

## Case Report

# Management of a Dentigerous Cyst Associated with Mesiodens: A Case Report

Harsimranjit Kaur\*, Sonam Mahajan, Pratibha Marya, Roma Goyal, Pratima Sharma, Harshita

Department of Conservative Dentistry and Endodontics, Genesis Institute of Dental Sciences and Research, India

\*Corresponding author: Harsimranjit Kaur, Department of Conservative Dentistry and Endodontics, Genesis Institute of Dental Sciences and Research, Ferozepur, (Punjab) India. Tel: +919855505154; Email: harsimran2491@gmail.com

Citation: Kaur H, Mahajan S, Marya P, Goyal R, Sharma P, et al. (2017) Management of a Dentigerous Cyst Associated with Mesiodens: A Case Report. Dent Adv Res 2: 139. DOI: 10.29011/2574-7347.100039

Received Date: 13 November, 2017; Accepted Date: 05 December, 2017; Published Date: 13 December, 2017

## Introduction

Supernumerary tooth is defined as a developmental anomaly characterized by the presence of an extra tooth in addition to the normal dentition [1]. It can affect both maxilla and mandible; however, its occurrence in the mandible is rare [2]. While supernumerary tooth may be found in any region of the dental arch, the most common site is the palatal midline between the two maxillary central incisors, where it is termed as mesiodens [3]. Mesiodens is the most common type of supernumerary tooth which may appear as single, multiple, unilateral or bilateral. It accounts for 80% of all supernumerary teeth [3]. A mesiodens may erupt normally, stay impacted, appear inverted or take a horizontal position [3]. Unerupted mesiodens can be diagnosed by both clinical and radiographic evaluation, which can be done by panoramic, maxillary occlusal and periapical radiographs [1]. Supernumerary tooth if left undiagnosed leads to many complications; most common one is dentigerous cyst and radicular resorption. Dentigerous cyst typically originates 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 [4]. This case report presents a mesiodens associated with dentigerous cyst.

## Case Report

A 22-year-old male reported to Department of Conservative Dentistry and Endodontics with the complaint of pain and swelling in the upper front region of mouth. On intraoral examination, a palatal swelling was noted with respect to # 21 (Figure 1). Patient had full complement of teeth with no other anomalies. Medical and family history was not relevant and noncontributory. On examination of central incisor # 21, it exhibits grade 1 mobility.



**Figure 1:** On intraoral examination, a palatal swelling was noted with respect to # 21.

Radiographic examination with periapical radiograph revealed an unerupted radiopaque mass associated with radiolucency lying horizontally in relation to # 21 (Figure 2). Based on the clinical and radiographic examinations, the supernumerary tooth was diagnosed as a mesiodens.



**Figure 2:** Radiographic examination with periapical radiograph revealed an unerupted radiopaque mass associated with radiolucency lying horizontally in relation to # 21.

A comprehensive treatment plan was formulated, which included root canal treatment of # 21 followed by surgical removal of supernumerary tooth along with the cystic enucleation under local anesthesia. Endodontic therapy was initiated for # 21 and after obtaining an access and thorough debridement, an intracanal dressing of calcium hydroxide was placed followed by obturation of root canal with gutta percha (Figure 3).

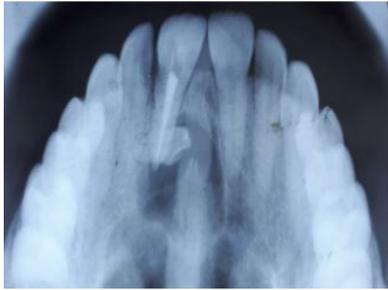


Figure 3: Root canal following obturation with respect to #21.

Following obturation, triangular mucoperiosteal flap was raised under local anesthesia from the labial aspect and the cystic cavity was encountered with respect to # 21 (Figure 4). Complete enucleation of the cyst along with removal of mesiodens followed by curettage of the cystic cavity was done (Figure 5). Mesiodens was about 2.5 X 1 cm in dimensions (Figure 7). Tissues were approximated by placing interrupted sutures (Figure 6). Specimen along with attached cystic lining was sent for histological examination which confirmed it to be a dentigerous cyst (Figure 8).



Figure 4: Cystic cavity was encountered with respect to # 21.



