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Dentigerous cyst associated with complex odontoma

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***Abstract*---**The complex odontoma is non aggressive hamartomatous developmental malformations usually asymptomatic, with slow evolution and may be associated with other disorders such as dentigerous cyst as outlined in our case. The treatment of choice is surgical excision of the lesions along with the tooth associated to the cyst. Surgical excision of odontome with cyst in children should be performed with careful, imperative, immediate planning; preventing injury to vital structures and developing occlusion.

***Keywords*---**complex odontoma, dentigerous cyst, children, non aggressive hamartomatous.

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Introduction

Odontomas are hamartomas or malformation of dental tissues. They are the end products of anomalous completion or incompletion of tooth formation by odontogenic epithelium and ectomesenchyme. They contain all the 4 dental tissues- enamel, dentin, pulp and cementum. Odontomas are defined as nonaggressive hamartomatous developmental malformations or lesions of odontogenic origin which consists of enamel, dentin, cementum and pulpal tissue by the World Health Organization (WHO). They are slow growing and symptomatic, occurring particularly in incisor-canine region and third molar region. Odontomas have been differentiated into two types radiographically and histologically; 1) Compound Odontoma 2) Complex Odontomas.[1] Compound odontoma are slow growing, non infiltrative lesion consist of calcified tooth like structures or miniature teeth. It occurs most commonly in maxilla, especially in anterior region. Complex odontoma consist of an irregular calcified mass of hard and soft dental tissue, displaying a disorderly and haphazard arrangement of calcified dental structures. Structural differentiation is poor, having little resemblance to normal form of tooth. Frequently, it forms a cauliflower-like mass of hard dental tissues which is surrounded by a fibrous follicle. Dentigerous cysts are the second most common cystic lesion to affect the mandible. The term dentigerous means “containing tooth”. They are more frequent in patients between 10 and 30 years of age and in Caucasians, with male predilection.

Case Report

A 15-year-old girl reported to the Department of Oral and Maxillofacial Surgery in Sakri Bilaspur with chief complaint of pus discharge on her left cheek region since 20 days.

Figure 1- Extraoral Photograph

Figure 2- Pre-operative OPG

Patient's father gave history of swelling on her lower left cheek region 20 days back, for which she reported to local dental clinic and got medications for the same but she didn't get relief. Pain was mild, intermittent, dull in nature associated with intra-oral swelling. The family history and medical histories were non-contributory. No history of trauma to the face or mouth was recalled. Extra-oral examination revealed, a diffuse swelling seen on left lower angle region of the face extending superiorly from just below the ala tragus line and inferiorly to the base of mandible and anteroposterioly extending from 1 cm posterior to the corner of the mouth to 1 cm anterior to the tragus, which was round in shape and smooth surface. On Palpation, Swelling was soft in consistency, non-tender, non-fluctuant in nature with diffuse borders. Extraoral draining sinus was present in the left cheek region which was 2×2 mm in size with pus discharge (Figure-1) and submandibular lymph node was palpable on the left side which is non tender.

Figure 3- Intraoral

Intra-oral examination revealed vestibular tenderness in 36 and 37 tooth regions. No inflammatory signs were noted in the gingiva and alveolar bone but a bulge appeared on the buccal surface in the right lower molar region (Figure 3). A radiographic examination revealed, impacted 3rd molar tooth. A well demarcated unilocular radiolucent follicle occupied by a radio-opaque mass, seen in left angle region with impacted 38 (Figure 2). The provisional diagnosis was complex odontome and odontogenic keratocyst.

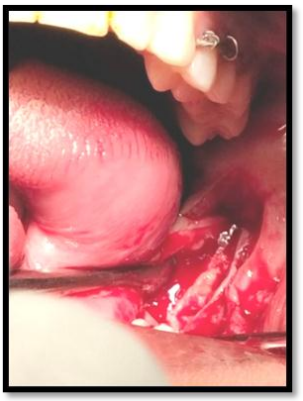

Figure 4- Mucoperiosteal flap elevation

Figure 5- Removal of lesion

Under all aseptic condition, Nasal intubation was done (right side) and general anaesthesia was administered. Standard painting and draping was done using betadine. Local anaesthesia (2% lignocaine with 1:80000 adrenaline) infiltrated at surgical site. 36 was extracted. Modified ward's incision was given extending from distal to 35 to anterior border of ramus. A full thickness mucoperiosteal flap was raised and surgical site exposed. Bone guttering was done using 702 straight fissure bur and entire circumference of bony mass was removed in toto. (Figure 5). Unerupted 38 was removed and curettage of bony socket was done. Cavity was packed by abgel and haemostasis was achieved. Closer was done using 3-0 vicryl suture. Extraoral sinus track was cleared and irrigation done by betadine and normal saline and 3-0 silk suture was given. Patient was extubated uneventfully and shifted to ICU. Resected bony and soft tissue specimen was sent to pathology lab for histopathological examination which was confirmed as a complex odontome with dentigerous cyst irt 38. The post operative period was uneventfull. The patient has monitored at regular intervals. This case shows a complex odontoma evidence on radiograph by multiple denticles encircled and a radiolucent area in left 3rd molar region of mandibular 3rd molar region of mandible associated a dentigerous cyst.

