

# CASE REPORT

## Bilateral Mucous Retention Cysts: A Case Report and Overview

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**Background:** *The mucous retention cyst of maxillary sinus results from either a pathologic secretory duct blockage or a cystic degeneration. Most of them develop unilaterally, but may occur bilaterally. Retention cysts requires no treatment. In symptomatic lesions, however, it must be removed by surgical treatment.*

**Objective:** *To report a clinical case of large bilateral retention cysts accidentally found in a young male patient treated by total enucleation.*

**Case Report:** *The authors reported on a young male patient of mucous retention cysts in left and right maxillary sinuses.*

**Results:** *Panoramic radiograph, postero-anterior skull projection, lateral cephalometric radiograph, and computed tomography (CT) showed the typical radiographic features of mucous retention cysts. All specimens illustrated the histopathologic features of sinus lining overlying edematous connective tissue.*

**Conclusion:** *Although retention cysts appear on routine radiograph examinations, CT is an alternative modality to assist in pathology differentiation. The lesion is commonly asymptomatic, however, they should be noticed and monitored to avoid complications.*

**Keywords:** *Mucous retention cyst, Retention pseudocyst, Maxillary sinus*

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The mucous retention cyst of maxillary sinus results from controversial hypothesis. Several etiologies suggest that either a submucosal accumulation of secretions or a cystic degeneration within an inflamed, thickened sinus lining causes the pathology<sup>(1)</sup>. This pathology has many synonyms for instance: retention pseudocyst, retention cyst of the maxillary sinus, benign cyst of maxillary antrum and benign maxillary mucous cyst. Mucous retention cyst is a non-odontogenic origin as it arises in both dentate and edentulous patients<sup>(2)</sup>. Mucous retention cyst is preferably demonstrated in maxillary sinus with an incidence ranged from 3.6 to 35.6% of total population<sup>(3-8)</sup>. This benign cyst appears in middle-aged patients which male:female ratio was 1.7:1<sup>(3)</sup>. Retention cyst usually originates at maxillary sinus floor<sup>(5)</sup> but it may occur in other maxillary antrum walls<sup>(1)</sup>.

Mucous retention cyst is asymptomatic; however, a large lesion activates symptoms such as paresthesia, sensitivity to palpation, chronic headache, producing the postnasal discharge, dizziness, nasal blockage, nasal rupture, and maxillary expansion. It appears on routine radiographic examination as a well-defined, non-corticated, dome-shaped and smooth homogeneous radiopaque mass. The only conventional radiographic image is problematic for making a proper differential diagnosis; therefore, Cone-Beam Computed Tomography (CBCT) is now a valuable tool for precise diagnosis pathology of maxillary sinus<sup>(9,10)</sup>.

Though retention cyst in the maxillary sinus requires no treatment, an enucleation and maxillary sinusectomy are recommended in case of a symptomatic lesion<sup>(11,12)</sup>.

The case report described clinical features, radiographic features, differential diagnosis, histopathologic correlation, and surgical treatment of bilateral mucous retention cysts. The report contained images of 11-month-follow-up.

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## Case Report

A 30-year-old male presented to Plastic and Aesthetic Surgery Department of Naresuan University Hospital for esthetic correction of asymptomatic mandibular angle enlargement. A physical examination and medical history disclosed nothing remarkable. The patient also refused history of facial trauma, surgery, and allergy. He was then referred to the Department of Oral Surgery, Faculty of Dentistry, Naresuan University for further investigation. Extra-oral examination showed masseter muscle and mandibular hypertrophy. Intra-oral examination found no alteration from dental-origination pathology.