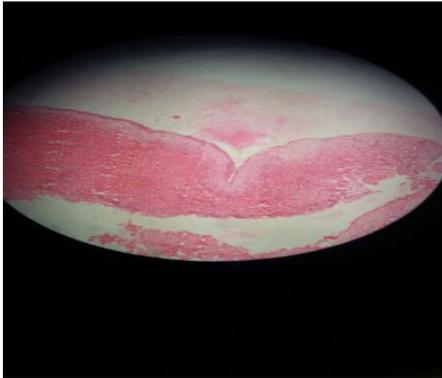
Figure 5: Complete enucleation of the cyst along with removal of mesiodens followed by curettage of the cystic cavity was done.



Figure 6: Tissues were approximated by placing interrupted sutures.



Figure 7: Mesiodens was about 2.5 X 1 cm in dimensions.



**Figure 8:** Specimen along with attached cystic lining was sent for histological examination which confirmed it to be a dentigerous cyst.

## Discussion

In medical terminology dentigerous means bearing teeth or structures resembling teeth. A dentigerous cyst is an epithelial-lined developmental cavity that encloses the crown of an unerupted tooth at the cemento-enamel junction [4]. Dentigerous cysts are frequently discovered on radiographic examination. There is no pain or discomfort associated with the cyst unless it becomes secondarily infected. Dentigerous cyst may cause displacement of adjacent teeth and resorption of roots [4]. They are very often found associated with supernumerary teeth. Studies have shown that about 6% of supernumerary teeth may develop dentigerous cyst. This cyst most frequently occurs in individuals between 10 and 30 years of age with a greater incidence in males as compared to females with a 1.6:1 ratio. The cysts most often involve impacted mandibular third molars, followed by maxillary canines, mandibular premolars, and occasionally supernumerary teeth or odontomas [5].

The reported prevalence of mesiodens in general population ranges between 0.15% to 3.8% in the permanent dentition where as in the primary dentition, it ranges between 0% to 1.9% [2]. In 80-90% of the cases, it occurs in the maxilla and half of this percentage is found particularly in the anterior region [1]. The male population is more prone to be affected as compared to the female population (2:1) [1]. The classifications are based on location; morphology, axial inclination, and other criterion are used for such teeth [2]. A supernumerary tooth is usually seen only in one-fifth percent of permanent dentition [3]. On the basis of its morphology, mesiodens can be classified as conical, supplemental and tuberculate type, of which the conical form is the most prevalent [1]. Conical mesiodens is usually peg shaped, develops with root formation ahead of or at an equivalent stage to that of the central incisor. Tuberculate or multicusped mesiodens is more common in permanent dentition and usually remain unerupted. Their root formation is delayed compared with that of the adjacent teeth. Tuberculate mesiodens often interferes with the eruption of incisors. A supple-

mental mesiodens is more frequent in primary dentition. It resembles the tooth of the normal series and rarely remains unerupted [3]. They may be erupted or in some cases remain unerupted [1]. 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 was impacted in most of the cases [5].

The exact etiology of mesiodens is not clearly known. However, different theories have been established which include genetic and environmental factors, syndromic conditions and disturbances in dental development [1]. Atavistic theory states that mesiodens represented a phylogenetic relic of extinct ancestors who exhibited three central incisors [2]. Another theory suggested that it could be due to hyperactivity of the dental lamina or dichotomy of the tooth bud. Hyperactivity of dental lamina theory is considered to be the most acceptable etiologic factor in the development of mesiodens [1]. According to the shape and size, the mesiodens teeth are classified as eumorphic that resembles to a normal sized central incisor and dysmorphic type that presents different shapes and sizes [1]. Association of supernumerary teeth is also seen with cysts like dentigerous cysts and odontomas [2].

Various complications might occur as a result of the presence of mesiodens, including delayed eruption, alteration in the path of eruption of permanent incisors, impaction of permanent incisors, crowding, spacing, median diastema, rotation and root resorption of the adjacent teeth or even eruption of incisors in the nasal cavity, cystic lesions and other intraoral pathologies like dentigerous cyst. Radicular resorption of adjacent teeth or dentigerous cyst occurs in long-standing cases [3].

Management of 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 [5]. 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 [5].

Management of supernumerary teeth depends on the type, position of the tooth and the stage of dentition. According to Mitchell and Benett's observation, 70% of the permanent teeth included in their study erupted spontaneously following extraction of the mesiodens [3].

## Conclusion

Mesiodens is the most prevalent form of supernumerary teeth in permanent dentition that occurs as a result of genetic and environmental factors and hyperactivity of dental lamina. Males are affected two folds than the females. 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 [4]. Majority of the mesiodens were conical in shape and located palatal to the central incisors. Early diagnosis of a mesiodens reduces the treatment required and prevents development of associated problems.

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