Compound Composite Odontome associated with Partial Anodontia – A Case Report

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Abstract

Odontomes are hamartomatous lesions or hard tissue anomalies rather than true neoplasm. They are asymptomatic frequently associated with delayed tooth eruption and often diagnosed in the second decade of life. This case report discusses the presence of multiple tooth like structures in the upper right front region of the jaw with the patient's complaint of the delayed eruption of 13. Clinical and radiographic findings were suggestive of odontome in relation to 12 and 13 region along with the absence of 12. Hence the treatment was planned for removal of the odontome to facilitate the eruption of the permanent canine.

Keywords : Compound Composite Odontome, Odontogenic Tumour, True Partial Anodontia.

Introduction

Odontomes are benign tumors of odontogenic origin consisting of mesenchymal and epithelial dental elements that give rise to ameloblast and odontoblast. These tumors are formed of enamel and dentin, and some cases also have variable amount of cementum and pulp tissue.[1,2] Odontomes by definition alone refer to any tumor of odontogenic origin.[2] They are the most frequently occurring tumors and are considered to be developmental anomalies rather than true neoplasm.[1] These generally associate with unerupted or impacted teeth, retained deciduous teeth, swelling, and evidence of infection.[2] Although usually located pericoronal to an impacted tooth, the odontoma may also arise from odontogenic progenitor cells within the periodontal ligaments thus become located between tooth root and are not associated with disturbance in eruption.[3] The presence of odontomes can delay the exfoliation of deciduous tooth and the eruption of the permanent successors.[4] These clinically asymptomatic lesion usually diagnosed on routine radiographical examination or on evaluating the cause of delayed tooth eruption.[5]

The purpose of this article is to report a case of unilateral compound odontome in the maxillary anterior right region causing delayed eruption of permanent canine. The article also discusses about the investigations, treatment and complications pertaining to this clinical condition.

Case Report

A 12 year old girl reported to the Department of Pedodontics and Preventive Dentistry I. T. S. Dental College, Hospital and Research Centre, Greater Noida with the chief

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complaint of delayed eruption of the upper right front tooth. The patient was asymptomatic and had no contributing medical and dental history. Clinical examination revealed erupted multiple small teeth like structures in 12 region and absence of 12 and 22 (Fig. 1). Intra oral radiograph showed missing 12 and 22. Teeth like multiple radio-opaque structures were seen in the 12 region overlapping the unerupted 13 (Fig. 2). The lesion was clinically asymptomatic. Based on the clinical and radiographic evaluation, a diagnosis of compound composite odontome with 12 region and true partial anodontia in relation to 12, 22 was made.

Fig. 1: Odontome in the upper maxillary right region and the absence of 12 and 22.

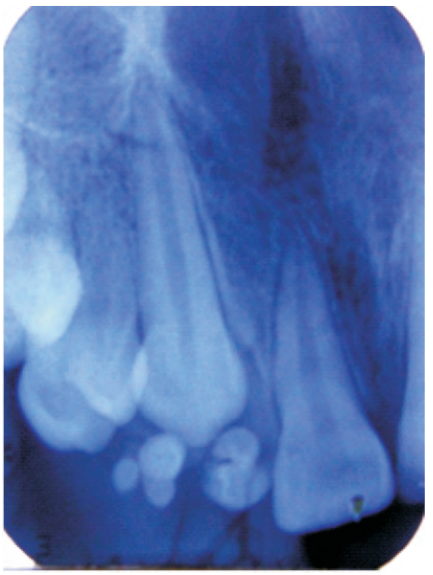

Fig. 2: Intra oral radiograph showing teeth like radio-opaque structures in the 12 and 13 region

The eruption of tooth 13 was probably impeded by the teeth mass. The multiple teeth mass was probably developed from the dental follicles of 12. Extraction of the multiple teeth like structures was decided as the treatment plan (Fig. 3) and the patient was kept for observation. The tissue was sent for histopathological evaluation.