## Investigation

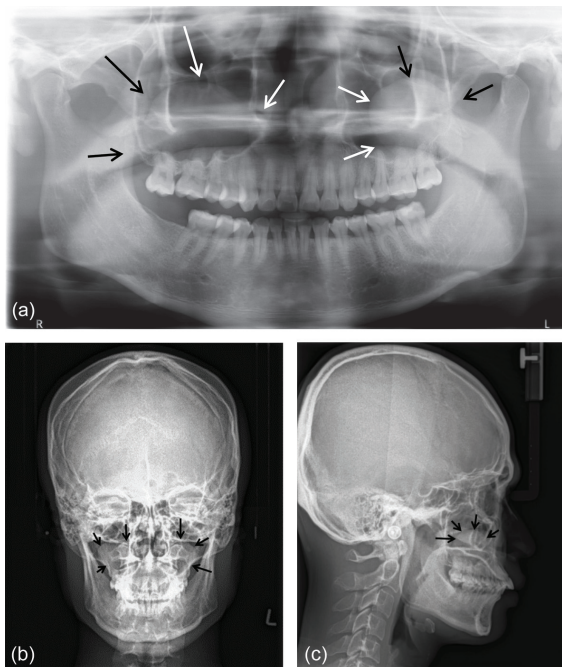
Panoramic radiograph, postero-anterior (PA) skull projection and lateral cephalometric radiograph showed no pathologic lesions in mandible; but they presented well-defined, non-corticated, faintly dome-shaped radiopaque, measured 30x30 mm<sup>2</sup> and 35x30 mm<sup>2</sup> lesions occupying left and right maxillary sinuses, respectively (Fig. 1). Computed tomography (CT) revealed cystic density lesions at both maxillary sinuses, sized about 3.1x2.5 cm<sup>2</sup> and 2.8x2.2 cm<sup>2</sup> suggested retention cysts (Fig. 2).

## Differential diagnosis

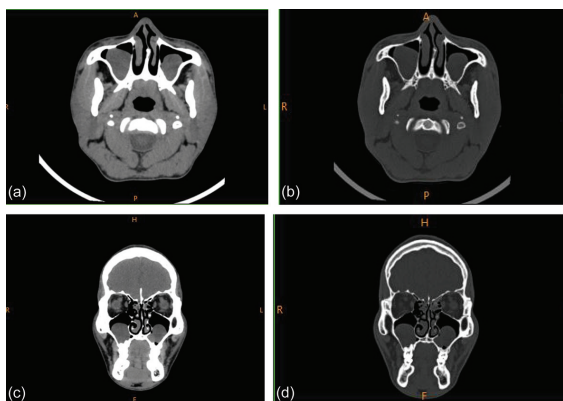
A differential diagnosis of antral polyps, odontogenic cysts, and neoplasms arising in the maxilla adjacent to the sinus relies on clinical and radiographic investigations. An excisional biopsy plays a role in making final diagnosis.

In the present case, an excisional biopsy derived from total enucleation both lesions through the anterior wall of maxillary sinuses under general anesthesia. The 3-soft-brown-tissues sized 0.8x1.2x2.5 cm<sup>3</sup> from right maxillary sinus and multiple soft brown tissues sized 3x2x0.7 cm<sup>3</sup> from left maxillary sinus were collected and submitted to the Pathology Diagnostic Unit. The histological sections of both specimens demonstrated respiratory mucosa with stromal edema and infiltration of lymphoplasmic cells. Focal glandular dilatation was noted. Left maxillary sinus cyst showed eosinophilic infiltration in the stroma (Fig. 3). A diagnosis of bilateral maxillary retention cysts was confirmed.

The patient was disease-free up to 11 months of follow-up (Fig. 3, 4), with a complaint of a little discomfort when chewing and pressuring at canine and premolar areas at the follow-up period. He, however, satisfied with the management and overlooked his primary concern about mandibular enlargement.



