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Radicular cyst associated with mesiodens in a 22 year old male: A case report

Richa Wadhawan[1], Kaushal Luthra[2], Akrti Mahajan[3], Sushma Mishra[4]

[1] Reader, Department of Oral Medicine, Diagnosis & Radiology, Institute of Dental Education & Advance Studies, Gwalior, Madhya Pradesh, India

[2] Principal, Professor & Head, Department of Periodontics, Institute Of Dental Education & Advance Studies, Gwalior, Madhya Pradesh, India

[3] Private Consultant, Dento Scan Diagnostic Center, Jammu, Jammu & Kashmir, India

[4] Private Consultant, Sri Ram Dental Hospital, Satna, Madhya Pradesh, India

Abstract
Complex interaction of genetic and environmental factors leads to occurrence of supernumerary tooth and the most commonly occurring is Mesiodens. It is usually seen between two maxillary central incisors and may be impacted or erupted. The present paper describes a rare case of two palatally placed mesiodens, one of which was detected on radiographic examination. This article reports occurrence of radicular cyst of maxillary anterior region associated with mesiodens. Surgical enucleation of cyst along with extraction of two mesiodens was carried out and no complications were observed.

Keywords: Hyperdontia, mesiodens, radicular cyst, palatal impaction

1. Introduction

Hyperdontia may occur as a result of disruption in the odontogenic process. It may arise from either uncoordinated cell proliferation or from the splitting of the enamel organ. Familial tendencies also have been reported. The main vital contributing factors include hyperactivity of dental lamina, genetic mutation, dichotomy or environmental factors may also play a contributory role [1]. The most common type of supernumerary tooth as indicated by Alberti et al [2] is mesiodens. The most commonly frequently affected jaw is maxilla, most commonly affected site is the anterior palate [3]. It is most frequently found between maxillary central incisors, in particular on the palatine side, along the sagittal median plane, which gives it its name. It may occur as single, multiple, unilateral or bilateral, erupted or impacted and the direction of the crown may be normal, inverted, or horizontal [4]. Various complications associated with supernumerary tooth include ectopic eruption, impaction of adjacent teeth, crowding, spacing, displacement and rotation of teeth, occlusal interferences, caries, periodontal problems, mastication problems, and esthetic concerns [5]. Other pathologic features associated with multiple supernumerary teeth are formation of a radicular cyst and dentigerous cyst with associated bone destruction, displacement of adjacent teeth, resorption of root, and fistula between oral and nasal cavity. Multitudinous disorders and syndromes such as cleft lip and palate, cleidocranial dysplasia, Gardner′s syndrome, condroectodermal dysplasia, Sturge- Weber syndrome, Down syndrome, Crouzon′s disease, oro-facial-digital syndrome, Hallerman- Streiffsyndrome, and Fabry-Anderson syndrome have supernumerary teeth as one of its manifestation [6].

Case report

A 22 year old male patient came to department of Oral medicine, Diagnosis & Radiology, Institute of Dental Education & Advance Studies, Gwalior, Madhya Pradesh with chief complaint of impingement of supernumerary tooth on tongue and swelling in the maxillary anterior jaw region for the past 6 months. The swelling was initially small in size and increased gradually with time to attain the present size. There was no associated history of trauma. The medical history was noncontributory. On extra oral examination no facial asymmetry was observed. Intraoral examination revealed a supernumerary tooth on palatal aspect in between 21 22 and well-defined solitary swelling in anterior one third of dorsum of hard palate. On palpation, the swelling was tender and firm in consistency [Figure 1]. An electric pulp vitality test was done in relation to mesiodens, maxillary central and lateral incisors. Mesiodens was found to be nonvital and 11 12 21 22 were vital. A provisional diagnosis of a radicular cyst in relation to mesiodens was made. Occlusal radiograph was advised. On radiographic examination revealed a large radiolucent area in the anterior maxilla, involving mesiodens and apices of left maxillary central and lateral incisors. Another inverted impacted mesiodens was also evident in right half of anterior one third of dorsum of hard palate. It was an incidental finding. In addition, the placement of the tooth was again very unusual with the crown facing posterior and the root anterior1. Patient was referred to the Department of Oral and Maxillofacial Surgery for surgical intervention. Enucleation of the cystic lesion, along with extraction of both mesiodens was done. Specimen was sent to Department of Oral Pathology for histopathologic examination of lesion which reveals the inflammatory

infiltrate, foamy macrophages/hyaline bodies and cholesterol crystals suggestive of radicular cyst.

