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ABSTRACT

Odontomas are the most common type of odontogenic tumors. They are included under the benign calcified odontogenic tumors. Odontomas are basically classified into two types, complex and compound odontoma. Various theories or etiological factors are been quoted for the occurrence of odontomas. Generally, they are asymptomatic. Occasionally, signs and symptoms relating to their presence do occur. The sole management depends upon the early diagnosis, histopathological examination and excision of these tissues. Here we report a case of compound odontoma in a 18-year-old male that has caused the impaction of upper right maxillary permanent central incisor.

Key Words: Odontoma, compound odontomas, Odontogenic tumour, Retained primary teeth, Impacted teeth.

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INTRODUCTION:

The term odontoma was first used in 1967 by Paul Broca to describe all the odontogenic Tumors.^{1,2,3,4,5,6} Now odontomas are considered as hamartomas rather than true neoplasms.^{2,5} Odontomas are the most common type of odontogenic tumors.² Odontomas constitute of about 22% of all odontogenic tumors of the jaws.^{4,5,6} They are more common in females. Odontomas occur more often in the permanent dentition and are very rarely associated with the primary teeth.^{2,3,5}

Odontomas are composed of enamel, dentine, cementum and, in some cases, pulp tissue.³

Clinically, odontomas are asymptomatic lesions often associated with alterations in tooth eruption. Odontomas are subdivided into compound and complex types. Compound odontomas are usually seen in the anterior region of the maxilla, over the crowns of unerupted teeth or between the roots of erupted teeth. Complex odontomas are mostly seen in the mandibular posterior region.³

The diagnosis is made on routine-radiological studies, or on evaluating the cause of delayed tooth eruption. The lesions are unilocular that contain multiple radio-opaque miniature tooth-like structures known as denticles.³ compound odontomas are usually not associated with bony expansion, but complex odontomas can cause marked bony expansion.³

Here we report a case of compound odontoma in a 18-year-old male that has caused the impaction of maxillary right permanent central incisor.

CASE REPORT:

A 18 year old male presented with the difference in the size (broken tooth) (figure-1) of upper anterior teeth region since 3-4 years and gives the history of trauma in 51, pain and also bleeding at that time by falling down from stairs which had become annoying for him aesthetically.



Figure 1 shows broken tooth in upper anterior front region

Patient had not had not taken any treatment for the same.

Intraoral examination revealed missing 11 and 51 is present (figure-2) which is fractured and discoloured. The tooth was non-tender and non mobile.

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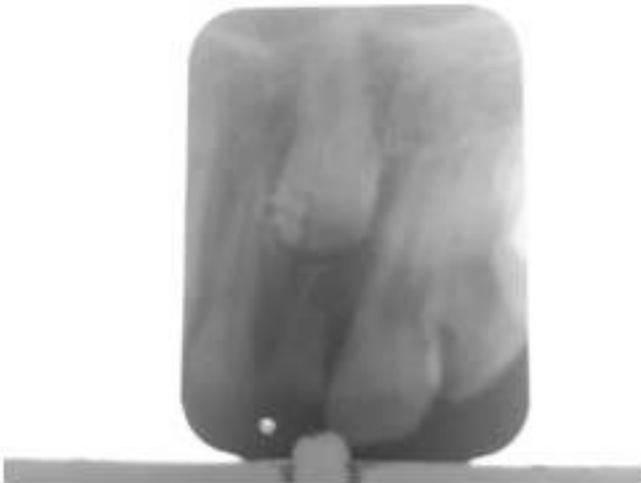


Figure 2 shows IOPA of 11 region impacted 11 and retained deciduous 51 with radiopacity incisal to 11

Provisional diagnosis of retained deciduous 51 with impacted or missing 11 was considered.

Periapical radiograph (figure-3) in relation to 51 and impacted 11 was present, the radiopacity was of around 0.5 cm in size and it gives tooth like appearance and the root of 51 is resorbed and the root canal cannot be traced.