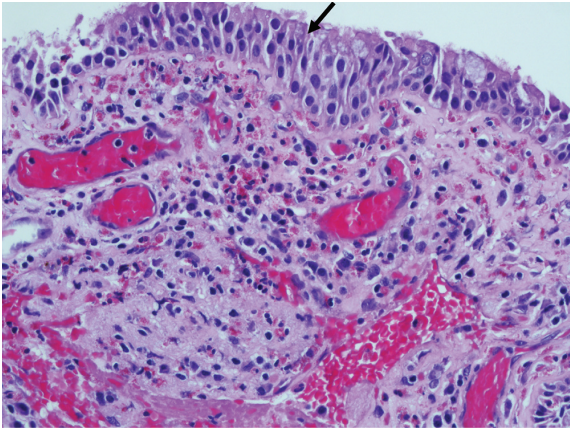
**Fig. 1** A Panoramic radiograph (a), PA skull projection (b), and lateral cephalometric radiograph (c) show a presence of well-defined, non-corticated, and faintly dome-shaped radiopaque lesions at both maxillary sinuses as marked with arrows.



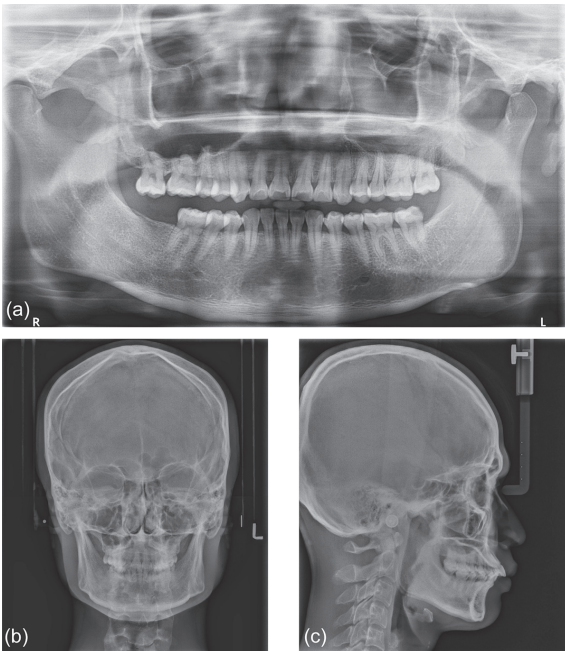
**Fig. 2** Axial CT images (a, b) and coronal CT images (c, d) show homogeneous lesions in both sinuses.

## Discussion

Mucous retention cyst commonly showed in maxillary antrum on routine radiographic examination. An occurrence of a unilateral lesion was 78.6%, while an incidence of bilateral retention cysts is 16.6%<sup>(3)</sup>. A report stated a prevalence of 1.43% with an equal ratio of male and female in Thai population, lesions mostly originated at maxillary antrum floor with an average diameter of 13.30 mm<sup>(14)</sup>.



**Fig. 3** Histopathologic features displays respiratory mucosa (arrow) with stromal edema and infiltration of lymphoplasmic cells.



**Fig. 4** Panoramic (a), PA skull projection (b), and lateral cephalometric (c) radiographs demonstrates the disappearance of lesions after 11-month follow-up.

A dome-shaped or rounded lesion with homogeneous radiopaque was a typical radiographic character of retention cyst. Imaging features of lesions occupied almost of left and right maxillary sinuses match with above explanations. Both CT and CBCT modalities were recommended for getting further bone information apart from the conventional radiograph. Magnetic resonance imaging (MRI) was also a valuable tool for investigation cystic content and border<sup>(13)</sup>.

The patient history and imaging characteristics were essential to differentiate from antral polyps, odontogenic cysts, and neoplasms. Histological characteristics of multiple soft tissue masses inside sinuses presented as thickened mucous membrane lining suggested polyps. A disappearance of membrane lining confirmed the diagnosis of mucous retention cyst. Odontogenic cysts and benign neoplasm arising outside sinus showed radiopaque border separating lesions from the sinus cavity. The malignant neoplasm might mimic retention pseudocysts; however, it was less likely to demonstrate a dome-shaped image. The malignant also had higher possibility to destroy sinus wall.

