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MAXILLARY SINUS IN DISGUISE

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ABSTRACT

Pneumatization of the paranasal sinuses is a fairly common finding on an OPG; but involvement of a small segment of the maxillary sinus especially the anteromedial aspect is very rare. We report a case of a twenty six year old male who was accidently diagnosed to have a unilateral giant maxillary sinus extending to cross the midline.

INTRODUCTION

Panoramic imaging is a technique for producing a tomographic image of the facial structures, maxillary, mandibular dental arches and their supporting structures [1]. The primary advantage of panoramic imaging is the broad coverage of the facial bones and teeth and the most common demerit is that of the resolution.

Image interpretation in an OPG demands a systematic approach and a thorough understanding of the appearances of the normal anatomic structures on the image. Recognizing normal anatomic structures on panoramic radiographs is challenging because of the complex anatomy of the midfacial region [2]. The maxillary sinuses are usually well visualized on panoramic images; even though not all borders are clearly demarcated.

Normally medial wall of the maxillary sinus extends anteriorly till the maxillary first premolar (figure 1) and roots of the central and lateral incisor teeth are not in close proximity to the maxillary sinus [3] but we report a case of a healthy individual who underwent radiographic examination for orthodontic purpose, which revealed the medial wall of the maxillary sinus crossing the midline and extending till the central incisor on the opposite side.

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This case was an accidental finding on an OPG and hence a clinician should be extremely cautious before posting patients for surgeries and a confirmatory CT scan should be done pre operatively.

Case Report

A 26 year old male reported to the department of orthodontics for opinion regarding correction of malocclusion. Patient gave a negative history of trauma, recent infection, nasal blockade or headache. This happened to be patient's first dental visit. Informed consent was obtained prior to examination of patient. Our physical examination of the patient was unremarkable. As a part of screening radiographic examination an OPG was advised which revealed a pneumatized maxillary sinus extending from the maxillary tuberosity corresponding to 18 to the distal aspect of 21(Figure 1, 2, 3). Sinus appeared normal with no evidence of haziness or mucosal thickening. Vitality testing was done to rule out periapical pathology and the test revealed all teeth to be vital.

DISCUSSION

The term pneumosinus dilatans represents the abnormal enlargement of the paranasal sinuses containing air. It usually affects the frontal sinus followed by the ethmoid and sphenoid sinuses. Involvement of the maxillary sinus is not very common. It can be differentiated clinically and radiologically from a

pneumatocele which is due to accumulation of air in a soft tissue envelope of sudden onset which moves with respiration due to faulty sinus wall[3]. In the maxillary sinus the infraorbital recess and the alveolar recess have tendency towards pneumatization. The maxillary sinus is the first of the paranasal sinuses to develop in the third month of fetal life and the final growth of the maxillary sinus takes place between 12 to 14 years of age and corresponds with the eruption of permanent teeth and growth of the alveolar process of the upper jaw [4]. Although these dimensions remain stable in most individuals, continued expansion and pneumatization occurs in some patients throughout life[4].

Recent studies state that the anteromedial wall of the maxillary sinus is a common site. Various reasons have been postulated for the formation of these pneumatized spaces within the paranasal sinuses, but are not very convincing. Usually posterior maxillary tooth extraction causes an inferior expansion of the maxillary sinus in relation to fixed anatomic landmarks, which proves the pneumatization phenomenon after tooth loss.

There have been many reports of conditions in which maxillary sinus radiolucency was misdiagnosed as periapical inflammatory lesion [5], as carcinoma, odontogenic cyst [6], periapical cemental dysplasia [7] etc. Film processing errors has also been reported to mimic the appearance of periapical infection, while normal anatomies such as the mental foramen or incisive foramina are familiar as radiolucencies that may overlie teeth and cause diagnostic confusion [8]. This case report describes an anatomical variation of maxillary sinus manifesting as unilocular periapical radiolucency in relation to apices of teeth in a quadrant.

There has been a report of a case, where a maxillary sinus was interpreted in an intraoral periapical radiograph as a periapical cyst corresponding to the canine [9], but a case like this in which antral radiolucency is crossing the midline is rarely reported.

A clinician should differentiate such a massive radiolucency from pulpo-periapical radiolucencies, surgical defects, osteomyelitis, tumors like Ameloblastoma, Central Giant Cell Granuloma, Aneurysmal bone cyst and bone malignancy.

Knowledge of dento-antral relationships is particularly important in the prevention of sinusal accidents and complications during therapeutic maneuvers like implant placement, maxillary molar extractions which should be performed after having thoroughly investigated on the regional morphology [10].

Odontogenic sinusitis, causes of this type of sinusitis include periapical abscesses of odontogenic origin, periodontal disease perforating the schneiderian membrane, sinus perforations during tooth extraction or intra antral foreign bodies, such as gutta-percha and dental amalgam that cause irritation secondary infection. Odontogenic sinusitis is responsible for up to 12 percent of maxillary sinusitis [11] cases and especially in cases like this one has to be extra cautious.

Figure 1. Orthopantamogram showing the maxillary sinus borders extending from maxillary third molar (18) crossing the midline till 21

Figure 2. Orthopantamogram tracing showing the maxillary sinus borders extending from maxillary third molar (18) crossing the midline till 21

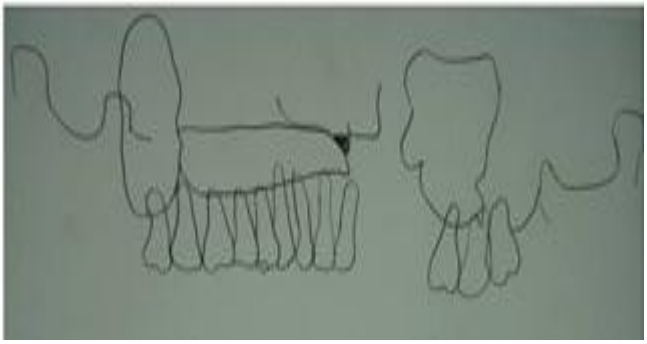

Figure 3. Orthopantamogram and the tracing superimposed, showing the maxillary sinus borders extending from maxillary third molar (18) crossing the midline till 21

CONCLUSION

Extensive maxillary sinus pneumatization (EMSP) has the following implications which can result in atypical clinical presentation, possible risk of damage to the medial and infero-medial orbital wall during sinus surgeries. Recognition of EMSP by the rhinologist by a paranasal sinus CT is essential. It is mandatory for a good clinician to be reasonably well informed of the radiographic appearance of normal anatomy, abnormalities and anatomical variation mimicking disease that occur in the jaw.

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