

Management of a Dentigerous Cyst Associated with Inverted and Fused Mesiodens: A Rare Case Report

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ABSTRACT

Inverted mesiodens is a disorder of Odontogenesis relatively characterized by an excess number of teeth in the premaxillary region, in between the central incisors and in an inverted direction. The etiology of inverted mesiodens is still unknown. The complications associated with inverted mesiodens include eruption disturbance of adjacent teeth, displacement & rotation of the central incisors, diastema, root resorption, abnormal occlusion, cyst formation or nasal eruption of the mesiodens. Early detection and timely surgical intervention of inverted mesiodens is crucial to prevent unwanted consequences. Dentigerous cysts are developmental cysts of odontogenic origin, which are found to surround the crown of unerupted/erupting teeth, odontomas or even supernumerary teeth. Dentigerous cysts' involving an inverted mesiodens is a rare occurrence with only few cases reported. This article reports a rare and unusual case of a dentigerous cyst of the anterior maxilla involving an inverted and fused mesiodens.

Key Words: Inverted Mesiodens, supernumerary teeth, dentigerous cyst.

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Introduction

Dentigerous cyst typically originates due to the separation of the follicle from the developing crown of an unerupted tooth and develops due to fluid accumulation between reduced enamel epithelium and the developing crown of the tooth, causing expansion of the tooth follicle & is typically attached to the cervical area of the tooth. Dental follicle associated with unerupted or impacted teeth shows fibrous connective tissue with remnants of reduced enamel epithelium¹.

On the other hand the factors that lead to the



Fig. 1: Pre-operative Intraoral View.

development of mesiodens is not understood completely, although proliferation of the dental lamina as well as some genetic factors have been cited as possible causes. The occurrence of mesiodens can delayed / ectopic eruption of the permanent central / lateral incisors leading to alteration in the occlusion. This factor makes it easy for a clinician to diagnose mesiodens early in development & undertake necessary treatment.

Case Report:

A 30 year old male reported with a chief complaint of pain in maxillary anterior teeth with a history of trauma to the same region when he was eight years old. Clinical examination revealed the presence of traumatized maxillary central incisors which were non vital after radiographic evaluation vitality tests. (Figure 1)

The radiographic examination revealed the presence of a well-defined radiolucent lesion in the anterior maxillary region apical to the central incisors



Fig. 2: Periapical Radiograph showing the inverted mesiodens within the cystic lesion.

surrounding an inverted supernumerary tooth [Figure 2]. The supernumerary tooth observed within the lesion was cone shaped crown and attached to the right maxillary central incisor, at the apical region, with no evidence of root resorption.

Endodontic therapy was planned for the traumatized teeth and after obtaining an access and thorough debridement an intracanal dressing of calcium



Fig. 3: Cyst Enucleation and root end resection.



Fig. 4: Extracted Supernumerary Tooth (Mesiodens).



Fig. 5: Bone graft in place.

hydroxide was placed for a period of 4 months month

after which they were obturated using Gutta percha, as the routine diagnostic radiograph taken after 3 months did not show resorption of the lesion.

Following obturation, surgical enucleation of the cystic lesion was carried out after administering local anesthesia along with removal of the fused, inverted supernumerary tooth. Root end resection was done in the maxillary central incisor followed preparation of a 3mm cavity in the root apex & placement of Mineral trioxide aggregate (MTA) in the prepared

Most mesiodens never erupt and usually found to be impacted, with a conical crown and a single root, and often in an inverted position⁷⁻⁸. But when they do erupt, the most common site is behind the central incisors within the premaxilla.¹

Inverted eruption of teeth has been defined as the 'malposition of a tooth in which it has reversed and is positioned upside down'. Inverted teeth have been reported in both maxilla and mandible, and most of them are inverted impacted third molars and

