

## Compound Odontoma with Multiple Denticles in the Anterior Mandible – a Rare Case

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**Abstract:** Odontomas, the most common odontogenic tumors that are considered as hamartomas rather than true neoplasms. Odontomas can be compound or complex odontoma or rather a rare combination of both compound and complex type. Etiology is unknown but can be due to local trauma or infection. We present a case of compound odontoma with multiple denticles in a 6-year-old girl. Initial local examination revealed the presence of a well-defined palpable swelling in relation to the right side of mandible. Intraoral hard tissue examination clinically revealed missing 81,82 and 41. A well-defined swelling of approximately 2 x 2 cm from the mesial aspect of 31 to mesial aspect of 83 was observed. The lesion was surgically excised by Neumann approach. Radiographic investigation & histopathological examination of the excised lesion confirmed the diagnosis as a compound odontoma with multiple denticles. Local surgical excision is the right treatment option and recurrence is rare.

**Key Words:** Odontomas, Neumann approach, multiple denticles, hamartomatous malformation.

### INTRODUCTION:

The term odontoma refers to any tumor of odontogenic origin. In the present day scenario most of the authors accept that odontoma represents hamartomatous malformation. In the year 1867, Paul Broca coined the term "Odontoma". He defined it as 'tumors formed by the overgrowth of transitory or complete dental tissues'.<sup>1</sup> Etiology is unknown but can be due to local trauma or infection. Hitchin suggested that odontomas are inherited or due to a mutant gene or interference, possibly postnatal by the genetic control of tooth development.<sup>2</sup> But Levy has reported experimental production of odontoma by traumatic injury in rats.<sup>1</sup> In earlier developmental stages varying amount of proliferating odontogenic epithelium and mesenchyme are present. Odontomas consist of both odontogenic hard & soft tissue. Odontomas are further divided into compound & complex odontoma.<sup>4</sup> Compound odontoma the structure of enamel & dentin is laid down in a manner it resembles an anatomic tooth. In complex odontoma the calcified structure is irregularly arranged. Compound odontoma is the most common type when compared to complex odontoma. On the other hand a rare type is found combination of both compound & complex type.

### Case Report:

A 6 year old female patient reported to the department of Oral Pathology, Rajas Dental College & Hospital with a chief complaint of swelling in the lower front tooth region since 8 months before which the patient was apparently normal. There was a gradual increment in the size of the swelling since last 8 months. No evidence of pus, blood or discharge from the site was noted. On local examination, a well-defined palpable swelling was present in relation to the right side of mandible with no history of pain. On intra oral hard tissue examination clinically revealed missing 81,82 and 41. A well-defined swelling was observed in the right buccal surface of alveolar region in relation to 82, 83 region, size approximately 2 x 2 cm from the mesial aspect of 31 to mesial aspect of 83. The mucosa over the swelling was normal & no visible secondary changes were noted (Figure 1). On palpation, the swelling was hard in consistency, non-tender, borders were ill defined with smooth edges. The orthopantomogram revealed a well-defined mixed radiolucent & radiopacity measuring about 2x2 cm with a thin radiolucent rim (Figure 2). Based on the history given by the patient/parent and the oral examination, a provisional diagnosis of odontoma was made. Differential diagnosis included ameloblastoma, adenomatoid odontogenic tumor, dentigerous cyst. Based on the radiographic appearance the diagnosis was made as compound odontoma. Surgical excision of the tumor was performed under local anesthesia with Neumann approach (Figure 3). The gross specimen consisted of irregular masses of calcified structure with multiple teeth like tissues (Figure 4).



Figure 1: Odontoma- preoperative view



Figure 2: Panoramic radiograph



Figure 3: Surgical excision of odontoma



Figure 4: Excised lesion- irregular masses of calcified structure with multiple teeth like tissues

On further histopathological examination of H&E stained section shows thin odontogenic epithelial lining with connective tissue stroma. The connective tissue consists of loose connective tissue stroma arranged in sheets of spindle shaped fibroblast scattered throughout the section. Numerous odontogenic epithelial strands are found in the periphery. Small islands of eosinophilic staining which represents calcification are evident (Fig 5a & 5b). Decalcified section shows organized tooth like structures i.e matured enamel and dentin with dentinal tubules (Fig 5c). Based on the appearance of the gross specimen & the histopathological examination a diagnosis of compound odontoma was made.