The mucous retention cyst was asymptomatic. A large lesion might develop complications such as paresthesia, chronic headache, nasal obstruction, and dizziness. The reported lesions appeared in a young male, occurred on both sides, and larger than an average size stated in the literature<sup>(3,14)</sup>. Besides, an occurrence of mucous retention cyst possibly related to higher tendency of cystic growth in renal and hepatic transplant recipients<sup>(14)</sup>. Finally, the patient's concern also played a role in the treatment plan.

### Conclusion

The present study reported an evidence of bilateral mucous retention cyst in a case that was different from the previous initial report in Thai population. Extraoral dental radiograph such as panoramic, PA projection, and Water's view radiograph are critical in screening pathology of maxilla region. CT is necessary for differentiating a mucous retention cyst from other pathologies in this area. Although the lesions are asymptomatic inattention, they should be noticed and monitored to avoid complications.

### What is already known on this topic?

General information of the pathology and scope of treatment are already known.

### What this study adds?

The study states evidence found in a case which is different from the previous data reported from Thai population.

### Potential conflicts of interest

None.

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ถุงน้ำมึกศรีเทนชั้นในโพรงอากาศกรไกโรบนซ้ายและขวา: รายงานผู้ป่วยและการอธิบายโดยสรุป

ศิริลาวัณย์ ไต้ขนาด, พิชิต นามวรรณกุล, ศรีณย์ วรรศักดิ์วุฒิมิพงษ์, ละออ ชมพักตร์, เต็มพร เครือมาก

ภูมิหลัง: ถุงน้ำมึกศรีเทนชั้นของโพรงอากาศแม็กซิลลา เป็นการอักเสบที่มีสาเหตุจากการอุดตันของท่อหลังหรือการเสื่อมสภาพแบบถุงน้ำ ถุงน้ำรีเทนชั้นมักเกิดด้านเดียว แต่บางครั้งอาจเกิดสองข้างได้ ผู้ป่วยมักไม่มีอาการและมักพบโดยบังเอิญ ส่วนใหญ่ไม่จำเป็นต้องทำการรักษา ยกเว้นในรายที่มีภาวะแทรกซ้อน

วัตถุประสงค์: เพื่อรายงานอุบัติการณ์การเกิดถุงน้ำมึกศรีเทนชั้นขนาดใหญ่ที่โพรงอากาศแม็กซิลลาทั้งสองข้าง ในผู้ป่วยชาย อายุน้อย ซึ่งได้รับการรักษาด้วยวิธีการเลาะออกทั้งก้อน

รายงานผู้ป่วย: คณะผู้พิมพ์รายงานการเกิดถุงน้ำมึกศรีเทนชั้นที่โพรงอากาศแม็กซิลลาทั้งสองข้าง ในผู้ป่วยชาย อายุน้อย

ผลการศึกษา: ภาพรังสีปริทัศน์ ภาพรังสีวัดศีรษะด้านหลัง-ด้านหน้า ภาพรังสีวัดศีรษะด้านข้าง และภาพเอกซเรย์คอมพิวเตอร์ แสดงลักษณะเฉพาะทางภาพรังสีของถุงน้ำมึกศรีเทนชั้นที่โพรงอากาศแม็กซิลลาด้านซ้ายและด้านขวา ลักษณะทางพยาธิวิทยา แสดงเนื้อเยื่อเกี่ยวพันที่บวมร่วมกับเยื่อถุงน้ำ

สรุป: ถุงน้ำมึกศรีเทนชั้นมักพบโดยบังเอิญจากภาพรังสีทางทันตกรรมพื้นฐาน แต่เครื่องเอกซเรย์คอมพิวเตอร์มีประโยชน์อย่างมาก ในการวินิจฉัยแยกโรคกับพยาธิสภาพอื่นที่พบในโพรงอากาศแม็กซิลลา แม้ว่ารอยโรคนี้จะไม่มีอาการ แต่ก็ควรแจ้งผู้ป่วยทราบและเฝ้าระวังภาวะแทรกซ้อนที่อาจเกิดขึ้น

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