

Case report

## Dentigerous cyst involving mesiodens: A case report in 11 year child

Manish Bhalla\*, Pankaj Datta\*\*, Shambhu Sharma\*\*\*, Chandramouli Rohini\*\*\*\*, Deepali Bhalla\*\*\*\*\*

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### Abstract

Dentigerous cyst is the most prevalent type of odontogenic cyst and is associated with crown of an unerupted or developing tooth, and it accounts for more than 24% of cysts involving jaw. It usually develops around crown of mandibular third molar, maxillary canine, followed by mandibular premolars, but it rarely involves supernumerary teeth and central incisors. Dentigerous cyst is rarely associated with supernumerary tooth and mesiodens. The usual age of clinical presentation of dentigerous cyst due to supernumerary tooth is during the first four decades of life. The present case report describes about the dentigerous cyst involving the mesiodens and its surgical management in 11 year old child.

**Key words:** Dentigerous cyst; Supernumerary teeth; Mesiodens; Enucleation.

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### Introduction

Dentigerous simply means containing teeth[1]. Dentigerous cyst is most common intra bony lesion of jaws in children. It is one of the most prevalent types of odontogenic cysts and is associated with crown of an unerupted or developing tooth, particularly the mandibular third molar, maxillary canine followed by mandibular premolars, and rarely the supernumerary teeth and central incisor. Males are more commonly affected than females. It may occur at any age but the greatest incidence is in second and third decade of life[2].

Only 5% of dentigerous cysts are associated with supernumerary teeth. The usual age of clinical presentation of dentigerous cyst

involving supernumerary tooth is in the first four decades of life[3]. Supernumerary teeth are most common in the maxilla with a strong predilection for the anterior region and in such case the supernumerary tooth is termed as mesiodens[1,4].

This article presents a case report of a dentigerous cyst involving premaxilla associated with an inverted mesiodens in an eleven year old male child.

### Case report

An eleven year old boy reported to the department of Pedodontics and Preventive dentistry with a chief complaint of pain and swelling in upper left anterior region since past two months. History revealed that small swelling of peanut size was noticed two months ago which slowly increased to the present size. On examination a solitary, diffuse swelling was present in upper left middle third of the face extending from left nasolabial fold to 2.5cm lateral to it and from infra-orbital region to upper border of upper lip. The size of the swelling was approximately 3x2.5cm. The overlying surface of skin appeared normal. On palpation temperature of skin was slightly raised, tender and soft to firm in consistency.

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**Author's Affiliation:** \*Senior Lecturer, Department of Pedodontics and Preventive Dentistry, \*\*Principal & Head, Department of Prosthodontics, \*\*\*Professor & HOD, Department of Pedodontics & Preventive Dentistry, \*\*\*\*Lecturer, Department of Pedodontics and Preventive Dentistry, \*\*\*\*\*Senior Lecturer, Department of Orthodontics, Inderprastha Dental College and Hospital, Sahibabad, UP

**Reprints Requests:** Dr. Manish Bhalla, 142, First Floor, Savita Vihar, Vikas Marg Extension, Delhi-110092, Phone: 9953860700.

E-mail: drmanishbhalla@gmail.com

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Intra oral examination revealed obliteration of buccal vestibule due to swelling in relation to 21 22 63. Tooth number 21 was extruded slightly and crown was slightly in palatoversion. The crown of tooth number 22 was tilted mesially. On palpation swelling was mildly tender, non-fluctuant. There was marked expansion of buccal and palatal cortical plate in 21 22 63 64 with presence of eggshell crackling. [Fig 1] A well-defined swelling was observed involving hard palate which extended from midline of hard palate anteriorly to the marginal gingiva of 21 22 63 64. On palatal surface the size of swelling was approximately 3x2cm in size. Shape of the swelling was round to oval and overlying surface of mucosa appeared normal.

**Fig 1. Pre-operative Intra oral photograph of the patient**



#### *Investigations*

Patient was advised to undergo IOPA radiograph of 11 21 22, occlusal view of premaxilla and OPG radiographs. IOPA radiographic examination of the 11 21 22 showed a large, circular, well circumscribed unilocular radiolucent area of approximately 2x2 cm involving alveolar bone surrounding an impacted, inverted supernumerary tooth, a mesiodens. Radiolucent area had well circumscribed radiopaque border. The apices of left lateral incisor appeared to project in the cystic lumen and displaced laterally and labially on left side. IOPA radiograph also

revealed resorption of root of 21 leading to overall decrease in length of tooth. [Fig 2]

The occlusal view radiograph of premaxilla also revealed a large oval radiolucent area of 2x3 cm in size extending from 12 to 64 regions laterally to midway of hard palate posteriorly with a distinct sclerotic cystic wall. IOPA and occlusal view radiograph also revealed the displacement of root of 21 and 22 labially. [Fig 2, 3] OPG also revealed the similar finding. [Fig 4] Aspiration biopsy was performed which presented straw coloured fluid. Based upon clinical and radiographic finding a clinical diagnosis of dentigerous cyst involving supernumerary tooth mesiodens was made. However differential diagnosis was made between the present case and large periapical cyst, odontogenic keratocyst, central giant cell granuloma, adenomatoid odontogenic tumour.

The treatment was planned for enucleation of the cyst along with removal of mesiodens under general anaesthesia. Prior to surgery under GA routine urine and blood was investigated. Routine urine, CBC and blood biochemistry results were within normal limits. The patient was hospitalized for surgical enucleation of the cyst.

