Taurodontism – Review and an endodontic case report

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ABSTRACT

A case report of taurodontism in teeth # 36 and 37 is reported in this article. A conventional root canal treatment was carried out for these pulpally9 involved teeth. A six month recall showed a favourable prognosis both clinically and radiographically.

Key words – Taurodont, Bull's tooth

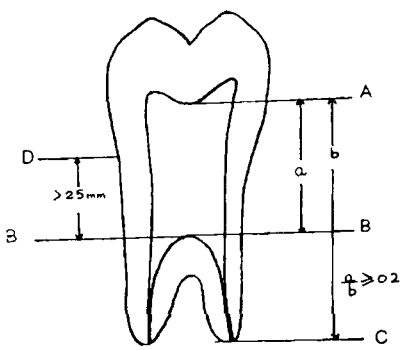
Introduction

Taurodontism is a dental anomaly with a large pulp chamber and short root bifurcating at low levels Witkop defined taurodontism as "Teeth with large pulp chambers in which the bifurcations or trifurcations are displaced apically, so that the chamber has greater apico - occlusal height than in normal teeth and lacks the constriction at the level of the cemento enamel junction The distance from the trifurcation and the bifurcation of the roots to the CEJ is greater than the occluso - cervical distance "

This anomaly was first reported in the remants of prehistoric hominids by de Terra in 1903 and by Gorjanovic - Kramberger and Aldoff in 1907 and in 1909 Pickerill[2] noted this in modern man However the term Taurodontism' (bull's tooth) was first coined by Sir Arthur Keith in 1913[3]

Shaw[4] gave a subjective classification in 1928 as hypo meso and hypertaurodontism on the basis of the apical displacement of the pulp chamber floor In 1977 Feichtinger and Rossiwall[5] stated that the criteria to define taurodontism should be that the distance from the furcation to the cemento-enamel junction should be greater than the occluso cervical distance The more widely accepted and used criteria is the one which was established by Shifman and Chanannel[6] in 1978, on the basis of determined measurement of the tooth (Fig 1) The distance from the lowest point of the pulp chamber roof (A) to the highest point of the floor (B) when divided by the distance from A to the root apex (C) should be equal to or greater than 0 2 mm and/or the distance from B to CEJ (D) should be greater than 2 5 mm

Taurodontism is reported more commonly in molars and infrequently in premolars It can occur as a single anomaly or can be associated with a multitude of other defects or syndromes[7]



A Taurodont

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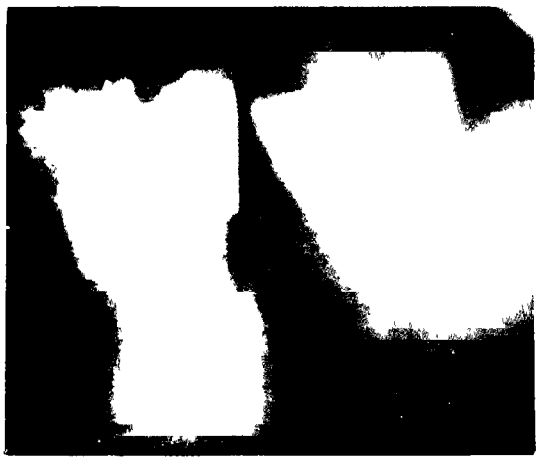

Fig. 2. Pre-operative radiograph of 36 and 37

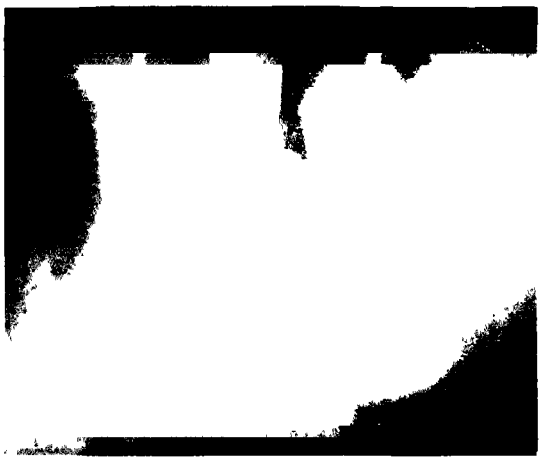

Fig. 3. Diagnostic radiograph

It was initially thought to be an uncommon anomaly but an Israel study has shown a 5.6% incidence rate[8]. There are varied theories for the pathology of this anomaly. The most commonly accepted theory is based on the alteration in the Hertwigs epithelial root sheath involving a failure of the epithelial diaphragm to invaginate at the proper time or level [9,10].

Taurodontism from an endodontic aspect presents challenge in root canal therapy during negotiation and instrumentation[11]. The following case reports a conventional endodontic treatment carried out in taurodontic # 36 and 37.

Case Report

A 28-year-old man reported with severe spontaneous pain in relation to left mandibular region. On examination secondary caries beneath the silver amalgam restoration in 36 and mesioproximal caries in 37 was observed. Both teeth were tender on percussion. Radiograph revealed carious involvement of pulp in taurodontic teeth # 36 and 37 (Fig. 2). The periapical area was within normal limit. A provisional diagnosis of irreversible pulpitis with acute apical periodontitis was made and root canal therapy was planned.

During chemo-mechanical preparation with K files and 0.5% of sodium hypochlorite irrigation, a small delta which was bifurcating the chamber, similar to the pulp stone in appearance, was removed from # 36 (Fig. 3). After an uneventful inter-appointment gap, the pulpal space was obturated with gutta percha and zinc oxide eugenol using a combination of lateral and vertical condensation. Immediate post obturation radiograph showed a well-condensed pulp chamber with the sealer protruding into the canal orifice (Fig.4).

A six-month follow up revealed the tooth to be asymptomatic and functional.

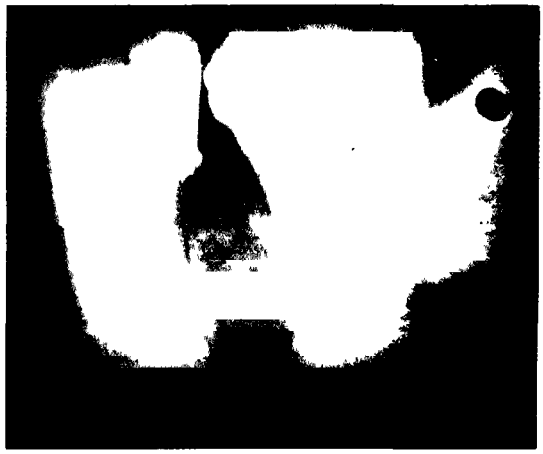

Fig. 4. Post obturation radiograph

Conclusion

Tooth # 36 and 37 may be called as taurodont molars as per the critetia set by Shiffman and Chanannel[6]. This case can be categorized as hypertaurodontism as the bifurcation of canals was at the apical one third of the root. Radiograph of the other quadrant revealed that this was a case of isolated developmental dental anomaly. However, the dentinal delta that was removed may signify an unsuccessful attempt to form a cynodont tooth. Though endontic treatment may be challenging in taurodont molars, it was uneventful in these teeth with a promising prognosis.

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