

Complex Odontoma: An Overview

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Abstract

The dental tissues comprising of dentin, enamel, sometimes pulp, and cementum are the hamartomas which are known as odontoma. These have behavior not so aggressive. The common type of tumor of odontogenic origin about (35-76)% is the odontoma. It is a tumor of benign type arising from epithelial and mesenchymal differentiated alteration, odontogenic cells. These odontomas are of two types—complex and compound, the both are differentiated from each other by the organization of the tissue of dental origin in a ratio of 1:2. Although the etiology is not known till now but may be related to anomalies of hereditary origin, infection, also by trauma and by hyperactivity of odontoblast process. By the means of radiological view these odontomas can be recognized and these in very few case causes expansion of the cortical bone. These odontomas occur in the second decade in number and usually takes place in the mandibular second or third molar tooth. This particular article summarizes the complex composite odontoma.

Keywords: Complex Odontoma; Prognosis; Differential Diagnosis; Treatment.

Introduction

The tumor of odontogenic origin and benign is the odontoma. It was first put forward by Broca in the year 1866 as odontoma and he had mentioned this as a tumor by the tissues which are completely dental in origin with the excess growth.^(1,2) The tissues of dental origin which are proliferated abnormally combinedly by the mesenchymal and epithelial components results in the form of odontoma. As these odontomas neither have any type of growth that is continuous nor to the tissues surrounding them, they infiltrate inside. So they can be considered as malformation of hamartomatous type. The lamina of dental origin from the bud of extraneous

gives rise to the odontoma.^(3,4,5) Usually, the odontoma is linked with retained or impacted teeth.

Odontoma etiological factors⁽⁶⁻¹⁰⁾:

- (a) History from family
- (b) Processes which is infectious and inflammatory.
- (c) Hereditary factor leading to anomalies in conjunction with Gardner and Hermann's syndrome
- (d) Alteration in genes giving rise to the aberrations in the pathways which gives signals for the development of tooth to be controlled.
- (e) When the odontoblast activity is hyper.
- (f) During dentition of primary type, under trauma.

Review of literature

Aspects, Epidemiologically: The tumors of odontogenic type are recorded worldwide which varies in the frequency range of 1-32%.^(11,12) is the odontoma. They are as per various studies reported higher in females of age group 17 to 22 years in the other hand others reported higher in males of age group from 13 to 25 years,

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as per the meta-analysis conducted by Hidalgo O et al in the year 2008 odontomas, characteristics is sorted out epidemiologically. By a study of cases of 3,065 patients resulting in males about 50.6% and females to 49.4%.⁽¹³⁾ To conclude with no difference significantly was present as per the gender is concerned.⁽¹⁴⁾ Odontomas are identified by a wide range of age factors reported, predominantly in the life of 2nd decades.⁽¹⁵⁾

Characteristics–Clinically: There are three presentations found clinically in the literature scientifically that have been recognized in the case of odontoma: extra-osseous, intra-osseous and erupted. The commonest type of odontoma is intra-osseous.⁽¹⁴⁾ The canine to incisor is the frequent location reported in the maxillary arch about 67% then is the anterior mandibular arch with that next region is the posterior mandibular arch about 33%.^(15,16-18,19) The complex type of odontoma occurs frequently in the mandibular arch, posteriorly about 59% but the compound odontomas usually appear in the anterior- maxillary arch in the region over the crown in un-erupted, one or more teeth, in some cases appears between the teeth of erupted root region about 61%.^(20,21) These tumors are not of aggressive nature which is symptomless, benign and are elicited radiologically in about many cases reported upto 57%. In isolated, unusual cases these odontomas are reported to be found in the nasal passage, antrum of Highmore, and the orbital floor. The odontoma commonly is intraosseous and from the cases reported never have they ever erupted towards the cavity of the orbit. As per Suenaga et al, the odontoma of complex type in a case was found to be located at the fossa of the nasal cavity of the right side leading to obstruction of the nasal region with bleeding.⁽²²⁾

Characteristics- Radiologically: The odontoma of complex type exhibited with radiopacity that is unique. Accordingly, the degree of calcification of odontoma, 3 stages in the development are identified- 1st stage lesion is radiolucid by calcification lacking of tissues of dental origin, the stage of intermediate characterized which is calcified partially and the stage finally shows radiopacity which is surrounded with a halo of radiolucidity.⁽²³⁾

Characteristics- Histologically: The odontoma of complex type characterized with presence of tissues of dental origin comprising of enamel that is demineralized, dentine, with cementum sometimes pulp included exhibiting a mass that is disorganized of dental hard tissue, peripherally the epithelial

odontogenic strands are found, sometimes cementicles, cells of phantom and epithelium of the ameloblasts is detected. These odontomas can get associated with other tumors of odontogenic type as Fibroodontoma, Ameloblastic fibroma, Ameloblastoma, Calcifying Epithelial Odontogenic Tumor, Odontoameloblastoma, Dentigerous Cyst and Odontoameloblastoma. For this reason histopathology report is needed in every case.⁽²⁴⁾

Differential Diagnosis: The odontoma of complex type in the phase of intermediate resembles lesions like lesions of fibroosseous, origin, Fibrous Dysplasia, Calcifying Cystic Odontogenic Tumor and osteomyelitis of chronic type.⁽²⁵⁾ The most frequent type of odontogenic tumor associated with odontoma is Calcifying Cystic, found about 24% cases.⁽²⁶⁾ When surrounding the crown it could be differentiated with Adenomatoid Odontogenic Tumor, Ameloblastic Fibro-dentinoma/odontoameloblastoma, and Calcifying Epithelial Odontogenic Tumor.⁽¹⁶⁾

Prognosis: The odontomas may have complications as: teeth are impacted, obstruction of the nasal cavity, syndrome in the dental region.⁽²⁴⁾ The major cause of impacted incisors in the permanent dentition by which the eruption of the teeth is hindered is due to the odontoma besides an extra number of teeth.⁽¹⁶⁾ In rare cases may cause an inflammatory reaction of the adjacent (soft) tissues/infection along with suppuration when the odontomas erupt spontaneously into mouth. From the reported cases more often complex odontoma occurs rather than compound type of odontoma.⁽¹⁷⁾ In cases with erupted type of odontomas, it exhibits the formation of abscess and caries.⁽²⁷⁾

Treatment: The treatment of choice in these cases is by conservative enucleation surgically by removing the tissue of conjunctive capsule surrounding it and a sample is prepared for histopathological report which will make the diagnosis accurate.^(24,25) In some cases treatment, orthodontically is required for the repositioning of the arch for the retained tooth.⁽²⁸⁾ The prognosis is favorable and the rate of relapse increases in the cases an enucleation has been conducted in the first stage of calcification.^(16,23)

Conclusion

The review of literature revealed the view that is quite wide for the complex odontoma in descriptive means. The complex odontoma is frequently tumor of odontogenic type which could be detected by

radiographic routine examination, with that commonly seen in the patients at their 2nd decade. Hence it's advisable to diagnose the condition timely and it should be accurate to avoid complications. The analyses of histopathologically is recommended by which the association with another tumor of odontogenic type can be ruled out.

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