An intraoral approach with nasoendotracheal intubation was selected for surgery. The site was prepared. A vertical incision was made between 12 11 and at 65 followed by incision along gingival margin of 11 21 22 63 24 65. Mucoperosteal flap was reflected and cystic site was exposed. Expanded thinned out bone was removed to expose the cystic lining along the periphery. Cystic mass along with lining was enucleated and impacted mesiodens was removed. Tooth number 63 was also extracted due to lack of bone support. [Fig 5, 6]

The enucleated cystic mass was sent for histopathological examination to confirm the diagnosis. [Fig 7, 8] Endodontic procedure was carried out on 21 22 as blood supply of these teeth were compromised. Root canal space of 21 22 was obturated with Gutta-percha with good apical seal. The cavity was packed with sterile iodoform gauze to achieve haemostasis.

The bony cavity was packed with bone regenerating material and surgical wound was closed by primary sutures. Post-surgical period was uneventful and sutures were removed after seven days.

The histopathological examination showed a thin fibrous cystic wall made up of collagen fibres running parallel to each other. The capsule was lined by 2-3 layers of nonkeratinized stratified epithelium, along with islands of odontogenic epithelium. [Fig 9] The connective tissue showed a slight inflammatory cell infiltrate, which confirmed the diagnosis of dentigerous cyst. [Fig 10]

**Fig 2. Intraoral periapical radiograph showing dentigerous cyst involving impacted inverted mesiodens and roots of 21 22**



**Fig 3. Occlusal view radiograph of premaxilla showing extent of radiolucency**



**Fig 4. OPG showing extent of the radiolucency**



**Fig 5. Intra oral photograph showing dentigerous cyst sac exposed**



**Fig 6. Intra oral photograph showing supernumerary tooth (mesiodens) being taken out from the cyst**



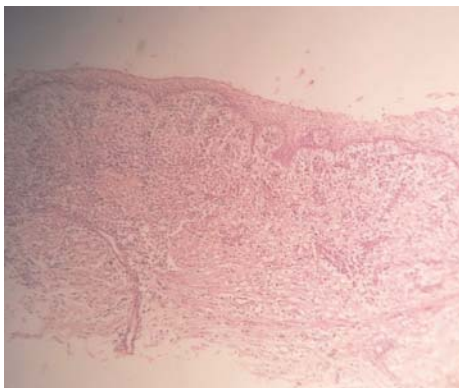
**Fig 7. Enucleated cystic sac**



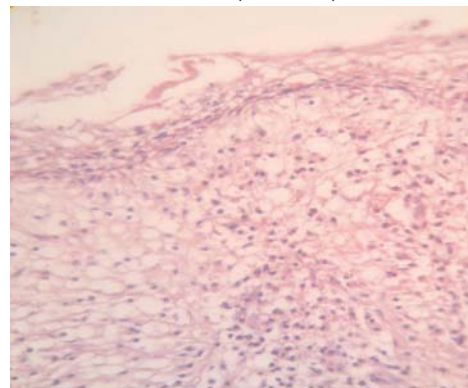
**Fig 8. Extracted mesiodens & 63**



**Fig 9. Histopathological picture of cystic lining. (H & E) X10**



**Fig 10. Shows cells of the cystic lining resembling reduced enamel epithelium and the connective tissue capsule is showing the presence of inflammatory cell infiltrate. (H & E) x40**



## DISCUSSION

Dentigerous cyst can be defined as a cyst arising by separation of follicle from around the anatomical crown of an unerupted tooth within the jaws[1]. Pathological origin of dentigerous cyst though still controversial theories describing the origin from reduced enamel epithelium, from odontogenic epithelial rests from within tooth follicle and from epithelial rests outside had been postulated[15]. Dentigerous cyst account for more than 24% of the jaw cysts. The dentigerous cyst mostly occurs in second and third decade of life[1,5]. The lesions can also be found in children and adolescents with a slight predilection for male[1]. This gender preference might be related to a smaller jaw

size and a greater tendency for prophylactic extraction of third molars in females[6]. They surround the crown of an unerupted tooth, most often the mandibular third molars and maxillary canines. They are occasionally associated with supernumerary teeth. First named by Bolk in 1917, mesiodens are the most common supernumerary teeth[1]. It is a rare entity with a prevalence of 0.15-1.9% in general population and a slight predilection for males[8,9]. Although dentigerous cyst is a common developmental cyst, its association with supernumerary teeth is rare and estimated to constitute 5-6% of all dentigerous cysts[7]. Mesiodens may be single or multiple, erupted or impacted and is rarely seen associated with a dentigerous cyst[10].

In present case IOPA, panoramic and occlusal radiograph showed a large, circular,

unilocular, well defined radiolucent area involving inverted mesiodens with well circumscribed radiopaque bordering the radiolucency affecting premaxilla in the region of 12 11 21 22 63 24 65. Most mesiodens are located palatally to the permanent incisors. Only a few lie in the dental arch or labially to the permanent incisors[10]. In the present case mesiodens was lying palatally. When the supernumerary tooth is evident, the direction of the crown, the location, the influence on adjacent teeth, the resorption of adjacent roots and the formation of dentigerous cysts should be carefully evaluated. Resorption of the adjacent roots by mesiodens or its cyst is a rare complication[11]. Resorption of root of 21 was caused by cystic pressure.

### CONCLUSION

Supernumerary teeth or hyperdontia are a type of developmental disturbances occurring during the period of odontogenesis due to which teeth are formed in excess of the normal number[12]. The complications associated with mesiodens are delayed or non eruption of permanent incisors, displacement/rotation of teeth, crowding, midline diastema, dentigerous cyst formation. Dentigerous cyst associated with supernumerary tooth constitute vast majority of which about 90%, are associated with a maxillary mesiodens[3,13,14].

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