Figure 6- Empty Socket

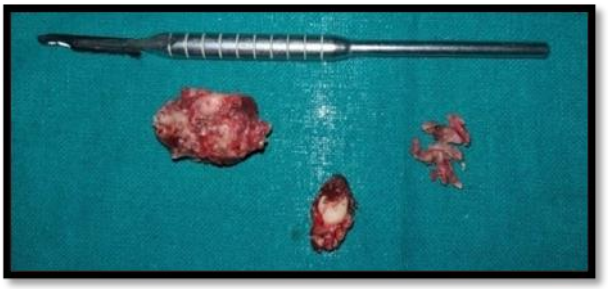

Figure 7 Specimen of complex odontome with

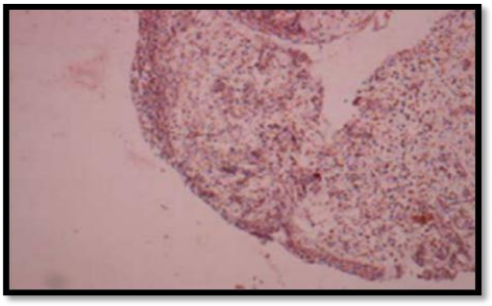

Figure 8: Histopathological image of compound odontoma

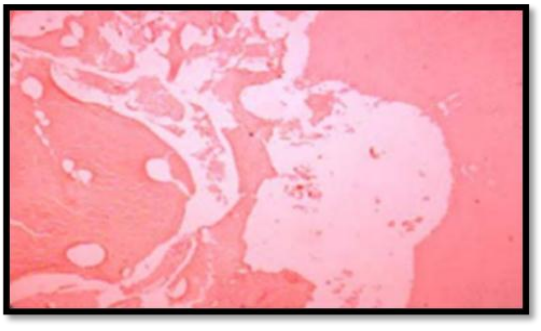

Figure 9:Histolopathological image dentigerous cyst

Figure 9- Post-op OPG after 1 month

Figure 10- Post-op OPG after 1.5 year

Discussion

Odontoma is a generally an asymptomatic lesion which is formed of enamel, dentin, cementum, and pulp tissue.[1]According to the latest classification of the World Health Organization There are two types of odontomas.[2] The compound odontoma are more common than complex odontoma, composed of multiple small calcified structures that are anatomically similar to normal teeth and are typically surrounded by a narrow radiolucent zone on radiograph. Complex odontomas often cause slight or even marked bony expansion, whereas Compound odontomas usually do not cause any bony expansion.[2]

The complex odontoma is composed of an amorphous mass of calcified material that exhibits a radiodensity similar to that of teeth. Complex odontome is more common in posterior teeth, and is surrounded by a narrow radiolucent rim on the radiograph. However, it does not anatomically resemble teeth. The odontomas are found commonly in the first two decades of life, which are asymptomatic and are diagnosed on routine radiographs because of their non-aggressive behaviour. However, sometimes the presence of odontomas and cysts are associated with pain, swelling, displacement of erupting teeth, over-retained deciduous teeth, displacement and expansion of cortical bone and cystic and carcinomatous transformation, Because of the ensuing problems, odontomes and cysts require early detection and prompt treatment.[3]

Secondary infection can occur because of the lack of adequate adhesion between the bone and the odontoma due to the absence of periodontal ligament or due to replacement of bone by a large amount of avascular tissue and microorganisms.[4] The present case shows a complex odontoma in posterior mandible, which is most common site for it and was associated with impacted 3rd molar tooth. When the lesion was exposed surgically the soft tissue lining was attached to the odontoma and not the impacted tooth, which confirms the association of cyst with the odontoma only.[5]

The early diagnosis and treatment of odontomas is very important because these are a major category of odontogenic tumours occurring within the jaws which are usually managed by conservative surgical excision.[6] The final diagnosis should be based on clinical features, radiographic features, and microscopic findings, because odontomas can be related to other odontogenic tumours such as odonto-ameloblastoma, calcifying epithelial odontogenic tumour, ameloblastoma, ameloblastic fibro-odontoma,, adenomatoid odontogenic tumor and dentigerous cyst.[7]

