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Mandibular Dentigerous Cyst Without Impacted Tooth: A Clinical Rarity

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ABSTRACT

Dentigerous cysts (DC), typically associated with the crowns of unerupted or developing teeth, are rare occurrences in the absence of impacted teeth. This case report presents an unusual instance of a DC in the mandible of a 25-year-old female with no impacted teeth. This case underscores the necessity for thorough diagnostic evaluation in the presence of mandibular cystic lesions, even when conventional etiological factors, such as impacted teeth, are absent. The report aims to enhance the understanding of atypical presentations of DC and their management in clinical practice.

Keywords: Dentigerous cyst, odontogenic cysts, follicular cysts

INTRODUCTION

Dentigerous cysts (DC) represent a common form of odontogenic cysts, frequently found in association with unerupted or developing teeth, particularly impacted mandibular third molars and maxillary canines. However, in some instances, these cysts can manifest as larger lesions with significant clinical implications. Large DCs of the mandible present unique challenges in diagnosis and management due to their size, potential for bony expansion, and proximity to vital anatomical structures.

CASE REPORT

A female in her 20s came with chief complaint of swelling on left mandibular posterior region since 1year which was insidious in onset associated with pain and pus discharge. Roughly extending from 1.5cm lateral to symphysis till body of mandible anteroposteriorly and from commissure to lower border of mandible superoinferiorly. Intraorally there was obliteration of buccal vestibule with expansion of buccal cortex, the region was nontender with no paraesthesia. On Aspiration bloody content was yielded. Biopsy report revealed cystic lumen lined by one to three layered squamous lining at places. Surrounding connective tissue capsule was of primitive type with odontogenic islands at places. Tissue was richly vascular with small to large blood vessels with intravasated and extravasated RBCS features suggesting DC. CT revealed expansile cystic lesion measuring 60×20×24mm involving mandible at level of 37 up to ramus causing scalloping, thinning and perforation of bone. DC, OKC, ameloblastoma, odontogenic myxoma were considered as the differential diagnoses.

With submandibular approach, resection with safe margin followed by reconstruction with 2.7mm reconstruction plate was done followed by MMF for a period of 4 weeks. The specimen was sent for histopathologic examination which confirmed the diagnosis of DC. Post operatively healing was uneventful. Patient is on periodic follow up

since then.

Fig. 1

Fig. 2

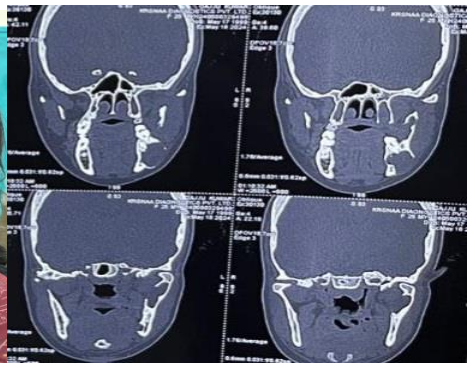
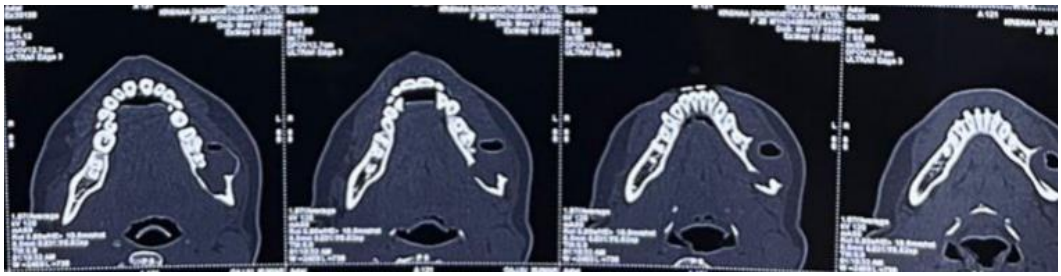


Fig. 3

Fig. 1 Pre operative front profile, Fig. 2 side profile, Fig. 3 coronal section of CT