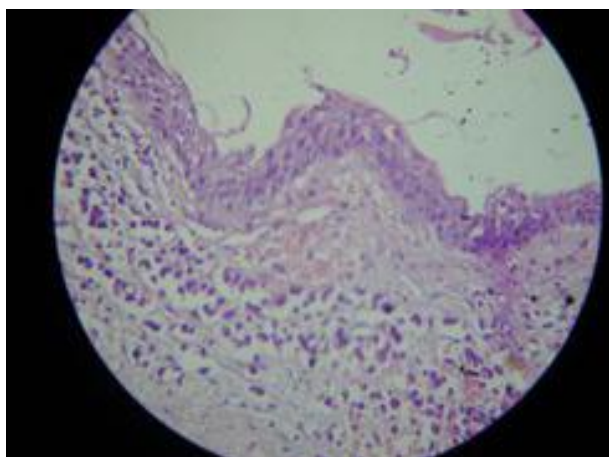


Fig. 6: Histological picture.

cavity.[Figure 3 and 4]. Hydroxyapatite bone graft material was placed in bony cavity[Figure 5]. The enucleated specimen along with the supernumerary tooth was sent for histological examination which confirmed the presence of dentigerous cyst and mesiodens. [Figure 6]

Discussion:

Supernumerary teeth or hyperdontia is the presence of additional teeth occurring along with the normal series of teeth in both arches with an affinity for the permanent compared to the primary dentition. The incidence of supernumerary teeth varies from 0.1% to 3.8% depending on population and type².

The direction of eruption of a mesiodens can be divided into 3 groups, viz. normal, inverted or horizontal direction. Most common occurrence of mesiodens reported in literature have been the inverted type which were impacted in most of the cases³⁻⁶.

Mesiodens can occur singly or in multiples are one of the responsible factors for the disturbances in the eruption of maxillary incisors¹⁻².



Fig. 7: One month Post-Op radiograph.



Fig. 8: One month Post-Op Clinical view.

premolars.⁸

Management large periapical lesions range from nonsurgical root canal treatment with long-term placement of calcium hydroxide as an intracanal medicament to various surgical interventions.

Calcium hydroxide, used as an intracanal medicament has been found to neutralize the acid medium by providing an environment which is conducive to healing.

In the present case however the periapical lesion did not respond to calcium hydroxide, as the lesion was located beyond the root apex within the inflamed periapical tissue, which required surgical intervention.

In light of this it becomes more important for the patient to undergo a follow up clinically and radiographically post obturation to verify resolution of the lesion.

One of the common developmental odontogenic cysts, viz. the dentigerous cyst usually is detected on routine radiographic examinations. While a developing dentigerous cyst is difficult to differentiate from a normal follicle, any pericoronal radiolucencies more than 4 mm should be considered cystic, unless proven otherwise.⁹ A radiograph of a patient with dentigerous cyst reveals a unilocular radiolucency enclosing the crown of an unerupted tooth. The radiolucency usually arises in the cemento-enamel junction of the tooth⁸. If a follicular space on the radiograph appears to be more than 5 mm, then presence of an odontogenic cyst can be suspected. Differential diagnoses of such radiolucencies include radicular cyst, odontogenic keratocyst, and odontogenic tumors such as ameloblastoma, Pindborg tumor, odontoma, odontogenic fibroma, and cementomas.¹⁰

Of the 95% dentigerous cysts which involve the permanent dentition only 5% are associated with supernumerary teeth.¹ Studies have shown that about 6% of supernumerary teeth may develop dentigerous cyst.⁷ This cyst most frequently occurs in individuals between 10 and 30 years of ages with a greater incidence in males as compared to females with a 1.6:1 ratio.^{2,3} The cysts most often involve impacted mandibular third molars, followed by maxillary canines, mandibular premolars, and occasionally supernumerary teeth or odontomas.^{3, 11}

Dentigerous cyst involving an impacted inverted

mesiodens has been reported that developed secondary to trauma to permanent maxillary central incisors. The root development was arrested prematurely with the open apex lying in close proximity to the underlying inverted mesiodens.¹²

Clinical diagnosis may be confused with other types of odontogenic cysts. Histopathology of the excised specimen confirms the diagnosis. Management of a supernumerary tooth usually warrants its removal, especially when associated with definite pathology.⁸ Dentigerous cyst is optimally treated by excision and complete enucleation.

Conclusion:

Dentigerous cyst rarely involves central incisors, supernumerary teeth and/or mesiodens in a single individual. But when this occurs, it requires a thorough clinical and radiological evaluation to help in treatment planning. An understanding of the condition is helpful in successful management of such rare conditions.

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