Case Report

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Dentistry Section

# An Undiagnosed Case of Mucous Retention Cyst of Maxillary Sinus- A Case Report of a 10-year-old Lesion

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## ABSTRACT

Mucous Retention Cyst of paranasal sinuses is rare. In comparison with the other paranasal sinuses, its incidence in the maxillary antrum is very less. Anatomically the maxillary sinus is in close vicinity to the maxillary alveolus and dentition of the oral cavity. Pathologies involving these anatomical regions can manifest in both the sites or either of the site leading to diagnostic dilemmas. Maxillary sinus pathologies most often produce oral symptoms and hence may be misdiagnosed initially thereby causing delayed treatment. Hence, careful evaluation and management are highly essential. This article reports a case of mucous retention cyst of maxillary sinus mimicking maxillary tooth pathology leading to delayed management. The described case is a 38-year-old male patient having well-defined firm swelling on the middle 1/3rd of the face, with obliteration of buccal vestibule in the region of missing left maxillary first molar (26) mimicking residual cyst. The left maxillary first molar tooth had been extracted 10 years back due to its misdiagnosis as tooth pathology. Orthopantomograph (OPG) showed loss of floor of the maxillary sinus with well-defined dome-shaped radiolucency with sclerotic borders extending into the sinus. Histopathology confirmed the diagnosis of maxillary sinus pathology.

**Keywords:** Dome-shaped radiolucency, Mucocele, Oral cavity, Paranasal sinuses, Tooth

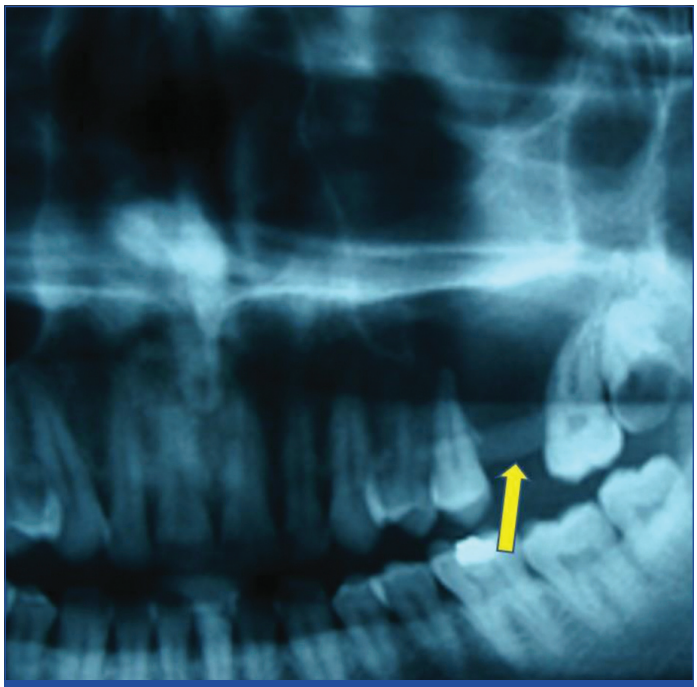
## CASE REPORT

A 38-year-old male patient reported to the Department of Oral Medicine and Radiology with swelling on the middle 1/3rd of the left side of the face. The patient gave a past history of swelling for six months which was small initially and increased to its present size [Table/Fig-1]. Patient visited a local dentist 10 years back with similar symptoms, he was advised extraction with respect to left maxillary first molar (26) for which the patient agreed. The extraction for 26 was done without a radiograph, had a radiograph been taken, the lesion could have been diagnosed at an early stage. Patient visited another dentist nine months back due to recurrence of pain.

**[Table/Fig-1]:** Extraoral Diffuse swelling noted with obliteration of nasolabial fold.

On examination, 28 with extensive carious lesion was noted and an OPG was taken [Table/Fig-2] in which a cystic lesion involving the left maxillary sinus was appreciable, however, the lesion was somehow missed by the practitioner and the patient was further advised for extraction of 28 as it was considered to be the cause of the symptoms. Medical history revealed chronic maxillary sinusitis. There was no history of nasal discharge, watering of eyes, or paresthesia.

On extraoral examination, the swelling measured about 4×3 cm in size, extending anteroposteriorly from the left tragus of the ear to 1 cm away from the ala of the nose and superoinferiorly, 2 cm below the lower eyelid till the left commissure of the lip. On intraoral examination, there was well-defined swelling noted [Table/Fig-3] with obliteration of buccal vestibule in the region of missing 26, which was extracted 10 years ago citing carious lesion. The swelling was firm in consistency with the expansion of the buccal cortex and was tender. Vitality test showed 25 and 27 to be vital. A provisional diagnosis of residual cyst along with differential diagnosis of mucocele, mucous retention cyst, antrum polyp was made with respect to 26.