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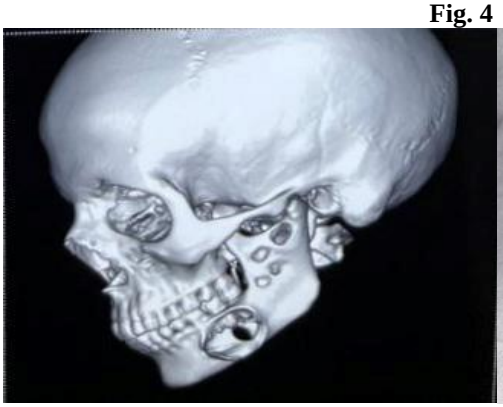

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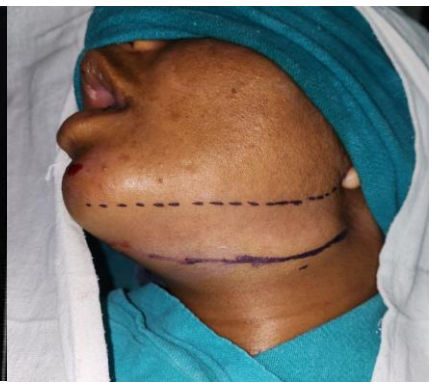

Fig. 6

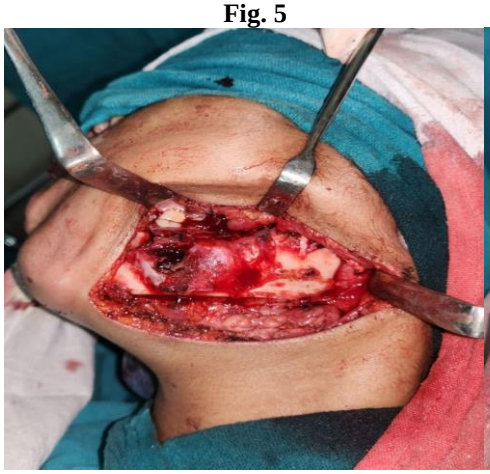

Fig. 7

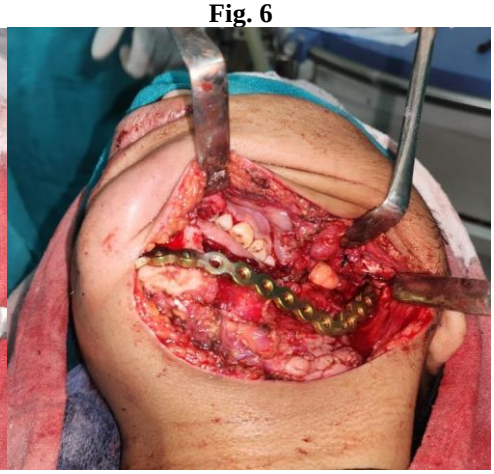

Fig. 8

Fig. 4 axial section of CT, Fig. 5 3DCT showing all erupted teeth, Fig. 6 incision marking, Fig. 7 exposure of lesion, fig. 8 reconstruction with recon plate.