A dentigerous cyst is one that results because of the enlargement of the follicular space of the whole or part of the crown of an impacted or unerupted tooth and it encloses the crown of an unerupted/impacted tooth at the cementoenamel junction. Occasionally they are associated with supernumerary tooth or odontoma.[8] The ameloblastic transformations are more common in a dentigerous cyst. The rapid growth, expansion of other cortices, multilocular appearance may suggest ameloblastic transformation. Malignant transformation is comparatively less common than the ameloblastic transformation. Dentigerous cyst associated with a complex odontome is an extremely rare entity which has been reported in our case. These are odontogenic cysts usually asymptomatic and can be associated with crown with unerupted impacted tooth.[9]

Radiographs will generally reveal a unilocular radiolucency associated with crowns of unerupted impacted teeth; at times a multilocular effect can be seen, when the cyst is of irregular shape due to bony trabeculations. Cysts have a well defined sclerotic margin, but if they are infected then the margins are poorly defined. With the pressure of an enlarging cyst, the unerupted tooth can be pushed away from its direction of eruption, e.g. the lower third molar may be pushed to the inferior border, or into the ascending ramus. As compared to the other jaw cysts, dentigerous cysts have a higher tendency to cause root resorption of adjacent teeth. Radiologically, the dental follicle may expand around the unerupted or impacted tooth in three variations, i.e. (a) circumferential (b) lateral (c) central or coronal.10

Histopathologically it comprises of capsule of a fibrous conjunctive tissue which is loosely arranged and an epithelial lining of flattened cells with either presence or absence of keratinization. Complications related to dentigerous cysts are pathological bone fracture, loss of permanent teeth, bone deformities and development of ameloblastoma or malignancies such as squamous cell carcinoma and intra-osseous mucoepidermoid carcinoma.[11]

Conclusion

The complex odontoma is non aggressive hamartomatous developmental malformations usually asymptomatic, with slow evolution and may be associated with other disorders such as dentigerous cyst as outlined in our case. The treatment of choice is surgical excision of the lesions along with the tooth associated to the cyst. Surgical excision of odontome with cyst in children should be performed with careful, imperative, immediate planning; preventing injury to vital structures and developing occlusion.

Reference

1. Incidentally detected odontoma within a dentigerous cyst Kwang Seog Kim, Han Gyeol Lee, Jae Ha Hwang, Sam Yong Lee) (Dentigerous cyst Associated with Compound Odontome Sachin A Gunda1 , Ankita R Hingmire1 , Anil T Patil1 *, Anand L Shigli1 and Dilip Magdum2)
2. A case of impacted central incisor due to dentigerous cyst associated with impacted compound odontomeCheranjeevi Jayam,1 Anila Bandlapalli,2 Nikunj Patel,3 Rama Shankar Kashinath Choudhary)
3. Large erupted complex odontoma with dentigerous cyst Konstantinos Katoumasa,∗, Violetta Lianoua, Maria Fyrgiolaa, IoannisDimopoulos a, EvanthiaChrysomali b, Alexandra Sklavounou)
4. Dentigerous cyst associated with multiple complex composite odontomas Sangeeta P. Wanjari, Satyajitraje A. Tekade, Rajkumar N. Parwani, Sunita A. Managutti)
5. Dentigerous cyst associated with complex odontoma 1 MariemMeddeb, 2 AbdellatifChokri, 3 Marwa Marzouk, 4 Adel Bouguezzi, 5 SamehSioud, 6 HajerHentati, 7 Jamil Selmi)
6. Large erupted complex odontoma with dentigerous cyst Konstantinos Katoumasa,∗, Violetta Lianoua, Maria Fyrgiolaa, IoannisDimopoulos a, EvanthiaChrysomali b, Alexandra Sklavounou).
7. Dentigerous cyst Associated with Compound Odontome Sachin A Gunda1 , Ankita R Hingmire1 , Anil T Patil1 *, Anand L Shigli1 and Dilip Magdum2).
8. Dentigerous cyst Associated with Compound Odontome Sachin A Gunda1 , Ankita R Hingmire1 , Anil T Patil1 *, Anand L Shigli1 and Dilip Magdum2).
9. Neelimamalik(Large erupted complex odontoma with dentigerous cyst Konstantinos Katoumas a,∗, Violetta Lianoua, Maria Fyrgiolaa, IoannisDimopoulos a, EvanthiaChrysomali b, Alexandra Sklavounou)
10. Dentigerous cyst Associated with Compound Odontome Sachin A Gunda1 , Ankita R Hingmire1 , Anil T Patil1 *, Anand L Shigli1 and DilipMagdum)