

## Case of Compound Composite Odontome: Diagnostic Criteria for Odontomas

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### ABSTRACT

Odontomas behave more like developmental abnormalities (hamartomas) than true neoplasms. Odontomas are developmental anomalies resulting from the growth of completely differentiated epithelial and mesenchymal cells that give rise to ameloblast and odontoblast. Odontomas are classified as complex odontoma and compound odontomas. The purpose of the article is to enumerate the diagnostic criteria for odontomas.

**Keywords:** Odontomas, Hamartomas, Complex odontoma, Compound odontomas.

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### INTRODUCTION

Odontomas behave more like developmental abnormalities (hamartomas) than true neoplasms. Odontomas are developmental anomalies resulting from the growth of completely differentiated epithelial and mesenchymal cells that give rise to ameloblast and odontoblast.<sup>1</sup> These tumors are formed of enamel and dentine variable amount of cementum and pulp tissue.<sup>2</sup> Paul Broca was the first person to use the term odontoma in 1867. He defined odontomas as 'tumors formed by the overgrowth of transitory or complete dental tissue'.<sup>3</sup> Odontomas are hamartomas of aborted tooth formation which accounts for 22% of odontogenic tumors.<sup>4</sup>

Odontomas are classified as complex and compound ones. Complex odontomas are malformations in which all the dental tissues are well formed but occurring in a less orderly pattern. Compound odontomas are malformations in which all the dental tissues are well formed but occurring in a more orderly pattern than in complex odontoma, so that the lesion consists of tooth-like structures. The lesion is composed of more than one type of tissues, so it is known as composite for this reason it has been called as composite odontoma. Accordingly, we have complex composite odontoma, compound composite odontoma.<sup>5</sup>

Odontomas are also classified as intraosseous and extraosseous odontomas. Intraosseous odontomas occur inside the bone and may erupt into the oral cavity (erupted odontoma) or peripherical odontomas are occurring in the

soft tissue covering the tooth bearing portions of the jaws, having tendency to exfoliate.<sup>6</sup> Most odontomas are asymptomatic occasionally signs and symptoms relating their presence do occur. These generally consists of unerupted or impacted teeth, retained deciduous teeth, swelling and evidence of infection.<sup>2</sup>

### CASE REPORT

A 16-year-old female patient presented herself at the department of oral medicine and radiology with a complaint of missing teeth and a painless swelling in her left upper front teeth region, which was slowly growing and attained the present size (Fig. 1) during 5 years, contralateral side was normal. On clinical examination revealed no facial asymmetry, intraorally 21 was missing with a swelling in her left upper labial vestibule, and also in palatal aspect and was nontender (Fig. 2).



Fig. 1: Swelling on the labial aspect of the upper jaw



Fig. 2: Swelling on the palatal aspect of upper jaw

An intraoral periapical radiograph (Fig. 3) was obtained for 11, 21, 22 region, which revealed an impacted central incisor along with few radiopaque mass resembling a tooth-like structure, which had a short root and was surrounded by a radiolucent halo with smooth outer periphery which was attached to root of the impacted central incisor. To visualize the full extent of the lesion a maxillary occlusal radiograph (Fig. 4) was obtained, which revealed impacted central incisor and surrounding tooth-like structures were seen with full extent of the roots similar radiographic features were present as that of intraoral periapical radiograph. A radiographic diagnosis of compound composite odontome was made.

Under local anesthesia mucoperiosteal flap (Fig. 5) was raised toward the labial aspect of the maxilla, it was not possible to keep the impacted tooth along with the odontome and was excised (Fig. 6). The excised specimen was subjected to histopathological evaluation and was reported as compound odontome (Fig. 7). Later prosthetic rehabilitation was done to the edentulous space.

