



EDİTÖRE MEKTUP / LETTER TO THE EDITOR

A rare case report of dentigerous cyst associated with an impacted mesiodens

Gömülü meziyodens ile ilişkili nadir bir dentigeröz kist vaka raporu

Mithula Nair¹, Renita Lorina Castelino², G. SubhasBabu², Vidya Ajila², Devika S. Pillai³

¹Tooth Care Super Speciality Dental Clinic, Kundara, Kollam

²Nitte (Deemed to be University) AB Shetty Memorial Institute of Dental Sciences, (ABSMIDS), Department of Oral Medicine and Radiology, Mangalore, India

³Dr Rajesh's Dental Lounge, Oachira, Kollam

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To the Editor,

The most encountered developmental odontogenic cysts in the orofacial region are the dentigerous cysts. They usually arise from crown of an unerupted, impacted or embedded teeth with the origin being from the follicle of the involved teeth¹. The cyst often involves impacted third molars followed by maxillary canines, mandibular premolars and rarely supernumerary tooth (only 5%)² and mostly develop around a mesiodens in the anterior maxilla³. The highest incidence is found in second to third decades of life with a higher incidence in the male population when compared to females¹. The disturbances in the process of odontogenesis is thought to play a contributory role in the development of these cysts. The case reported here is a unique case of a dentigerous cyst associated with an impacted mesiodens which is a rarity.

A male aged 32 reported to the outpatient department of Oral Medicine and Radiology with a complaint of swelling in the upper front left side of face for 3 years. Pain and appearance of swelling in the same region on multiple occasions in the last 3 years which gradually disappeared after pus discharge above the left upper front tooth was also reported by the patient. The patient sorted to self-medication during the onset of symptoms and was relieved of symptoms post medication. The medical, drug and

dental history of the patient were non-contributory. The patient reported of having pan chewing habit since the past 6 years.

On examination of head and neck region, an ill-defined swelling was noted on the left middle third of the face which was approximating the lateral aspect of the nose causing obliteration of the nasolabial fold. The swelling was soft in consistency, non-tender on palpation with local rise in temperature. On examination of the oral cavity, sinus tract was seen in relation to the upper labial frenum above the central incisors. A well-defined swelling measuring approximately 3.5 x 3 cm in size was seen on the palatal aspect extending anteriorly 1 cm away from the lingual aspect of maxillary central incisors and posteriorly in line with the upper second premolars, medially crossing the midline and laterally 0.5 cm away from the palatal gingival margin (Figure 1A&B). On palpation, the swelling was fluctuant, non-tender and soft in consistency. The right buccal mucosa showed a grayish white discoloration which was non scrapable which was suggestive of homogenous leukoplakia. The hard tissue examination showed generalized stains and calculus and attrition of upper and lower posterior teeth. Based on the chief complaint and examination an interim diagnosis of palatal abscess secondary to periodontitis with respect to 11, homogenous leukoplakia with respect to right buccal mucosa and chronic generalized

Yazışma Adresi/Address for Correspondence: Dr. Renita Lorina Castelino, Department of Oral Medicine and Radiology, A. B Shetty Memorial Institute of Dental Sciences Nitte(deemed to be) University, Deralakatte, Mangalore
Email: renita.castelino@yahoo.com

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periodontitis was made. The differential diagnoses considered were infected periapical cyst, median palatine cyst, nasopalatine duct cyst, keratocystic odontogenic tumour or adenomatoid odontogenic tumour (AOT). Electric pulp testing was performed which revealed non vital teeth with respect to 11, 12, 21 and 22. Fine needle aspiration biopsy was carried out and a straw-colored aspirate was obtained (Figure 2). As a part of radiographic investigation an intra-oral periapical radiograph was made which revealed a well-defined radiolucency surrounded by a sclerotic border at the periapex extending from the distal aspect of 12 to distal aspect of 21. An extra tooth like structure was seen within the radiolucency which was suggestive of an impacted mesiodens. External root resorption of teeth involved were seen. An occlusal radiograph was made which revealed a well-defined radiolucency surrounded by a corticated border measuring approximately 3x4 cm within the radiolucency an impacted mesiodens extending inferiorly up to 0.5 cm from the crest of alveolar bone and laterally extending up to root apices of 14 and 24 was noted (Figure 3 A&B). A Cone Beam Computed Tomogram was later made to determine the exact dimension of the radiolucency. The coronal section revealed the presence of the impacted mesiodens within the radiolucency. External root resorption of 11,21 and mesiodens was seen. The axial sections showed perforation of the buccal and palatal cortical plates which could be also visualized in the 3D reconstruction. A radiographic diagnosis of dentigerous cyst involving the mesiodens was contemplated (Figure 4 A, B&C). The treatment considered for this was cyst enucleation under local anaesthesia. A crevicular incision was placed on the palatal anterior region bilaterally from 1st pre molar to 1st premolar and a horizontal crevicular vestibular incision on buccal aspect from 11 to 13. The mucoperiosteum was reflected and the cystic lining was detached from the underlying bone and the mesiodens which was present at the apex of 21 was removed along with the cystic lining and was sent for histopathological examination (Figure 5A & B). The histopathological examination of H and E stained studied section showed cystic epithelial lining and connective tissue capsule. The epithelial lining was non keratinized and of varying thickness with few areas showing 2-4 cell layer thick, made of flat or cuboidal cells. The fibrous connective tissue wall showed collagen fibres and fibroblasts, chronic inflammatory cell infiltrate comprising of lymphocytes and plasma cells. Blood capillaries and

extravasated RBC's could also be seen in the connective tissue capsule (Figure 6). The histopathological diagnosis was compatible with the clinical diagnosis of infected dentigerous cyst with respect to the mesiodens. A ribbon gauge was later placed on the cystic cavity and closed with Vicryl suture. The closure was also done on the palatal aspect and acrylic plate was provided. The patient was also prescribed analgesics and antibiotics. The patient was kept on regular 1 year follow up and was found to be asymptomatic.



