Abstract

Odontomas are the most common type of odontogenic tumors. They are considered to be developmental anomalies (Hamartomas) rather than true neoplasms. This is a case report of complex composite odontoma in a 14 year old girl, which resulted in failure of eruption of permanent upper right lateral incisor and canine while the contralateral teeth had erupted. A calcified mass was seen in the radiograph associated with supernumerary tooth like structures and was provisionally diagnosed as odontoma, following which it was enucleated.

Keywords:

odontogenic tumors; hamartoma; complex ; supernumerary teeth
**Introduction**

Odontomas are considered to be developmental anomalies or hamartomatous malformation resulting from the growth of completely differentiated epithelial and mesenchymal cells that give rise to ameloblasts and odontoblasts\(^1\). Like teeth, once fully calcified they do not develop further. Even when the morphology is grossly distorted as in complex odontomas, the pulp, dentine, enamel and cementum are in normal anatomical relationships with one another. Most of the odontomas are asymptomatic, although occasionally signs and symptoms relating to their presence do occur. These generally consists of unerupted or impacted teeth, retained deciduous teeth, swelling and evidence of infection\(^2\). The association of complex odontoma with supernumerary teeth is rare.

Here, an interesting case of a giant complex composite odontoma in maxilla associated with supplemental teeth as well as impacted lateral incisor and canine is discussed.

**Case Report**

A 14 year old female patient visited a private clinic with the chief complaint of missing teeth in the right upper front region of mouth since long time. Familial, medical and dental history were not of any significance. Extra oral findings did not reveal any abnormality. Intraoral examination revealed irregular swelling in maxillary right anterior region with expansion of buccal and palatal cortical plates. 12 and 13 were missing. On palpation a bony hard, non tender, non movable swelling was felt with irregular borders and no secondary changes were observed.(Figure 1)

RVG of the associated region was done which revealed a large radioopaque mass with irregular borders between 11 and 14. Crowns of impacted 12 and 13 could well be appreciated. In addition crown of impacted supernumerary tooth like structure was seen just apically to the radioopaque mass.(Figure 2)

A provisional diagnosis of odontoma was made.

**Macroscopic examination**

The lesion was surgically removed in totality and was received for histopathologic examination. The specimen received was two in number, one was 3X 3 cm creamish white to yellow in places, hard in consistency whereas the other morphologically resembled lateral incisor with one third root formation. On gross inspection of the larger tissue one small tooth like structure with dilacerated root was found attached with it.(Figure 3)

**Microscopic features**

The decalcified section, when stained with H & E consisted largely of mature tubular dentin. The dentin enclosed hollow circular structures that might have
contained enamel that was removed during calcification. Varying amount of pulp like tissue was haphazardly placed. The dental tissue mass was totally disorganised and there was no morphologic similarity to tooth. (Figure 4)

Overall histological features confirmed the diagnosis of complex composite odontoma.

Discussion

Paul Broca was the first person to use the term “odontoma” in 1867 and defined it “as tumors formed by the overgrowth of transitory or complete dental tissues”.

Odontomas are hamartoma arising during normal tooth development and they often reach a fixed size and are composed of mature enamel, dentin, cementum and pulp tissues. The term “odontoma” by
definition alone, refers to any tumor of odontogenic origin. Odontoma in its early formative stage is known as Odontoblastoma, which is made up of neoplastic epithelial and mesenchymal cells, which are in the process of differentiating into cells that are able to produce calcified tooth-like tissue, namely enamel, dentin and cementum. This tissue continues to form in an abnormal arrangement until the growth of the tumor cell becomes exhausted and only the calcified tooth-like substance is seen in the form of denticles. At this stage, the soft tissue ceases its activity and remains as a fibrous capsule around the tumor mass. This final stage is known as ‘Odontoma’. According to the WHO classification, odontome can be divided into three groups:

- Complex: When the calcified dental tissues are simply arranged as an irregular mass, bearing no morphological similarity to the rudimentary teeth.
- Compound: Composed of all odontogenic tissues in an orderly pattern that result in many teeth-like structures, but without any morphological resemblance to normal teeth.
- Ameloblastic fibro-odontome: Consist of varying amounts of calcified dental tissues and dental papilla-like tissue, the latter component resembling an ameloblastic fibroma. The ameloblastic fibro-odontome is considered to be an immature precursor of a complex odontome.

A new type known as ‘hybrid odontome’ has also been reported by some authors. These are also classified as intraosseous and extraosseous odontomas. The intraosseous odontomas occur inside the bone and may erupt into the oral cavity (erupted odontomas). The extraosseous or peripheral odontomas are odontomas occurring in the soft tissue, covering the tooth bearing portion of the jaws and having a tendency to exfoliate.

Odontomas of all types comprise approximately 22% of the odontogenic tumors of the jaws. Relative frequency of complex odontoma varies from 5% to 30%, which makes the complex odontoma as one of the most common odontogenic lesions, superseeded in frequency only by compound odontoma. The literature reports about 83.9% of the cases to occur before the age of 30 years with a peak in the second decade of life. The male: female ratio varies from 1.5:1 to 1.6:1 to 0.8:1, according to different studies. Complex odontoma has a predilection for posterior maxilla than mandible, whereas compound odontoma are seen more in anterior maxilla.

Complex odontomas are slow growing, expanding and in most cases painless lesions. These are often detected accidently on routine radiographs.
The radiographic appearance of complex odontoma depends on their developmental stage. Three stages exist based on the degree of mineralization. The first stage is characterized by radiolucrency due to lack of calcification. Partial calcification is observed in the intermediate stage, while in third and final stage the lesion usually appears radio opaque with amorphous masses of dental hard tissue surrounded by a thin radiolucent zone.12

A differential diagnosis might include other radio opaque jaw lesions such as focal sclerosing osteitis, osteoma, periapical cemental dysplasia, ossifying fibroma and cementoblastoma.

Cleidocranial dysplasia, Gardner’s syndrome, orodigito facial syndrome, Down’s syndrome, crouson syndrome, hallermann streiff’s syndrome are some of the syndromes where multiple supernumerary teeth are seen. However, such teeth are rare in the absence of any syndrome/systemic condition.13

0.2% -0.9% prevalence of supernumerary teeth within the maxilla and mandible have been reported in the literature.3

Different classifications of supernumerary teeth have been proposed by various authors, based on their location in the dental arch or on their morphology. Terms like hyperdontia and accessory teeth have been used, but there exists minute distinguishing features. Accessory teeth do not have normal form and have a morphology that deviates from the normal appearance of the teeth. The term supplemental tooth is however used when the teeth are extra, but they have the shape and size of the normal teeth.2

The presence of supernumerary teeth is usually associated with problems of displacement, rotation, ectopic eruption of the adjacent teeth, resorption of the adjacent teeth and even formation of primordial cyst.

In the present case, complex odontoma was present in the anterior maxilla along with non syndromic unerupted supplemental teeth and it was seen in a female patient, which is quite contrary to the normal documented site and sex of the lesion. Although, the odontoma was associated with eruption disturbances, but the association with supplemental teeth was an incidental finding.

Conclusion

An unusual case of complex composite odontoma occurring in the anterior maxilla in 14 year old female patient with characteristic histopathological features which was associated with supplemental supernumerary teeth have been reported here. The odontoma was removed in totality, since it did not invade the bone locally. The prognosis was excellent and recurrence is rare in such lesions.
Complex Odontoma with Supplemental Supernumerary tooth

References