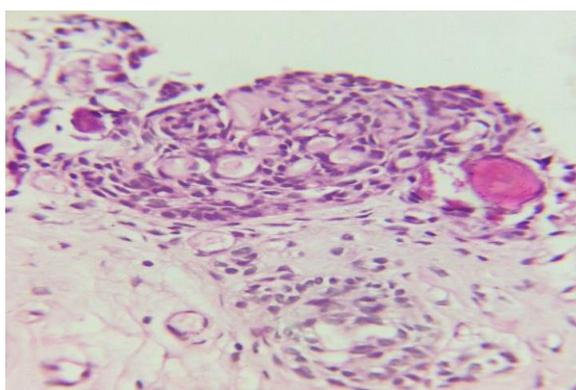


Fig 5a: H & E stained section- showing Odontogenic epithelial strands

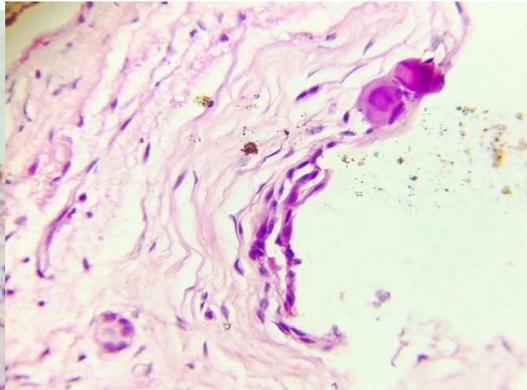


Fig 5b: H & E stained section- showing calcification

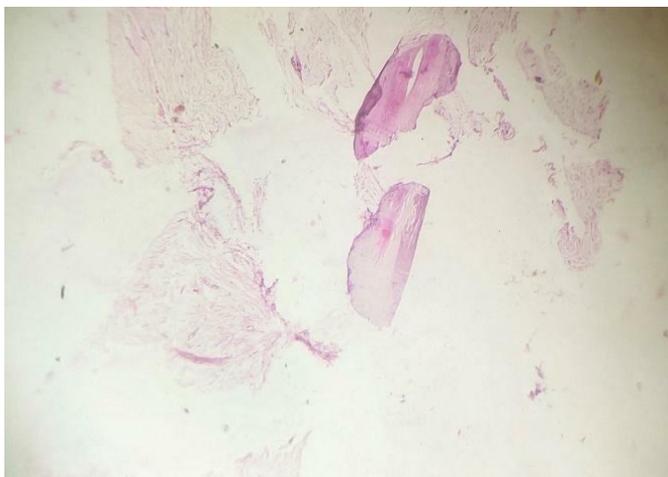


Fig 5c: Decalcified H & E stained section-showing organized tooth like structure

## DISCUSSION:

Odontomas, odontogenic tumors are hamartomas rather than true neoplasms. Odontomas occur in the 1<sup>st</sup> and 2<sup>nd</sup> decades of life and the mean age is 14 years.<sup>3</sup> They may be detected on investigation of a tooth failing to erupt or as an abnormal swelling. They are usually small and does not exceed the size of tooth. Large cases have been reported about 6cm in size or more in such cases it can lead to jaw expansion.<sup>4</sup> There is a slight male predilection. Of all odontomas 67% occurred in maxilla & 33% occurred in mandible.<sup>1</sup> They usually consist of unerupted tooth, impacted teeth or retained deciduous teeth. Compound odontomas usually do not cause any bony expansion, whereas complex odontomas often cause slight or even marked bony expansion. Pathological changes such as impaction, malpositioning, aplasia, malformation and devitalization of the adjacent teeth can be caused by 70% of the odontomas. Radiographically it appears as tooth like structure of different sizes surrounded by a radiolucent zone.<sup>5</sup> An unerupted tooth is usually associated with the odontoma. Most of the odontoma in the anterior region are associated with compound odontoma and that are in the posterior region are complex odontoma. A developing odontoma can be identified by routine radiographs appear as a circumscribed radiolucent lesion. On histopathological examination, normal anatomic structure like enamel, dentin, cementum & pulp like structure are found. The connective tissue capsule around the odontoma is similar which represents the follicle surrounding a normal tooth. Some ghost like cells is seen in some cases. Morphologic resemblance of single rooted tooth is evident.<sup>6</sup> Fibrovascular connective tissue stroma is evident which consist of odontogenic epithelial islands. Conservative surgical removal is the adequate treatment.<sup>7-10.</sup>

## CONCLUSION:

Early diagnosis and surgical excision of the lesion helps to rule out the reason for missing teeth and swelling. Proper radiographic investigation & histopathological examination can rule out odontomas. Rare instance of dentigerous cyst on the walls of odontoma are noted. Recurrence of the lesion is rare when the lesion is completely removed.<sup>7</sup>

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## CONFLICT OF INTEREST

Conflict of interest declared none.

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