**[Table/Fig-2]:** OPG (nine months old) showing loss of floor of the left maxillary sinus noted (missed diagnosis by the general practitioner).

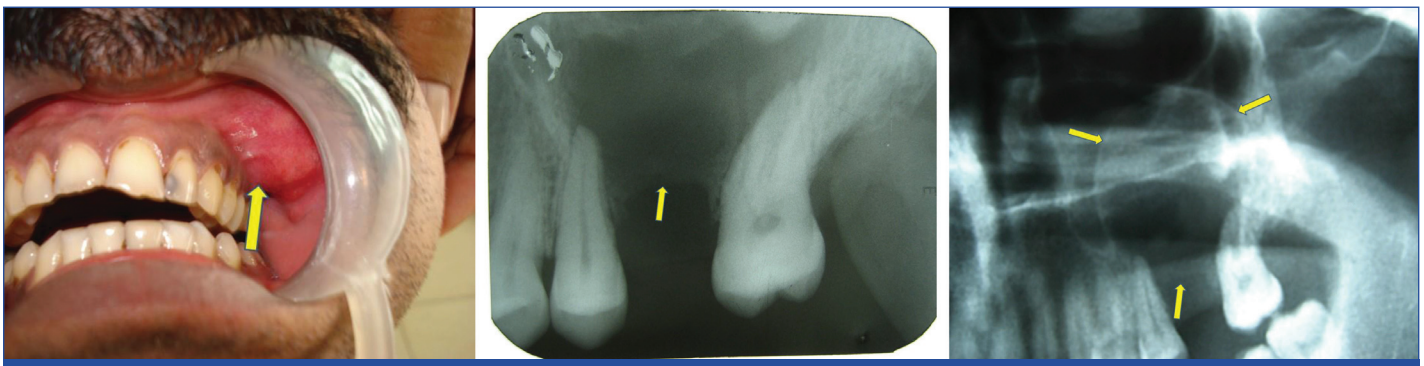
An intraoral periapical radiograph, OPG (was repeated as the previous one was taken nine months ago and before the extraction of 28) and Water's views were advised, which showed loss of floor

of the maxillary sinus with well-defined dome-shaped radiolucency with sclerotic borders extending into the sinus [Table/Fig-4-6]. The Fine Needle Aspiration Cytology (FNAC) yielded slimy thick yellowish-brown purulent material suggestive of cystic content. A Computed Tomographic scan (CT scan) was advised to know the extent of the borders of the lesion before the surgery [Table/Fig-7]. The coronal section of CT scan shows an expansile lesion measuring about 3.37×2.2 cm with destruction of anterior and floor of maxillary sinus. The lateral wall of the nasal septum and the roof of the maxillary sinus was intact. The case was referred to the Department of Oral and Maxillofacial Surgery for surgical management. The surgical procedure was performed under local anaesthesia [Table/Fig-8]. Aspiration, followed by enucleation of the lesion and bone curettage was performed and the specimen material was collected for further histopathological examination [Table/Fig-9,10]. The specimen was sent for histopathological examination and sections revealed a cyst wall composed of compressed fibrocollagenous tissue, with a denuded lining and inflammatory cells. Occasional areas of the cyst showed pseudostratified ciliated columnar epithelium [Table/Fig-11]. No evidence of granulomas or malignancy seen. Features were consistent with mucous retention cyst. There were no signs of recurrence during the periodic follow-up of eight months.

