

# Management of Anterior Maxillary Odontomes Secondary to Impacted Maxillary Central Incisor

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## ABSTRACT

Odontomes arise as a result of an aberration in the tissues responsible for the formation of teeth. Though regarded as tumors or hamartomas in the past they are now usually regarded as variations in development of malformations. A 15 yr old female patient with complaint of swelling and mobility of upper anterior teeth diagnosed as complex Odontomes of anterior maxilla managed with enucleation. Odontomes are diagnosed in the second decade of life and are commonly associated with delayed eruption and displacement of related permanent teeth which is sometimes accompanied by retention of deciduous teeth and swelling. The treatment of the Odontomes is surgical removal and there is no expectancy of recurrence. Since both the ameloblastic odontoma and the ameloblastic fibro-odontoma bear great resemblance to the common Odontomes, particularly on the radiographs it is suggested that all Odontomes be sent for histopathological examination.

**Key words:** Complex Odontomes, Anterior Maxilla, Enucleation

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J Oral Health Comm Dent 2013;7(3):181-183

## INTRODUCTION

Odontomes arise as a result of an aberration in the tissues responsible for the formation of teeth. Though regarded as tumors or hamartomas in the past they are now usually regarded as variations in development of malformations. In the 1971 WHO classification they are broadly divided into complex and compound odontomes (1).

The complex odontome is a malformation in which all the dental tissues are represented, individual tissues being mainly well formed but occurring in a more or less disorderly pattern. They tend to occur in the posterior parts of the jaws. The complex odontomes arise from an invagination of epithelium into the developing germ of the single tooth of a series or more rarely a supernumerary and so a normal structure is replaced by an anomalous one. The nature of malformation depends upon the stage of development of the tooth germ and the degree of maturity and

differentiation of its individual components at the time the invagination occurs and takes a variety of forms including the simple dens invaginatus, den in dente, dilated odontome, germination, and the deposition of all the dental tissues in a bizarre complex arrangement (1). Maxillary central incisors may be impeded by retained pulpless deciduous incisors or the presence of supernumeraries. Sometimes the tooth may be damaged and have a dilacerated root. Less common causes include impaction against odontomes or cysts, radiotherapy, hypothyroidism etc (2).

The etiology of the odontoma is unknown. It has been suggested that the local trauma or infection may lead to the production of such a lesion. It has been suggested by Hitchin that odontomas are either inherited or are due to a mutant gene or interference, possibly post natal, with the genetic control of the tooth development (3). Budnick has compiled an analysis of 149 cases of odontomas from the



Figure 1: Preoperative photograph showing swelling on left side of anterior maxilla

literature and found the mean age of detection to be 14.8 years with the most prevalence age of diagnosis and treatment being second decade of life with a slight predilection for occurrence in males (59%) compared with females (41%) (3). The odontoma may be discovered at any age, in any location of dental arches but 67% occurred in the maxilla and 33% in the mandible. Complex odontomas are less common than compound variety in the ratio 1:2. Compound odontomas are more common in the anterior region while complex odontomas tend to occur in the posterior region of the jaw (4).

Generally, odontome is an asymptomatic lesion that is usually found by chance and is often associated with the delayed eruption of permanent teeth (5). The radiographic appearances of the odontoma is characteristic and are often situated between the roots of the teeth and appear either as an irregular mass of calcified material surrounded by a narrow radiolucent band with



Figure 2: Preoperative OPG showing irregular multiple radioopaque structures in between the roots of right maxillary central incisor and left lateral incisor

a smooth outer periphery or as a variable number or tooth like structures with the same peripheral outline (3). The complex odontoma may appear also as a calcified mass overlying the crown of an unerupted or impacted tooth.

#### CASE REPORT

A 15 yr old female patient reported to the department of oral and maxillofacial surgery, PGIDS, Rohtak with chief complain of swelling in upper anterior teeth region. On examination, a firm, non-tender, dome shaped swelling (Figure 1) with normal overlying mucosa extending from labial frenum area to maxillary left canine region was present. There was grade-II mobility in 22 and 21 was missing clinically. On radiographic examination (Figure 2), several irregular radio-opaque structures surrounded by a narrow radiolucent band situated between the roots of right maxillary central incisor and left lateral incisor was seen.



