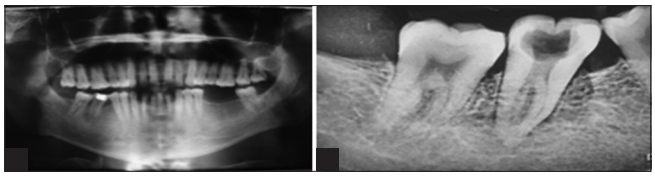

Figure 1: (a) Orthopantomograph, (b) pre-operative intraoral periapical

Figure 2: (a) Intraoral view, (b) lingual wall build

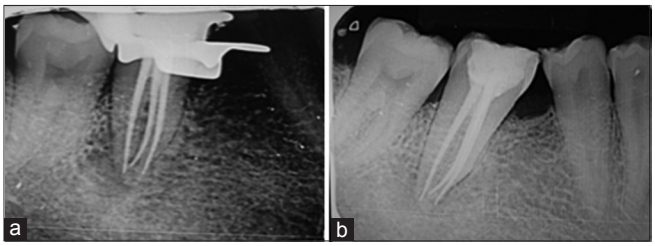

Figure 3: (a) Master cone, (b) obturation

human population. This paper describes a case reports of conventional endodontic treatment carried out in a hypotaurodontic tooth.

Case Report

A 32-year-old male patient came to the postgraduate clinic of the Department of Endodontics, Saveetha Dental College and Hospitals, Chennai, for the treatment of mandibular right lower first molar with chief complain of fractured tooth in the right lower back tooth region for past 1 month. The patient did not complain of any pain and do not have any medical history. At the time of examination, the tooth was already initiated with root canal therapy (access opening) (Figure 1) by a general dentist because of irreversible pulpitis. The lingual wall fractured and it was extending subgingivally and the tooth was not sensitive to percussion (Figure 2). Radiographic examination of the affected tooth revealed an abnormal tooth anatomy with the pulp chamber extending beyond the cervical area reaching the furcation and two roots were seen at the furcation area in the apical third. From the radiographic findings, the tooth was diagnosed to be a hypotaurodontism (Figure 3).

Management of mandibular right first molar

As the lingual wall was absent, under local anesthesia, the flap was elevated followed by composite build-up with appropriate isolation. Suturing was done and after a week time working length determine using an electronic apex locator which was followed by cleaning and shaping using hand K-files initially and later with M2 (step back technique) along with 3% sodium hypochlorite and ethylenediaminetetraacetic acid as irrigant. Obturation was done using 0.6% taper single cone. A permanent entrance filling was given with composite resin on the same day. The complete procedure was done under dental operating microscope (Carl Zeiss). Crown preparation was done and impression made for full veneer metal ceramic. A temporary crown was given. Later, followed by permanent crown cementation. 1-month follow-up radiograph revealed the tooth to be functional and asymptomatic. Patients were recalled for a 6-month follow up.

Discussion

Taurodontism is a rare anomaly and a wide variations seen is in of the pulp chamber with varying degrees of obliteration and canal configuration, apically positioned canal orifices are seen in case of a taurodont tooth and in such case it becomes a great challenge to the dentist during negotiation, instrumentation, and obturation in root canal therapy.[11] The most frequently affected teeth are the molars. The distance between the baseline connecting the two CEJ and the highest point in the floor of the pulp chamber is used in determining taurodont teeth. Taurodontism is diagnosed in molars when this distance exceeds 2.5 mm.[12]

Taurodontism is associated with developmental syndromes like amelogenesis imperfecta, down's syndrome, ectodermal disturbance, Klinefelter syndrome, trichodentoosseous syndrome, Mohr syndrome, Wolf-Hirschhorn syndrome, and Lowe syndrome.[11] A complete filling of the root canal system in taurodont teeth is challenging because of the proximity of buccal orifices and complexity of the root canal anatomy. A combined lateral compaction in the apical region with vertical compaction of the elongated pulp chamber has been proposed for the treatment of taurodont tooth. Therefore, there should be proper exploration of grooves between the orifices with the help of microscope, proper irrigation, and of the root canals and the complexity of root canal is high in case of taurodontism and a modified filing technique as lateral compaction with warm vertical condensation is recommended.[13]

Conclusion

Taurodontism shows a wide range of variations in the size and also shape of pulp chambers with varying degrees of obliteration and canal complexity, low canal orifices, and with high chances of an extra root canal. From an endodontist's point of view, it possesses a great challenge during the negotiation of the root canal, instrumentation, and obturation during root canal therapy. Therefore, one must be familiar with taurodontism and its complexity of root canal system, its clinical significance, complication, and important endodontic consideration during management of such tooth.

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