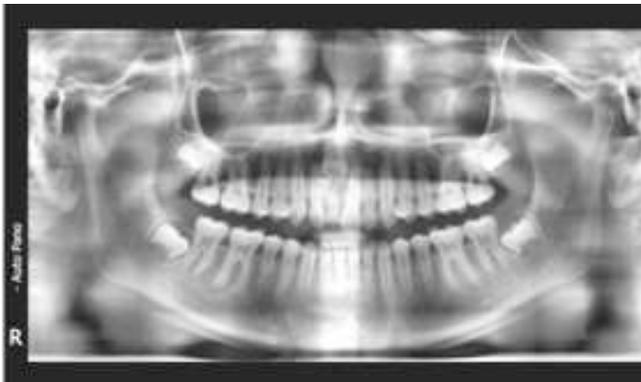


Figure 3 shows opg in which impacted 11 is seen with retained 51 and radiopacity in the incisal region

To check the presence of similar radiopacities in other area, opg was advised. Orthopentamogram (opg) (figure-4) showed a single radio-opacity is seen on the maxillary front region near the crown of impacted 11 distal to the root of 12 and at the apex of 51 which is of around 0.5 cm in size. Three button shaped radio-opacity are seen which is impacted and apical to retained 51 same as tooth like in relation to 11.

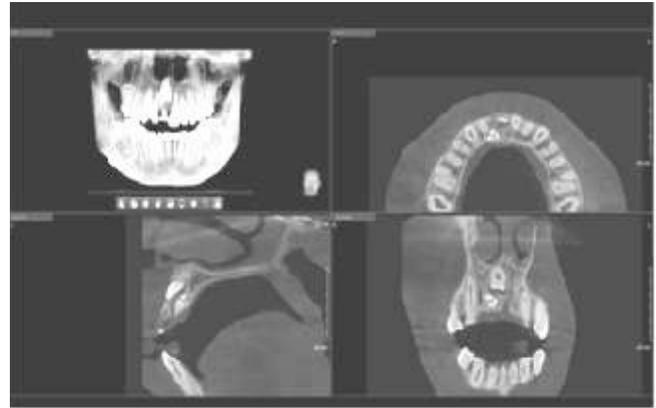


Figure 4 shows multiplanar reconstruction and coronal, sagittal and axial section in cbct

To check the size and location of odontoma Cone beam computed tomography (figure-5) was advised which showed 3 small radiopacities apical to over-retained 51 and incisal to impacted 11, size of two radio opacities are 6x3 mm in size. They lie close to each other and one is 3x2 mm in size. Their radiodensity is similar to enamel and dentin. Various transaxial (figure-6) sections of 11 region showed radiopacities apical to over retained 51 and palatal to erupted to 12 and coronal to impacted 11 (in the path of its eruption).

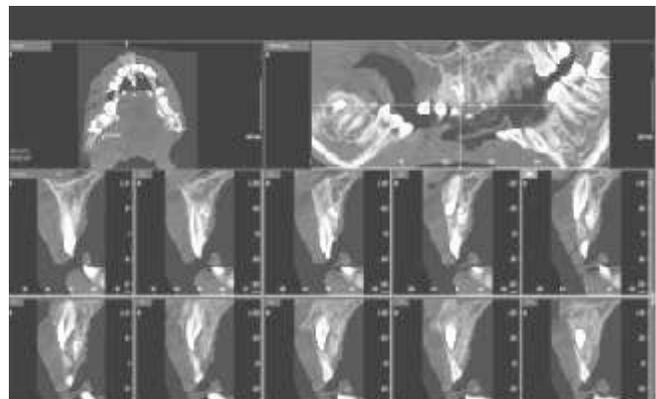


Figure 5 shows scout view and trans-axial sections of 11 region

Final diagnosis of odontoma in relation to 11 was made.

Extraction of 51 with removal of odontoma and passive eruption of 11 was advised.

DISCUSSION:

Odontomas are often found to disrupt the eruption of teeth, it may be associated with retention of deciduous teeth or may lead to mal-positioning of the permanent tooth, delayed eruption of a

permanent tooth or its impaction². Our patient had an retained deciduous 51 with impacted permanent 11.