Figure 3: Popping out of maxillary left central incisor

Management a crevicular incision was given from 11 to 23 with releasing incision given distal to 23 preserving interdental papilla. Mucoperiosteal flap was reflected, the thinned out cortical bone was removed with the help of bone rongeur. Soft fibrous tissue was found on exposure. While detaching the follicular fibrous tissue, a deformed central incisor popped out (Figure 3) with 3 irregular calcified structures (Figure 4). Follicular fibrous tissue was removed from the bony wall and bony cavity was irrigated (Figure 5). Flap was reapproximated and sutured with 3-0 silk (Figure 6). A confirmatory intra oral periapical x-ray was done to confirm complete removal of tooth like structures. The follow up period was uneventful.

#### DISCUSSION

Paul Broca was the first person to use the term “odontoma” in 1867. He defined the term odontoma as “tumors formed by the overgrowth of transitory or complete dental tissues” (6). Odontomes are often diag-



Figure 4: Bony cavity after removal of follicular fibrous tissue along with the calcified structures



Figure 5: Enucleated tissue with central incisor and complex odontomes



Figure 6: Closure of the cavity

nosed in the second decade of life and are commonly associated with delayed eruption and gross displacement of related permanent teeth which is sometimes accompanied by retention of deciduous teeth, and swelling or both (7). The increased use of routine radiographic examination has resulted in the presence of more of these lesions being discovered earlier before symptoms supervene. Once detected, an odontome is usually best removed as soon as it is practicable to perform surgery without damaging adjacent teeth or tooth germs.

The complex odontome in its mature form is a conglomerate mass of dental tissues, while by definition the mass does not in any-way resemble a recognisable tooth morphology. In its immature stage the lesion can be largely radiolucent and composed of loose connective tissue penetrated by strands and sheets of odontogenic epithelium 2-3 cells thick. As the complex odontome cease to grow, some consider it to be a hamartoma rather than a benign neoplasm (2). Others favour the neoplastic concept pointing out that the epithelium does not cease to proliferate of its own volition. It induces changes in the surrounding connective tissues so that calcified tissue is formed which traps the epithelium and prevents its further proliferation. The dense laminated masses of the mature complex are quite characteristic and easily recognised in radiographs (2). Not infrequently they form over the crown of a developing tooth so that its eruption is prevented as happened in the present case. Others appear to replace a tooth which is

missing from the arch, and yet other occurs in those parts of the jaws favoured by supernumeraries. Their removal may present mechanical difficulties if they are large and if adjacent teeth are to be preserved but there are no other problems with the mature one. The close apposition of rough irregular surfaces of larger complex odontomes and the investing bone makes their removal difficult (1) unless associated with chronic infection has caused some bone resorption as happened with the present case. Both the surgical and the orthodontic treatment of such cases may be complicated and time consuming. In some cases spontaneous eruption can be observed after odontoma removal (7). Therefore it is usually best that they are undertaken in specialist centres.

In the present case, we planned to remove the lesion surgically and as we raised the mucoperiosteal flap there was thinning of the overlying cortical bone. From there we removed the thinned out cortical bone with the help of bone rongeur. While detaching the follicular fibrous tissue, a deformed central incisor popped out with 3 irregular calcified structures. The popping out of the tooth indicates that the central incisor was lying free within the follicular tissue and was not having any bony attachment hence cannot be preserved.

#### CONCLUSION

Odontomas are the most common type of odontogenic tumours or hamartomas and arise as a result of aberration in the tissues responsible for the formation of the teeth. Since odontomas represent a

large proportion of odontogenesis lesions, it is necessary to establish early diagnosis and treatment. The treatment of the odontoma is surgical removal and there is no expectancy of recurrence. Since both the ameloblastic odontoma and the ameloblastic fibro-odontoma bear great resemblance to the common odontoma, particularly on the radiographs it is suggested that all odontomas be sent for histopathological examination.

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