Case 12633

A classical case of adenomatoid odontogenic tumour

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Section: Head & neck imaging
Area of Interest: Head and neck
Procedure: Diagnostic procedure
Procedure: Computer Applications-3D
Imaging Technique: Conventional radiography
Imaging Technique: CT
Special Focus: Cysts Case Type: Clinical Cases
Authors: Dr. Akhilanand Chaurasia, Dr. Divyajeet Goyal
Patient: 14 years, female

Clinical History:

A 14-year-old female patient complaining of progressively increased swelling of the right maxillary region for 1 year. The patient underwent enucleation of the lesion and the diagnosis was confirmed on histology.

Imaging Findings:

1. Panoramic radiograph showing a well-defined radiolucency extending from the right maxillary central incisor to the right maxillary 1st premolar with a retained deciduous lateral incisor and deciduous canine. The permanent maxillary right lateral incisor and canine are impacted. The maxillary canine is displaced lying apical to the roots of the right maxillary premolar and the lateral incisor lies in the lateral nasal wall. There is displacement of maxillary right premolars.

2. CT shows a well-defined cystic lesion measuring 3.5x3 cm involving the right maxilla anteriorly. The lesion is extending up to the anterior and medial wall of the right maxillary sinus and right nasal cavity. There are many impacted teeth. The low-density, cystic lesion is surrounded by a thick soft tissue capsule with peripheral enhancement. The lesion is expansile and radiolucent with multiple radiopaque flecks towards the periphery. Small foci of bony dehiscence were noted.

Discussion:

Adenomatoid odontogenic tumour (AOT) is an uncommon benign tumour of odontogenic origin with an incidence of 2.2 to 7.1% [1]. It was first described by Steensland in 1905 [2]. Philipsen and Birn coined the term adenomatoid odontogenic tumour [3]. It is also referred as ‘two-thirds tumour’ because it occurs in the maxilla in about 2/3 of cases [4]. Young females with the age range of 3 to 28 years are affected by AOT more often than males with a female: male ratio of 1.9:1 [4, 5, 6]. The maxilla is the predominant site of occurrence, being almost twice as frequent as the mandible, and the anterior part of the jaw is more frequently involved than the posterior part. An unerupted tooth (canine) is frequently found with the lesion showing root resorption [7]. AOT can occur both intraosseously and extraosseously. Radiographically intraosseous AOT is divided into two types: follicular or pericoronal and extrafollicular or extracoronal. The follicular type is characterized as a well-defined unilocular radiolucent lesion surrounding the crown and is often part of the root of an unerupted tooth. The extrafollicular type is similar to the follicular type but it is located between, above or superimposed upon the root of an unerupted tooth. Minute variable-shaped radiopacities are frequently found within the lesion. The extraosseous, peripheral or gingival types of AOT...
are rarely detected radiographically but there may be slight erosion of the underlying alveolar bone cortex [5, 7]. The lesions are typically asymptomatic but may cause cortical expansion and displacement of the adjacent teeth [8]. The typical site of occurrence and immunohistochemistry of cytokeratin (CK5, CK17, CK19) profiling differentiates AOT from other similar lesions. The differential diagnosis includes ameloblastoma, ameloblastic fibroma, calcifying odontogenic tumour and ameloblastic fibro-odontoma [9]. Histologically WHO defined the AOT as a tumour of odontogenic epithelium. The tumour may be partly cystic or a solid lesion may be present only as masses in the wall of a large cyst [10]. Some tumours show homogenous matrix whereas most tumour droplets reveal electron-dense plaques. On MRI, the peripheral portion of AOT showed intermediate signal intensity containing multifocal signal voids on T1WI, high signal containing multifocal signal voids on T2WI, and heterogeneous enhancement on CE-T1WI. The central portion showed homogeneous low signal on T1WI, homogeneous very high signal on T2WI and no enhancement on CE-T1WI [11]. Malignant potential has not been reported to date. Enucleation or curettage is the treatment of choice. Recurrence of AOT is exceptionally rare [12].

**Differential Diagnosis List:** Adenomatoid odontogenic tumour, Calcifying odontogenic tumour, Ameloblastic fibro-odontoma, Ameloblastic fibroma

**Final Diagnosis:** Adenomatoid odontogenic tumour

**References:**


**Figure 1**

Description: Axial CT shows a well-defined cystic lesion measuring 3.5x3 cm involving the right maxilla with multiple specks of calcifications. **Origin:** Chaurasia A, Department of oral medicine and radiology, King George Medical university, Lucknow, INDIA
Figure 2

Description: 3D CT showing displaced permanent maxillary right canine and maxillary lateral incisor with nasal wall involvement and calcifications specks. Origin: Chaurasia A, Department of oral medicine and radiology, King George Medical university, Lucknow, INDIA
Description: 3D CT image shows anterior wall involvement of the right maxilla by the adenomatoid odontogenic tumour. Origin: Chaurasia A, Department of oral medicine and radiology, King George Medical University, Lucknow, INDIA
Description: Panoramic radiograph showing a well-defined radiolucency extending from the right maxillary central incisor to the right maxillary 1st premolar with a retained deciduous lateral incisor and deciduous canine. Origin: Chaurasia A, Department of oral medicine and radiology, King George Medical university, Lucknow, INDIA
Description: Axial CECT image showing a well-defined lesion with peripheral enhancement. The lesion is extending up to the anterior and medial wall of the right maxillary sinus and right nasal cavity. Origin: Chaurasia A, Department of oral medicine and radiology, King George Medical University, Lucknow, INDIA