism has a very low incidence in primary dentition and a very few cases have been reported in the literature. Lysell² reported a case in the deciduous second molar of a Swedish boy which was apparently the first case reported in primary dentition in modern man. Teeth involved are invariably molars, sometimes single and at other times multiple teeth may be involved. Teeth may look normal and externally do not have any particular character. Cause of this condition is unknown, familial tendency has been reported. It generally occurs as isolated trait but occasionally with certain other syndromes and diseases like

Hypophosphatasia, alteration in sex chromosomes e.g. Klinefelter's syndrome, Trisomy 21, Mohr's syndrome, X chromosome Anuploid syndrome with ectodermal defects.^[2,3,4]

Dental practitioners should be familiar with Taurodontism because Endodontic treatment of such a tooth is challenging as it requires special care in handling and identifying the number of root canals. Tooth morphology is such that the root canal orifices are difficult to localize.² Further the instrumentation and obturation also requires extra care especially in Meso- and Hypertaurodont

cases, as described in this case report. With extra careful handling, promising prognosis can be achieved.

CONCLUSION

In case of non vital open apex root with periapical lesion, proper disinfection and controlled placement of barrier at the apex will result in predictable healing. After long term follow up, Biodentine is considered to be an effective material for management of teeth with open apex.

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FIGURES:

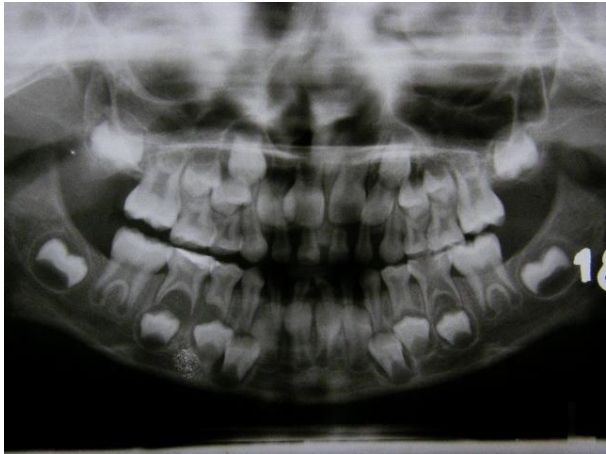


Figure 1: Orthopantomograph (OPG)



Figure 3: Obturation



Figure 2: Obturation of 85