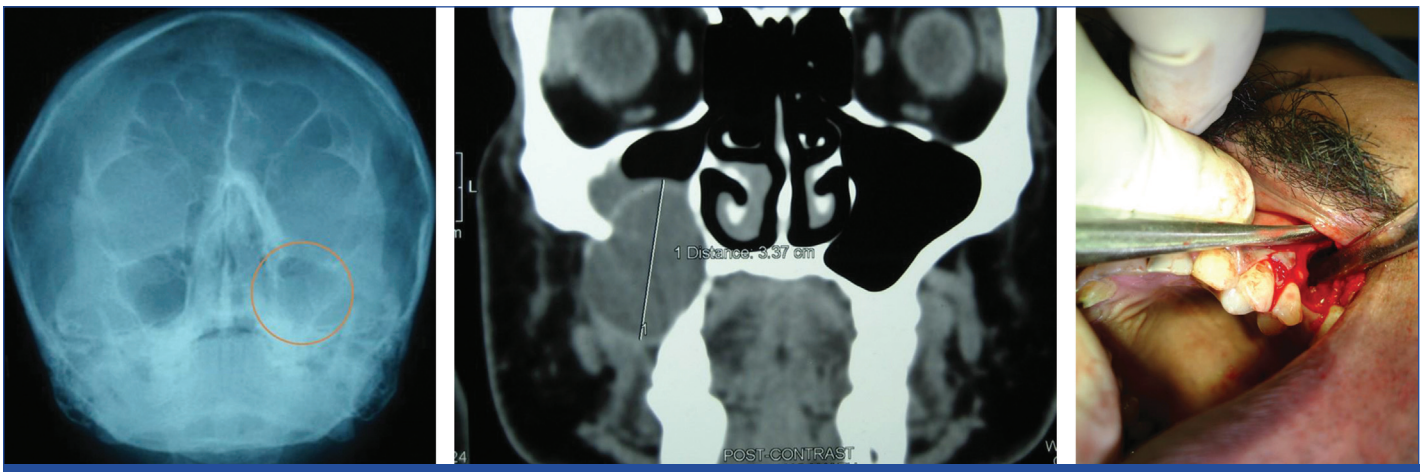
## DISCUSSION

Mucous retention cyst in the maxillary sinus is a benign entity resulting from the accumulation of fluid within a mucoperiosteal lined cavity [1]. It is a less common entity with an incidence of 3-14% [2,3]. Due to their close proximity to oral maxillary region, clinically they may produce symptoms mimicking maxillary pathologies [4,5]. They are more common in the age group of 20-40 years, more common among males, and most often involve single sinus. Rarely both the sinuses can be involved. Left maxillary sinus is found to be slightly more commonly affected than the right [2,5]. The present case involved a 38-year-old man with only left sinus involvement which went undiagnosed for 10 years as he was treated for chronic maxillary sinusitis instead, ultimately resulting in the loss of two molar teeth.

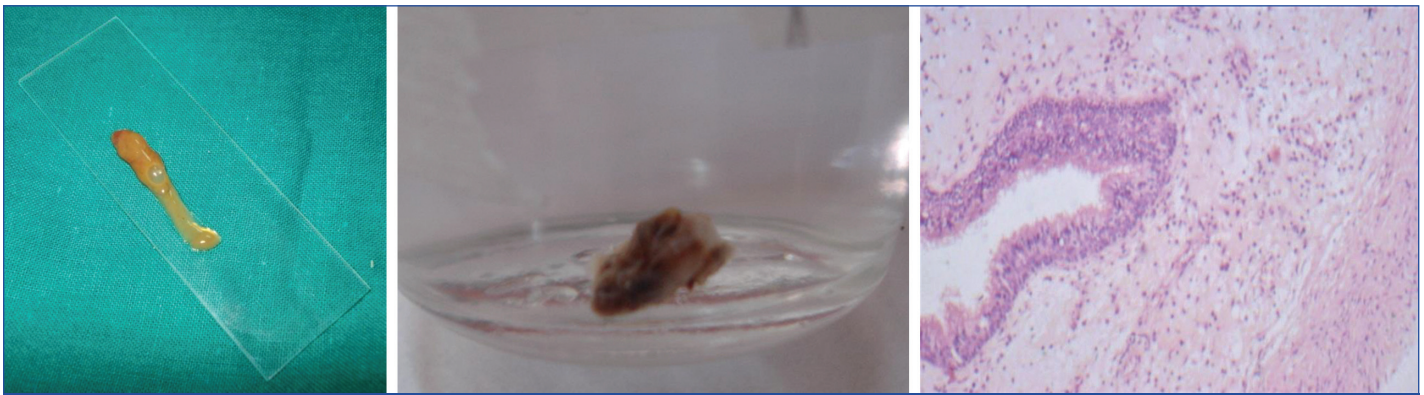
The proposed aetiology involves inflammation, chronic infection, trauma, allergic processes, mucociliary dysfunction, secondary to



**[Table/Fig-3]:** Well-defined swelling with obliteration of the buccal vestibule with missing 26. **[Table/Fig-4]:** Intraoral periapical radiograph showing loss of floor of left maxillary sinus noted with well-defined radiolucency with ill-defined borders. **[Table/Fig-5]:** Present OPG showing dome-shaped radiolucency noted with sclerotic border in the left maxillary sinus. (Images from left to right)




**[Table/Fig-6]:** Water's view showing the filling defect of the left maxillary sinus. **[Table/Fig-7]:** The coronal section of CT scan shows an expansile lesion with destruction of anterior and floor of maxillary sinus. **[Table/Fig-8]:** Intraoperative photograph showing enucleation of the lesion. (Images from left to right)