## DISCUSSION

Odontomas are relatively common odontogenic lesions encountered in the oral cavity, they are developmental anomalies resulting from the growth of completely



Fig. 5: Surgical exploration of odontome



Fig. 3: IOPA is showing compound odontome



Fig. 6: Gross specimen of odontome



Fig. 4: Maxillary occlusal radiograph showing compound odontome

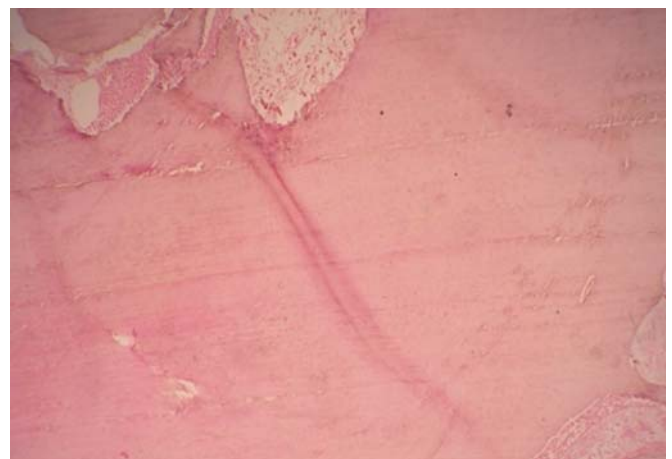


Fig. 7: Photomicrograph showing decalcified dentin, decalcified enamel intermixed with haphazardly arranged areas containing remnants of immature enamel matrix

differentiated epithelial and mesenchymal cells that give rise to functional ameloblast and odontoblast.<sup>1</sup> They are generally asymptomatic and constitute casual findings in the course of routine radiographic examination, particularly in the second and third decades of life.<sup>7</sup> Odontomas have been classified as benign odontogenic tumors and are subdivided into complex or compound odontomas morphologically.<sup>8</sup> Compound odontomas commonly occur in the incisor-canine region of the maxilla and complex ones are frequently located in the premolar and molar region of both jaws.<sup>9</sup>

During the development of the tumor, enamel and dentin can be deposited in such a way that the resulting structures show an anatomic similarity to normal teeth, in which case the lesion is classified as a compound odontoma. However, when the dental tissues form a simple irregular mass occurring in a disorderly pattern, it is described as a complex odontoma.<sup>10</sup> Compound odontomas appear more frequently than complex odontomas.<sup>11</sup> Some sign and/or symptom is occasionally seen the most common condition being delayed tooth eruption.<sup>12</sup>

Histological examination of odontomas often shows the presence of enamel matrix, dentin, pulp tissue and cementum that can, but need not, exhibit a normal relationship. Compound odontomas are formed by tooth-like structures which resemble pulp tissue in the central portion surrounded by a dentin shell and partially covered by enamel. Complex odontomas are conglomerates without orientation of dentin,

enamel, enamel matrix, cementum and areas of pulp tissue.<sup>2</sup> Odontomas are treated by conservative surgical removal and recurrence is very rare (Table 1).<sup>1</sup>

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**Table 1:** On literature review clinical and radiographic diagnostic criteria for compound and complex odontomas are put forth

<i>Compound odontome</i>	<i>Complex odontomas</i>
1. Associated with anterior maxilla	1. Associated with mandibular first and second molar area.
2. Occurrence is equal in males and females.	2. Occurrence is more in females than in males. Single radiopaque mass with a density somewhat greater than bone.
3. Below the age of 20 years	3. Below the age of 30 years
4. Painless, limited potential to grow and associated with unerupted teeth.	4. Painless, slow growing and expansile lesion associated with unerupted teeth.
5. Size does not exceed the diameter of a tooth.	5. Single radiopaque mass with a density somewhat greater than bone.
6. Odontome has tooth-like structures that resemble small rudimentary teeth will be seen.	6. Radiopaque mass is invariably round or ovoid with smooth margins.
7. A thin radiolucent zone consisting of connective tissue capsule corresponding to follicle of a normal tooth will be present surrounding the odontome.	7. A thin radiolucent zone consisting of connective tissue capsule corresponding to follicle of a normal tooth will be present surrounding the odontome.
8. Beyond the radiolucent area, the lesion is surrounded by a thin sclerotic line corresponding to the cortical outline of a normal tooth crypt will be present.	8. Beyond the radiolucent area, the lesion is surrounded by a thin sclerotic line corresponding to the cortical outline of a normal tooth crypt will be present.
9. Mild expansion of the cortex to accommodate the odontome in the bone.	9. Expansion is present.
10. Single or dozens of tooth-like structures can be seen.	10. Single in number and margins sometimes are lobulated or spikelike.
	11. Internal structure appears mottled due to the presence of mineralized components, such as enamel, dentine and cementum.

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