Discussion

The term "mesiodens" was coined by Balk in 1917 to indicate a supernumerary tooth present mesial to both central incisors [7]. Mesiodens vary in size and shape of crown. Morphologically the mesiodens may have cone-shaped crown & appear as a rudimentary tooth, smooth surface and smaller size than the normal teeth. Sometimes, it may present with a tuberculate shape and normal size, or may be found to mimic a natural tooth. The root is generally fully formed and is often found globular. In present case both mesiodens are conical in shape. It may affect primary as well as permanent dentition [8]. The present case is unique in several aspects. Firstly cystic lesion was associated with supernumerary tooth and sparing maxillary anterior teeth. Asaumi et al [9] in an 11-year retrospective study reported that cyst formation due to supernumerary teeth was observed in 11% of the cases. Secondly the occurrence of two mesiodens in the mid palatal region. One of Mesiodens is impacted and another one is erupted. The presence of multiple supernumerary teeth is called 'mesiodentes' [10, 11]. It may remain asymptomatic for eon without clinical manifestations. On other hand it may also give rise to multifarious complications such as impaction, delayed eruption, ectopic eruption, crowding, diastema, and eruption into the nasal floor, formation of primordial or follicular cyst with bone destruction, pain and swelling at the site and resorption of the adjacent root. Thus, in order to prevent complications early detection and removal of mesiodens is vital. Evaluation of the direction of the crown of supernumerary tooth, the location, the influence on adjacent teeth, satisfactory eruption of the succeeding teeth the resorption of adjacent roots and the formation of cyst should be done diligently [12]. For exact localization of supernumerary tooth conventional radiographs such as panoramic, occlusal and periapical views have been used [13]. The bucco-lingual position of the unerupted mesiodens can be evaluated with parallax technique (horizontal tube shift technique). Advanced diagnostic aids such as Computed tomography (CT) and Cone-beam CT have emerged as better tools in localization of tooth and adjacent anatomical structures which in turn help in carrying out intervention in a minimally invasive manner [14,15].

Fig 1: Clinical picture depicting palatally placed conical mesiodens

Fig 2: Occlusal radiograph showing cystic lesion in relation to mesiodens and an inverted mesiodens

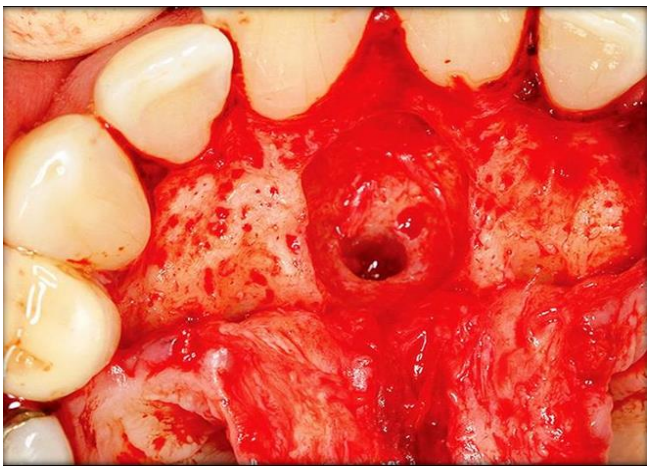

Fig 3: Surgical exposure for removal of mesiodens and cystic enucleation

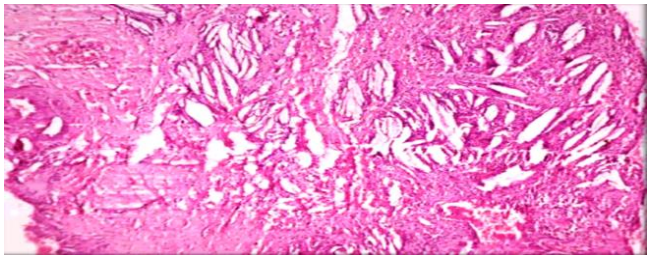

Fig 4: Histopathological specimen

Conclusion

Deleterious effects on normal functioning have been observed due to increased frequency of mesiodens among developmental anomalies. Early detection comprising of a thorough clinical and radiographical examination is necessary for accurate diagnosis to prevent associated complications. The present case report emphasizes the importance of radiographic examination leading to early diagnosis which in turn assists early intervention, more favorable prognosis and minimal complications.

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