**[Table/Fig-9]:** Material collected after aspiration sent for histopathlogical examination. **[Table/Fig-10]:** Specimen material collected after enucleation sent for histopathological examination. **[Table/Fig-11]:** Histopathological picture showing pseudostratified ciliated columnar epithelium and inflammatory cells [H&E stain, 100X]. (Images from left to right)

neoplastic lesion, previous surgery and idiopathic [4-7]. The possible relationship with dental and periodontal problems and maxillary sinus mucus retention cyst, has been suggested mainly through infections that penetrate the sinus giving origin to the mucous cyst [6]. There are case reports with history of trauma or dental infections and mucous retention cyst formation [5,8]. Smoking, alteration in the temperature of air and humidity are the other proposed etiologic factors [6]. In the present case there was history of maxillary sinusitis which should have given clue to the early diagnosis and treatment of the lesion but general practitioner had missed the information regarding the same.

The lesions are usually asymptomatic and recognised during routine radiographic examination [7]. Depending on the proximity and extension to the surrounding structures, there may be associated symptoms in periorbital region, displacement of the orbital contents, infraorbital pain, visual changes, nasal obstruction, bulging of the cheek and loosening of the teeth [1,2]. If associated with infection, headaches, periorbital or facial pain, repeated infections of the paranasal sinuses, and/ or nasal obstruction will be present [5]. The previous OPG of presented case taken in the private diagnostic centre nine months ago shows the loss of floor of left maxillary sinus but the cystic lining was not appreciative and, in the process, led to the extraction of 28.

Due to anatomic proximity, sometimes oral symptom may be seen. There may be expansion of the maxillary tuberosity, compression of adjacent structures, pain in the associated tooth, ill-fitting maxillary prosthesis [5]. Gradual enlargement of the cystic lesion can result in erosion and remodelling of the surrounding bone. Downward displacement of cyst into the area of the alveolus can cause loosening of teeth. The progressive osteolysis of the adjacent bone walls and significant destruction of anatomical structures, may cause difficulty in delineating the primary site of mucoceles [4]. Differential diagnosis of mucous retention cyst includes polyps, sinus hyperplasia, maxillary sinusitis and neoplasia [5,6].

Most often, these cysts are incidentally discovered during routine image examination. Radiographically they appear as radiopaque structures with a distinctly rounded edge that can be single or multiple located in the sinus wall and sometimes with bone erosion or opacification or with absence of any cortical bone [5]. Radiologically, the distinction between a mucocele and a mucous retention cyst can be made by the presence of air outlining the upper surface of the retention cyst [4]. Computed tomography and Cone Beam Computed Tomography (CBCT) gives more accurate diagnostic details [4,6].

Histologically mucus retention cyst may show a pseudostratified ciliated epithelium with occasional mucosal cells and minimally inflamed stroma. On contrary a pseudocyst will not show any epithelial lining. There will be deposits of mucous material surrounded by lightly compressed connective is seen [4].

The present case too showed expansion of buccal cortical plate. Due to its associated oral symptoms, it was initially misdiagnosed as an odontogenic pathology and the related tooth was extracted. However, the unresolved symptoms made the patient revisit. The CT and histopathological findings finally guided us to the diagnosis of mucus retention cyst of maxillary sinus.

Sometimes these cysts may undergo spontaneous regression or they may remain stable in size for long duration [8]. The rate of spontaneous regression and disappearance is reported to be 17.6-38% and spontaneous rupture 6-23% [2].

The main mode of treatment is surgical including puncture and aspiration through the inferior meatus, enucleation technique, marsupialization, Caldwell-Luc procedure, excision through an intranasal antrostomy and other external approaches. Endoscopic sinus surgery is shown to be effective with favorable long-term outcome [1,2,5]. It has an excellent prognosis and rarely recurs [5]. Hence a through clinical and radiographic follow-up would suffice. Patient was advised a periodic follow-up to eight months and the patient did not show any signs of recurrence.

## CONCLUSION(S)

The close relationship of the oral cavity specially the maxillary stomatognathic system with the maxillary sinus, warrants the need for close study of the pathologies in this region. The pathologies occurring in this region can be misdiagnosed in regard to their site rendering a wrong treatment or delay in the treatment. A careful history, clinical examination and radiographic evaluation aids in effectively managing these pathologies in an early stage. This article signifies one such case of mucous retention cyst of maxillary sinus mimicking maxillary tooth pathology apparently leading to delayed management.

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