Figure 1A & B. Clinical photograph of the patient showing sinus tract opening on the labial side and swelling on the palatal side.



Figure 2. Clinical photograph showing straw colored fluid.



Figure 3 A&B. Intra oral periapical radiograph and maxillary occlusal radiograph showing impacted mesiodens surrounded by radiolucency.

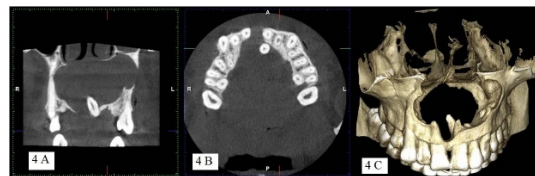


Figure 4A, B, C. Coronal section showing the mesiodens surrounded by radiolucency, axial section showing perforation of labial and palatal bone along with 3 D reconstruction



Figure 5 A & B. Intra operative view and surgical specimen of the cyst attached to the mesiodens.

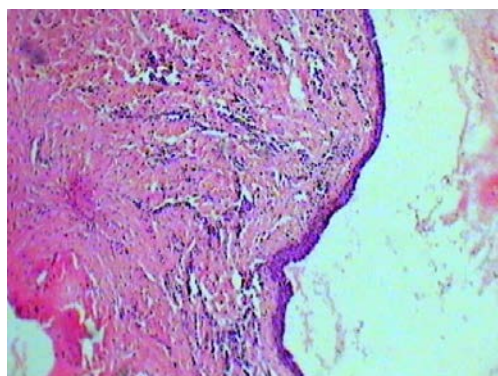


Figure 6. Histopathological section showing cystic epithelial lining and connective tissue capsule with the fibrous connective tissue wall showing collagen fibres and fibroblasts, chronic inflammatory cell infiltrate (40x).

Dentigerous cyst occurring in association with mesiodens has been occasionally reported. This association was first outlined by Pitts in 1924. 5% of all dentigerous cysts are attributed to them being associated with supernumerary teeth. The most common site of development of dentigerous cyst in association with mesiodens is found to be in the maxillary anterior region which was also seen in our case⁴. The term mesiodens was coined in 1917 by Bolk and described it as an accessory or supernumerary tooth situated in between the maxillary central incisors². Mesiodens can occur as single and /or multiple, impacted or erupted teeth and occasionally associated with dentigerous cyst. The crown may be found in a horizontal, normal or inverted direction with a cone shaped crown and short root. An incidence of 0.15 to 1.9% is reported with a male predominance³. Root resorption of the adjacent teeth by mesiodens or its cyst is a rare complication⁵. The dentigerous cyst occurs in the second and third decade of life^{6,7}. Dentigerous cysts can occur over a wide age range 15 years to 65 years as suggested by Koseoglu et al⁸. Dentigerous cyst is

seen twice as often in males than females and is 10 times more likely to occur in the mandible than in the maxilla⁶.

In the case presented here the upper jaw was involved with the cyst crossing the midline. Radiographically dentigerous cyst usually appears as a well-defined radiolucency with corticated borders associated with crowns of impacted teeth. Dentigerous cysts vary in size and cysts of 2 cm in diameter or greater may cause enlargement of bone. Expansion of palatal bone was seen in our case. The radiographic appearance of such dentigerous cysts may be comparable with unilocular keratocystic odontogenic tumour and unicystic ameloblastoma. In rare cases, untreated cases can lead to formation of mural ameloblastoma. However malignant transformation is rare⁹. The radiographic assessment is very important in diagnosis so as to detect the exact extent and margins of the lesion and to identify anatomical relationships with adjacent structures.

The dentigerous cysts formed in association with supernumerary teeth in the premaxilla are easily diagnosed radiographically due to the radiopaque image of the tooth like structure. 3D imaging like CBCT scans provides an accurate extent of the lesion along with the interior of the lesion¹⁰. In the case reported here CBCT scan was helpful in determining the exact extent of the lesion, and destruction of the bone caused by the cyst. Dentigerous cyst is lined by non-keratinized stratified squamous epithelium. The development of dentigerous cyst occurs from follicular epithelium and has possibilities for growth, differentiation and degeneration when compared to a periapical cyst. Mucoepidermoid carcinoma may arise from the wall of a dentigerous cyst in rare occasions.

Due to the tendency of rapid expansion of dentigerous cyst, pathological fractures of jaw bones may also occur¹¹. The offending tooth plays a major role in determining the type of surgical intervention required for the removal dentigerous cyst. Complete enucleation of the cysts along with extraction of the tooth forms the mainstay of treatment which was also done in our case. Marsupialization is the recommended treatment option for isolated lesions in younger patients where adjacent teeth have to be preserved⁴. The problems associated with mesiodens are dentigerous cyst formation, resorption of roots of adjacent teeth and eruption of supernumerary teeth in the nasal cavity². Root resorption and formation of dentigerous cyst were associated in the case presented

here. Hence to avoid the complications caused by dentigerous cyst early diagnosis should be done.

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