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Original Research Paper

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NOT ALL JAW LESIONS WITH IMPACTED TOOTH ARE DENTIGEROUS CYST- A CASE REPORT OF BENIGN ODONTOGENIC TUMOUR

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ABSTRACT Jaw lesions with impacted tooth lets us suppose dentigerous cyst as most common diagnosis. However there is much more to this clinical entity and nearly ten other histological and radiological diagnosis could be made of such lesion. There is paucity of literature on these alternative diagnosis . We present here a case of benign odontogenic tumour of maxilla in a female in her early twenties which we initially thought was a dentigerous cyst. Dentigerous cyst is type of developmental odontogenic cyst seen most commonly associated with mandible molars(80%) followed by maxillary canine(20%). It is second most common odontogenic cyst after periradicular cyst which is inflammatory infectious cyst. We present a case report of a very large benign odontogenic tumour associated with left maxillary canine causing large maxillary swelling and ballooning of anterolateral wall of maxillary sinus and oroantral fistula. These tumour have a very indolent course and subtle symptoms but when neglected causes maxillofacial deformity and asymmetry of face. A 21 year female presented with maxillary swelling on left side of midface causing facial deformity and asymmetry. The swelling was of the size of a cricket ball extending from inferior orbital margin to upper alveolus of left side inferiorly and from lateral wall of nose medially to anterolateral wall of maxilla laterally. The swelling caused loosening of two teeth and broadening of upper jaw on left side and rounding of inferior orbital margin due to pressure expansion and thinning of bony cortex all around. A CECT of PNS along with USG and FNAC was done for maxillary swelling which confirmed our diagnosis. Enucleation of cyst with curettage was done via Caldwell Luc approach.

KEYWORDS : Dentigerous cyst, Odontogenic tumour, Ameloblastoma

INTRODUCTION:

Maxillary swelling poses great psychological issue for patient owing to asymmetry which it gives to the face. The maxillary swelling is dilemma for surgeon too, as symptomatic distinction between benign and malignant lesion has a very thin blurred grey line. The prevalence of odontogenic cyst is 15% of maxillary and mandibular swelling[1][2].

Moreover the diagnostic cluster of odontomes, odontogenic cyst, non odontogenic cyst and odontogenic tumour also clinically present in a very similar way and with very subtle symptoms. These only draw attention of patient once it start increasing in size and diagnosis is reached with proper radiological workup and histopathology. The terminology of odontogenic cyst are very confusing and different authors categorise it differently since the inception.

We classify odontogenic mass into three main categories as odontogenic cyst, odontomes and odontogenic tumor like Ameloblastoma. Further cyst can be of developmental non inflammatory type like dentigerous cyst and inflammatory infectious like periapical cyst.

The radiological feature of uni or multilocular radioluscency, peripheral scalloping or smooth cavity, size 2cm or more, thinning of bony cortices and its destruction vitality of tooth clinches diagnosis and its management.[3][4]

The jaw lesions with impacted tooth in itself has many differentials. Not all jaw lesions with impacted tooth are dentigerous cyst.

Dentigerous cyst are most common jaw lesions with impacted tooth but there are nine more differentials. These are ameloblastoma, unicystic ameloblastoma, calcifying odontogenic cyst, adenomatoid odontogenic tumour, keratocystic odontogenic tumour(KCOT), calcifying epithelial odontogenic tumour, ameloblastic fibrodontoma, odontoma (complex and compound).