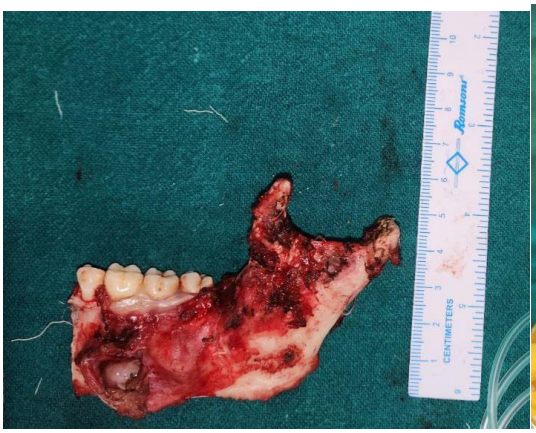

Fig. 9

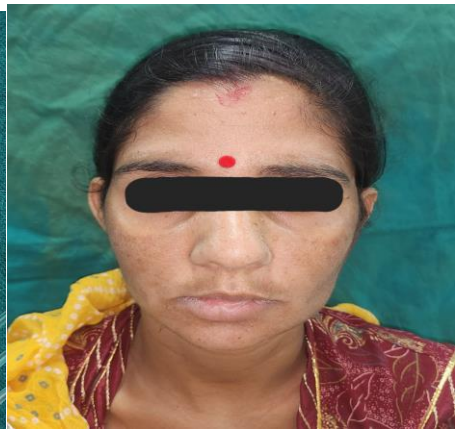

Fig. 10

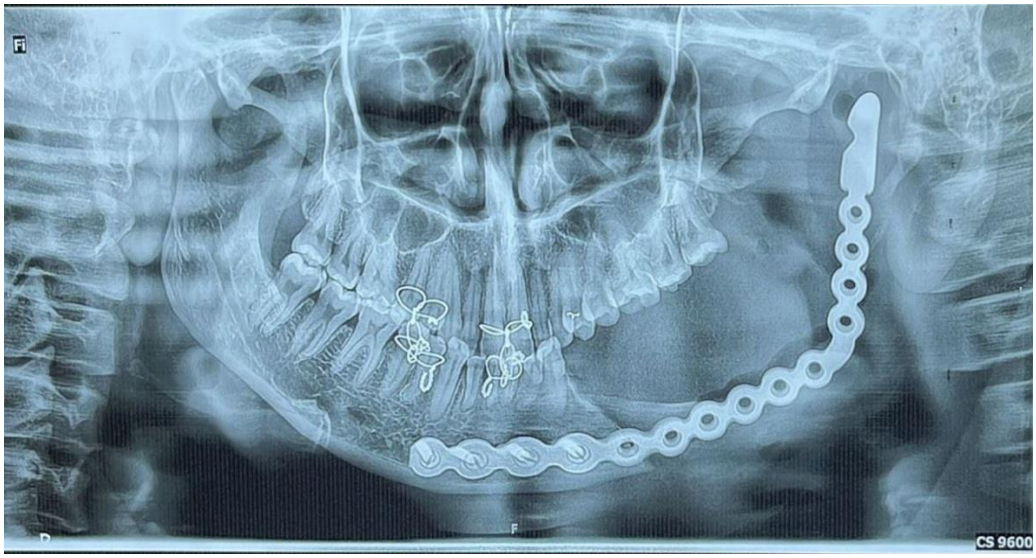

Fig. 11

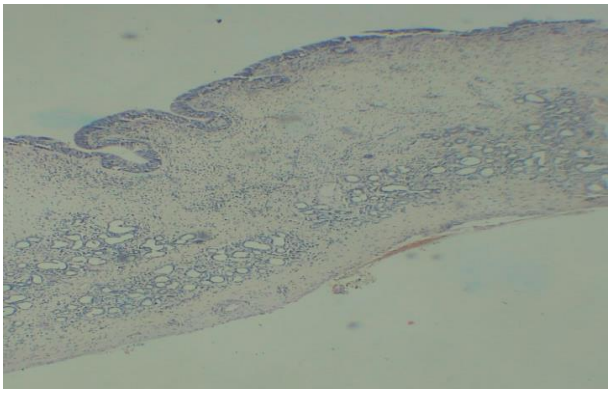

Fig. 12

Fig. 9 Resected specimen, fig. 10 Post operative front profile, fig. 11 post operative OPG, fig. 12 histopathologic picture showing features of dentigerous cyst.

