Complex Odontoma in posterior mandible of a 12 year old: A Case Report with literature review.

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Abstract:

Background:

Odontomas are benign odontogenic tumours which constitute 22% of all odontogenic tumors of head and neck. Broca in 1866 coined the term odontoma; he defined it as a tumour formed by an overgrowth of complete dental tissues. Based on clinical, radiographic and histological features, odontomas are classified into complex and compound variety. WHO defines complex odontoma as malformation in which all of the dental tissues are represented, and individual tissues mainly are well formed but occur in disorderly pattern.

Aim:

The authors have discussed the case report, as very few such cases have been documented in the past. With a brief review of literatures present in the database, it is an attempt to lay further grounds for investigation and study in this field.

Material and method:

12 year old male patient was referred to the department of oral and maxillofacial surgery with a large swelling on the lower left back region of the jaw. Associated signs and symptoms like numbness and pain were reported with the progressive swelling which was gradually growing since one year. Following the diagnosis of a complex odontoma, surgical enculeation was successfully performed to remove the

Conclusion:

Complex Odontomas are generally asymptomatic and do not cause any deleterious changes in the surrounding structures. Treatment should be confirmed with a radiographic and histological evaluation, followed by surgical enculeation under local or general anaesthesia. Following the diagnosis of a complex odontoma, surgical enculeation was successfully performed to remove the lesion. A follow up period was 1 year and 9 months. The postoperative clinical and radiographical evaluation showed no signs of recurring pathology or infection. The patient showed good bone healing with full form and function.

Clinical Significance:

Routine dental check-ups are advised as such anomalies can be diagnosed and treated early with minimal intervention. A detailed treatment plan and strict adherence to the follow up, post a histological evaluation ensures a low recurrence rate, although the recurrence rate is low, clinical and radiographic examinations should be routinely carried out to rule out any infection or recurring pathology

Keywords:

Complex odontoma, Diagnosis, Enucleation , Posterior mandible, Pediatric patient

Introduction:

Paul Brocain coined the term 'Odontoma' in 1867. Earlier the term odontoma was used to describe all odontogenic tumors but recently the term is used for lesions like epithelial, hamartomas and ectomesenchymal components of odontogenic origin[1]. Odontomas result from the growth of completely differentiated epithelial and mesenchymal cells which exhibit difference in formation[2]. Odontomas constitute 22% of odontogenic tumors which can be further divided into Complex and Compound types as classified by WHO based on their histological and morphological characteristics[3].

The complex varieties (5-30%) are less common compared to the compound type (9-37%). Complex odontomas are a rare variety and are generally seen in the posterior mandible of females[4, 5]. While compound odontomas are seen commonly occurring in the anterior maxilla. Odontomas are generally discovered with permanent dentition[6, 7] in the second and third decades of life [8, 9, 10] and have a predilection for the right side of the jaws.(Compound 62% and Complex 68%). Clinical signs generally include retained deciduous teeth, impacted permanent teeth with progressive increase in the size of swelling which may even lead to facial asymmetry. Symptoms may range from paresthesia to pain and mobility of teeth involved with obvious enlargement of the jaw[3]. The treatment option is surgical removal by conservative methods as they show a very rare rate of recurrence[11].

Here, the authors present a case of Complex odontoma in a 12 year old male patient located in the left posterior mandible.

Case report:

12 year old male patient visited the department of oral and maxillofacial surgery, the Oxford Dental College for an evaluation of a progressive swelling on the lower left side of the jaw since one year. Patient experienced pain which was intermittent and dull in nature, moderate in intensity and aggravated while chewing or speaking. Patient experienced heaviness in the same area with occasional numbness.

Extra-oral examination:

Demonstrated a tender, hard and firm swelling on the lower left back region of the jaw. Gross asymmetry of the left face was noticed. Lymph nodes were non tender and non palpable with a mild hyperaemia at the site of swelling. The overlying skin showed normal colour and contour.

Intra-oral examination:

Revealed a well defined swelling on the left lower buccal mucosa along the alveolar ridge from distal of 36 to the angle of the mandible. The overlying mucosa was raised, tender on palpation with no change in the colour or texture. The swelling was tender, irregular in shape and exhibited no pus, blood or watery discharge. On pulp vitality testing, 35 and 36 did not respond to the heat or electric impulses referring to non-vitality, while 37 was missing. The swelling measured 3 cm mesiodistally* 3 cm inferiorly and 3 cm antero-posteriorly.

Differential diagnosis:

Dentigerous cyst, Calcifying Epithelial Odontogenic Tumor or an Ameloblastic Fibro odontoma were the differential diagnosis.

Patient was advised for CBCT to confirm the diagnosis.

Radiographic findings (Figure 1, 2 and 3)**:**

Axial, Saggital and Coronal sections of a CBCT were obtained and lateral section along the arch were made and assessed. A radio-opaque irregular mass of the same density as the teeth,extending from the

inferior border of the mandible to the distal of 36 through the body of the mandible. 37 and 38 were seen impacted, where 37 was pushed to the inferior border of the mandible and 38 was incompletely formed with a mesial angulation. The mass was encircled with a radiolucent line which was obliterated by 37 and 38 extending to the retromolar trigone. The path of mandibular nerve seemed to be compressed along the lower border. The radiographic measurements were 2.9 cm mesiodistally* 2cm inferiorly* 2cm anteroposteriorly. Crown and root apices were placed equidistance from the buccal and lingual bone, impinging the inferior cortex of the mandible. Crown of 37 was placed approximately 1.5cm inferior to the crestal bone which is occupied by the lesion. Mandibular canal is compressed and moved lingually to the lingual aspect of the tooth to the level of Cemento-enamel junction. No bony barrier was seen between mandibular canal and cervical third of the tooth roots. Blunting of distal root apex of 36 was seen with the tooth more buccally placed compared to the lesion. Margins were well defined, smooth and corticated throughout except on its superior aspect. Expansion and severe thinning of buccal and lingual cortical plates was seen with multiple radiopaque masses having irregular shapes seen developing on the left side of 38.