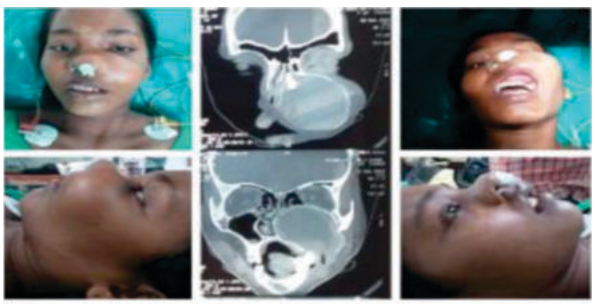

Figure 1Preoperative image and CECT of maxillary mass

Background:

Odontogenic cyst and tumours are suspected on the basis of its location but should not be solely limited on this but to its derivation from stomadeal origin.[5] Unique epithelial portion of odontogenesis remain intact in cyst and tumor. Root is formed by dentine supported by cementum from outside but odontoblast needs enamel stimulus to lay dentine to counter this problem reduced enamel epithelium forms a collar of cells called Hertwig epithelial root sheath . [6]This sheath leave epithelial rest known as rest of Malassez residing in region of periodontal ligament and rest of serres whose progenitor is dental lamina.[7] These cysts are lined by non keratinizing epithelium and tumor by keratinizing epithelium. The type of keratin along with mitotic activity of epithelium and hyperchromasia, vaculosiation and palisading forms Vikers and Gorlin criteria for diagnosing ameloblastoma. Odontogenic cyst is more common in males with M:F ratio of 1.3:1 and is mandibular in 70-80% and maxillay in 20 -30%. We present a case of large odontogenic tumour with impacted maxillary canine and an oroantral fistula in a young female which is not so frequently reported noticed slight nasal twang in her voice. She had no complaint of olfaction, blockage, discharge ,bleeding from nose. She had history of carious tooth in upper jaw long time back which got shed off and with growth of swelling there was broadening of left upper jaw and loosening of its tooth which fell off draining pus and forming

an oroantral fistula. However the fistula is asymptomatic as it might got have sealed off by granulation or occlusion by wall of cyst. On examination swelling was of 5cm *4cm size,causing obvious facial deformity of left side midface and ulceration and loosening of teeth of upper left jaw.(fig 1) Fistula was seen in upper jaw at left canine teeth position which got shed off. On palpation it was firm to hard in consistency, with no egg shell crackling, non pulsatile, non compressible, non reducible with positive trans illumination indicating it to be cystic. USG guided FNAC and contrast enhanced CT of nose and paranasal sinuses were done to ascertain our diagnosis, know the extent of disease , degree of thinning of wall of maxillary sinus and orbit and involvement of pterygopalatine and infratemporal fossa. FNAC showed non keratinized epithelium with fluids having inflammatory cells. CT scan showed it to be large unilocular cystic swelling of maxillary sinus extending and pushing all the walls of sinus causing pressure ballooning of bony cortex of anterolateral wall and floor. orbital floor and posterior wall were intact as was the medial wall . A displaced canine was abutting in the anteromedial part of cyst making follicular cyst to be most likely diagnosis.Complete enucleation with curettage of wall was planned by Caldwell Luc approach under general anaesthesia. Sublabial incision was given and periosteum elevated over the canine fossa.(fig2) Anterolateral wall of maxilla was ballooning out and was breached in lower part and cyst wall was protruding out. A plane of cleavage was created all around the cyst with Freer elevator and cautery and whole sac along with tooth was enucleated en bloc. Fluid was aspirated from the cyst which was odourless and amber coloured. Curettage of wall all around was done by a diamond burr at low speed. The fistula was present on the floor of maxillary sinus anteromedially. The margin of fistula was exposed all around and its epithealised margin was excised. Left palatine flap based on greater palatine vessel was raised and mobilised to close the defect .Sample was sent for histopathological examination after proper labelling. Incision was stitched in layers after repairing of oroantral fistula.