Odontomas are benign tumors of odontogenic origin combining mesenchymal and epithelial elements.^{3,5} They chiefly consist of enamel, dentin and variable amounts of cementum and pulp. They are slow-growing, benign tumours showing nonaggressive behaviour. In odontome, the hard tissues are laid down in an abnormal pattern because the organisation of odontogenic cells fails to reach a normal state of morphodifferentiation. As this lesion is composed of more than one type of tissue, it is called as composite odontoma. Odontomas are subdivided into compound and complex types. Compound odontomas is composed of multiple, small tooth like structures. If the calcified dental tissues appear as an irregular mass bearing no morphologic similarity to even rudimentary teeth, they are called as complex composite odontoma. Complex odontomas are less common than the compound variety and are in the ratio of 1:2.^{2,5} In our patient a single radiopacity is seen on the maxillary front region near the crown of impacted 11 distal to the root of 12 and at the apex of 51 which is of around 0.5 cm in size. Three button shaped radiopacity are seen in which one is tooth like structure.

Four lesions containing enamel and dentine of normal appearance are defined in the WHO classification (1992). They are as follows.¹

1. *Ameloblastic fibro-odontoma*: Consists of varying amounts of calcified dental tissue and dental papilla-like tissue, the latter component resembling fibroma. The ameloblastic fibro-odontoma is considered as an immature precursor of complex odontoma.

2. *Odonto-ameloblastoma*: Its a very rare neoplasm which resembles an ameloblastoma both structurally and clinically but contains enamel and dentine.

3. *Complex odontoma*: When the calcified dental tissues are simply arranged in an irregular mass bearing no morphologic similarity to rudimentary teeth.

4. *Compound odontoma*: Composed of all odontogenic tissues in an orderly pattern that results in many teeth-like structures but without

morphologic resemblance to normal teeth.

According to their position within the jaws Junquera classified odontomas as in 2005.¹

a. *Intraosseous (erupted odontoma)*: They occur inside the bone and may erupt into the oral cavity. To date, 12 cases of the erupted variety have been described in the literature

b. *Extraosseous or peripheral odontomas*: These are odontomas occurring in the soft tissue covering the tooth bearing portions of the jaws, having a tendency to exfoliate.

According to Thoma and Goldman (1946).¹ Odontomas are classified as:

- Germinated composite odontoma—two or more, more or less well-developed teeth fused together
- Compound composite odontomas—made up of more or less rudimentary teeth
- Complex composite odontomas—calcified structure, which bears no great resemblance to the normal anatomical arrangement of dental tissues
- Dilated odontomas—the crown or root part of tooth shows marked enlargement
- Cystic odontomas—an odontoma that is normally encapsulated by fibrous connective.

Gravey *et al* in 1999 classified compound odontomas as.³

1. Denticulo type: Composed of two or more separated denticles having crown and root, dental hard tissue resembling that of the tooth.

2. Particulate type: Composed of two or more separate masses or particles, bearing no resemblance to the tooth.

3. Denticulo-particulate type: In this both denticles and particles are present together.

There are essentially two types of odontoma.¹

- Complex composite odontoma.
- Compound composite odontoma.

Z Gorlin et al eliminated the term composite as redundant and classified odontomas as either complex or compound.

On the basis of gross, radiographic and microscopic features two types of odontoma are recognized: (a) compound and (b) complex.

Our case presented with intraosseous particulate

type of odontoma.

Although it has said that odontoma has a limited potential for growth, but its surgical removal is indicated as it is derived from tooth forming epithelial cells making it susceptible to cystic change, which may lead to extensive destruction of bone. The treatment options range from simple observation with periodic radiographs to monitor the odontoma, clinical evaluation of eruption of dentition or surgical removal.²

It has been reported that approximately 70% of the odontomas are associated with pathologies in the adjacent teeth such as malformation, malposition, aplasia of the tooth as a whole or resorption.^{2,3} In our

patient, over retained 51 was present, the right maxillary central incisor was impacted by the presence of odontoma in the path of eruption.²

CONCLUSION:

Odontoma present as the most common type of benign odontogenic tumours affecting the jaws. They are seldom symptomatic, so their detection relies on radiographic examinations. However, they cause impaction of permanent teeth and careful treatment planning is required to manage the case. The treatment approach of such odontoma requires interdisciplinary management by an Orthodontist, maxillofacial surgeon, periodontist and prosthodontics.

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