Fig. 3: Extracted odontome

Discussion

The term odontome by definition itself refers to a tumor of odontogenic origin. A growth of both the epithelial and mesenchymal components with complete differentiation resulting to functional ameloblast and odontoblast forming enamel and dentine. The abnormal pattern of laying down of enamel and dentine failed to reach the normal state of morphodifferentiation.[2] 'Odontome' was first used by Paul Broca in 1867. In 1914, Gabell, James and Payne grouped odontome according to their developmental origin: epithelial, composite (epithelial and mesodermal) and connective tissue. In 1946, Thoma and Goldman[6-7] classified odontome as,

1. Geminated composite odontomes-two or more, more or less well developed teeth fused together.
2. Compound composite odontomes-made up of more or less rudimentary teeth.

3. Complex composite odontomes-calcified structure, which bears no great resemblance to the normal anatomic arrangement of dental tissues.
4. Dilated odontomes-the crown or root part of tooth shows marked enlargement.
5. Cystic odontomes-an odontome that is normally encapsulated by fibrous connective tissue in a cyst or in wall of cyst.

W.H.O. divided odontomes into three groups.[8]

1. Complex odontome – when the calcified dental tissues are simply arranged in an irregular mass bearing no morphologic similarity to rudimentary teeth.
2. Compound odontome – composed of all odontogenic tissues in an orderly pattern that results in many teeth like structures, but without morphologic resemblance to normal teeth.
3. Ameloblastic fibro-odontome – consists of varying amounts of calcified dental tissue and dental papilla like tissue, the later component resembling an ameloblastic fibroma. The ameloblastic fibro-odontome is considered as an immature precursor of complex odontome.

There are essentially two types of odontomes in the literature.[8]

1. Complex composite odontome.
2. Compound composite odontome.

A new type known as Hybrid odontome is also reporte by some authors.

Although the etiology of odontome is not clear, several theories have been proposed including local trauma, infection, family history, hereditary anomalies (eg; Gardners syndrome, Hermanns syndrome), odontoblastic hyperactivity and alterations in the genetic components responsible for controlling dental development. The persistence of a portion of dental lamina may be an important factor in the etiology of compound and complex odontome and either of this may occur instead of a tooth.[9] Hitchin reported that odontomes are inherited or are due to a mutagene or interference, possibly postnatal with the genetic control of tooth development.[10] Philipsen et al. suggested that the formation of a compound odontome is pathologically related to the process producing hyperdontia, multiple schizodontia or locally conditioned activity of dental lamina.[11]

Odontomes have a slight predilection for occurance in males (59%) compare to females (41%), they can occur in either arch, commonly in posterior region and are frequently diagnosed in the 2nd decade of life[11]. Of all odontomes combined 67% occur in maxilla and 33% in the mandible. Complex odontomes have predilection for posterior jaws 59%, anterior maxilla 34% and lastly premolar area 7%.[12]

Radiographically odontomes present as well defined radiopacities situated in the bone, but with a density that is greater than bone and equal to or greater than that of tooth. A radiolucent halo, typically surrounded by thin sclerotic line surrounds the radiopacities. The radiolucent zone a connective tissue capsule similar to that of normal tooth follicle. In this case it was seen radiographically as a dense radiopaque structure inside the jaw bone, with clear external margins, presenting as a complex mass.[13]

The treatment option for odontome comprises surgical extraction, fenestration and posterior orthodontic traction or simple observation

with periodic clinical and radiographic examination to evaluate the path of eruption of teeth.[14-16]

In the present case there was delayed eruption of 13 which was resulted due to the presence of odontomes in the 12,13 region. The odontomes may probably have developed from the dental follicles of 12, since the case also presented partial true anodontia in relation to 12 and 22. Hence, in all pediatric patients that show clinical evidence of delayed permanent tooth eruption or temporary tooth displacement with or without history of previous dental trauma; radiographic examination should be performed. Thus, it is suggested that early diagnosis of the odontomes allows the application of a less complex and less expensive treatment which ensure better prognosis.

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