DISCUSSION

A dentigerous cyst (DC), formerly known as a follicular cyst, is defined by the World Health Organisation as a condition that encircles the crown of an unerupted tooth and connects to its cementoenamel junction. This type of benign developing odontogenic cyst is the second most prevalent type, making up

about 24% of all actual cysts in the mandible. [1] Though they can also be associated to an odontoma, a developing tooth, or even deciduous teeth, they are typically associated with the crowns of impacted or unerupted permanent teeth. In contrast, in our situation the affected site did not contain any impacted or unerupted teeth. DC are 1.5 times more common in men than in women, and they can arise at any age, peaking in frequency in the second or fourth decades [2]. They nearly exclusively arise in secondary dentition, which makes them uncommon in childhood. The mandibular third molars, maxillary canine and mandibular premolars are most commonly affected. There has also been information on an uncommon correlation with unerupted mandibular canines, certain permanent teeth like the central incisor, and permanent second molars [3]. None of the teeth in the present case was impacted. An inflammatory or noninflammatory DC is also possible. Inflammation in a nonvital deciduous tooth is the cause of the inflammatory variety. The pressure that the erupting tooth exerts on the noninflammatory kind causes it to develop.[4] These cysts might go undetected for years at a time and are usually asymptomatic. During a clinical examination, it is common to see areas of hard swellings and missing teeth, but rarely any associated pain or discomfort [5]. Teeth mobility, displacement, mild sensitivity may be seen if the cyst grows to a significant size (>2 cm in diameter) [6]. There are numerous possibilities, however the precise aetiology of this cyst is still unknown. According to the "intrafollicular theory," a DC results from fluid buildup between the epithelium's inner and outer surfaces. This build-up happens when the crown is forming. "Enamel hypoplasia theory" is the second theory. It indicates that breakdown of stellate reticulum precedes its formation. According to "Main's theory," the cyst develops as a result of the hydrostatic pressure an impacted tooth applies to the follicle, causing the impacted crown to separate from the surrounding follicle [7]. Large DC may impact a substantial portion of the root. In rare instances, lesions like this one are ignored to reach that magnitude. The cyst in this instance is so huge that it almost completely fills the jaw and causes significant weakening in the buccal and lingual bony plates, which results in perforation. In radiography, follicular spaces greater than 5 mm are suspected of being DC. Typically manifest as radiolucent lesions that are unilocular. Large cysts can occasionally appear multilocular. In most cases, the lesion is clearly defined and shows a sclerotic border. The lesion often seems to originate at the cemento-enamel interface, however this isn't always the case, as was previously mentioned. The relationship between the cyst and the crown exhibits three variations: circumferential, lateral, and central [8]. Larger lesions have the potential to resorb neighbouring teeth and/or shift the impacted tooth. Cortical perforation, which was visible in our case on both the buccal and lingual surfaces, is uncommon raising our suspicions more towards OKC and ameloblastoma. Unusual features do not rule out the relatively common DC, but they should raise one's suspicions for other possible diagnosis and encourage thorough sample or even submission of all accessible tissue for microscopic analysis.

Histologically, the DC epithelium is made up of 2-4 layers of smooth, nonkeratinized cells, and it has a smooth connective tissue interface. The DC epithelium may contain fat, ciliated columnar, and mucous cells [9]. Usually, these cysts are isolated lesions. Although they have been observed in patients with disorders such mucopolysaccharidosis, cleidocranial, and basal cell nevus syndrome, bilateral and multiple dentigerous cysts are extremely uncommon [10]. Before a dentigerous cyst is verified histologically, the diagnosis should be suspected clinically and radiographically. Compared to ameloblastic transformation, malignant transformation is less frequent. Although mucoepidermoid carcinoma is also a possibility, squamous cell carcinoma is most frequently associated with it. Complete

enucleation and marsupialization are two possible therapeutic approaches. [11]
In the present case, the cyst was growing and perforating the lingual and buccal cortex, indicating a more aggressive nature that called for a more vigorous excision.

CONCLUSION

This case highlights the rarity and diagnostic challenges of DC occurring in the mandible without an associated impacted tooth. Surgical management via aggressive resection proved effective in this case, emphasizing the importance of tailored surgical interventions for extensive cystic lesions to ensure complete removal and prevent recurrence. This case contributes to the broader understanding of atypical presentations and optimal management strategies for DC in clinical practice.

Declaration by Authors

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