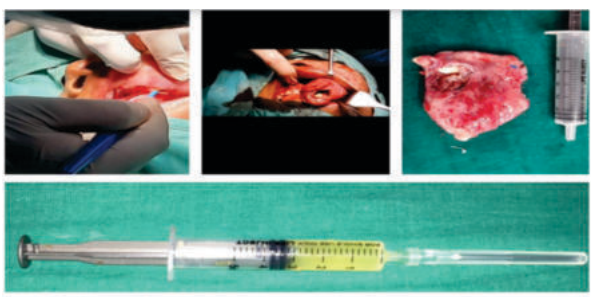

Figure 2 Intra operative image and specimen after enucleation

DISCUSSION:

Dentigerous cyst or follicular cyst is a developmental cyst of odontomes. Odontogenic tissue comprises of dentine, enamel, cementum and residual enamel epithelium. Odontogenic cyst arises when fluid accumulates between crown of tooth and residual enamel epithelium. There is accumulation of fibrin, .serum and desquamated epithelial cells. These product causes osmotic expansion of cyst wall by imbibing fluid . There can also be expansion of cyst wall by increasing mitosis of cyst wall when it transits into odontogenic tumour category of Ameloblastoma. Shafer et al. suggested that basal epithelium of stomadeum present in gingival and alveolar mucosal surfaces have odontogenic potential. Therest of Malassez are common source of inflammatory odontogenic cyst, while rest of Serres and reduced enamel epithelium has neoplastic potential. Dentigerous cyst arising from reduced enamel epithelium and radicular cyst from rest of Malassez forms majority of odontogenic cyst. Ziccardi et al have propagated fenestration technique to treat large dentigerous cyst. Taylor et al. Paul et al. and McMillan et al. in their paper reported ameloblastomatous proliferation of Dentigerous cyst.[8] Few(5) reports of squamous carcinoma arising in dentigerous cyst have been reported by Copete et al. and Chretien et al. [8,9] Calcifying epithelial odontogenic tumours Calcifying epithelial odontogenic tumours or Pindborg tumours are benign odontogenic tumours that account for less than 1% of all odontogenic tumors,[9] with a female predilection of 1.5 : 1. In addition, the mandible is affected more commonly than the maxilla, with a mandible-tomaxilla ratio of 2 : 1 or 3 : 1. 12,38,39 The age of patients ranges from 8 to 92 years, with a mean age of 37 years. The peak incidence of this lesion is in the fourth to fifth decade of life.[9],[10] Most cases of calcifying epithelial odontogenic tumors (52% to 60%) are associated with an impacted or unerupted tooth (mostly the mandibular third molar) or an odontoma [9][10].The highest prevalence of these lesions is in the mandibular molar region (3 times greater than in the premolar area), followed by the molar region of the maxilla and the premolar region of the mandible.[10] These tumors usually present as a slow-growing painless mass that can lead to expansion of the jaws. The two most prevalent radiographic features of calcifying epithelial odontogenic tumor are pericoronal radiolucency, as well as radiolucent areas with diffuse opacities. A mixed radiolucent-radiopaque pattern is the most common pattern (65%), followed by radiolucent areas (32%), and radiopaque cases(3%). In addition, unilocular radiolucencies are more frequent in the maxilla than in the mandible.[10] Themost characteristic and pathognomonic feature is the appearance of radiopacities close to the crown of an unerupted tooth. In some cases, small, thin, opaque trabeculae may cross the radiolucency in many directions. Adenomatoid odontogenic tumors are benign lesions that constitute approximately 3% of all odontogenic tumors and 0.1% of jaw tumors.

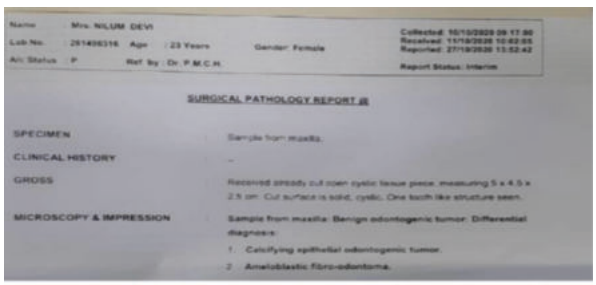

Figure 3 HPE report of specimen

Figure 4: Preoperative picture of subject

Figure 5 postoperative picture showing drastic improvement in facial aesthetic

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