Provisional Diagnosis:

Complex Odontoma, Compound odontoma or Cystic Odontoma.

Based on the history and clinical evaluation, a conservative surgical enucleation of the lesion with 2mm of healthy bone and tissue, was performed under general anesthesia and the specimen was sent for histological evaluation. The site was irrigated with betadine solution and the bony edges were smoothened. Primary haemostasis was achieved and the wound sutured. Patient was prescribed antibiotics and analgesics for 5 days. The excised mass comprised of irregular calcified tissue as well as multiple calcified teeth like structures. A post operative OPG was taken which showed complete enucleation of the lesion (Figure 4).

Histological evaluation:

Revealed collected masses of enamel, pulp and dentinal tissues which were not well differentiated and were irregularly arranged across the specimen.Fibro-vascular tissue areas were noticed with connective tissue islands around it.

Follow-up:

Follow-up period was a total of one year and 9 months. Postoperative CBCT revealed bone healing and did not show any signs of recurrence or infection.

Discussion:

Most of the odontomes reported in literature are of the compound variety. Rare cases of complex odontomas are reported in adults. Complex odontomas are generally found in association with permanent dentition dentition as a hard painless mass, which rarely exceeds diameter of the tooth. Most of the odontomas are associated with pathologic changes such as impaction, malpositioning, aplasia, malformation, and devitalization of adjacent teeth[13-14]. Most of these lesions are discovered accidentally on radiographic examination having a unilocular appearance and rarely demonstrate nodular structures[2, 12]. Impacted permanent teeth and swelling are the most common signs. Literature suggests that the most likely cause for the occurrence of a complex odontoma is either trauma or infection. It is an entity with a very rare rate of recurrence[12]

Radiological appearance of a complex odontome depends on the stage of development and degree of maturation. Most commonly appears as a radio opaque mass which rarely resembles tooth structure[12.]Partial to complete calcified masses may be found with or without association of deciduous or permanent teeth[1-3, 5]. The capsule is generally well defined radiographically and histologically[6,15]. Calcified masses of enamel, dentin or pulpal tissues might be seen arranged in a regular to a haphazard conglomerate form. Therefore, a conservative approach should be applied to excise or enucleate the lesion for histological evaluation.

Conclusion:

The presented case is a complex odontoma is a 12 year old male patient with impacted 37 and 38. Rare cases like these should not be diagnosed on the basis of clinical evaluation purely. A final

diagnosis should be derived post a histological evaluation. Although the recurrence rate is low, the patient should be followed up with clinical and radiographic examinations to rule out any infection or recurring pathology.

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Figure 1: CBCT Mandible.

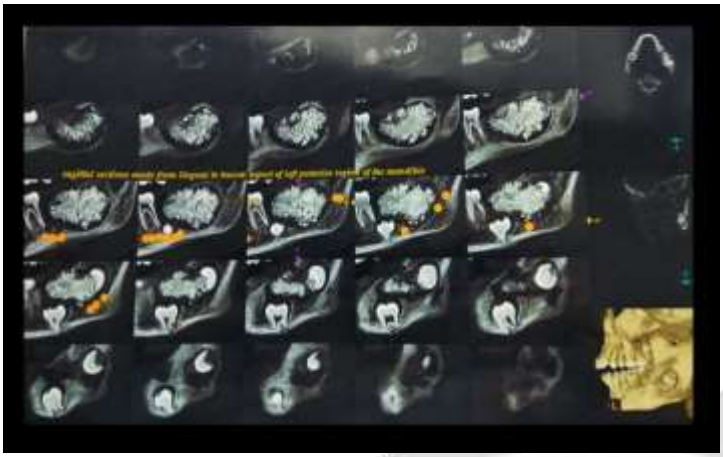
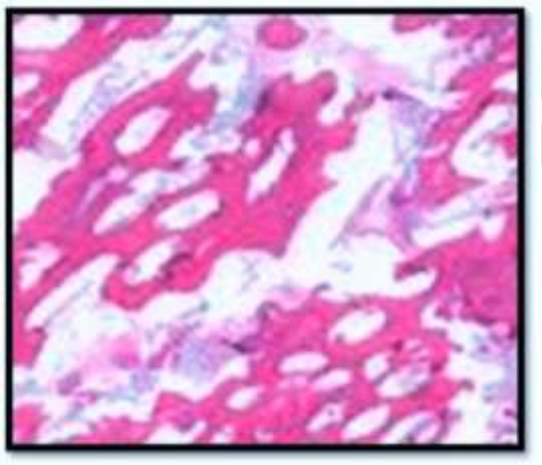


Figure 2: Figure 3: CBCT mandible- lateral view- 3D reconstruction.

Figure 3: Histological picture of Complex Odontoma



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