Benign mucosal cyst of the maxillary sinus results from the accumulation of mucus within the soft tissue that lines the sinuses as a result of obstruction of a duct or gland within the epithelial layer. The reported incidence is 1.4–9.6%,1–5 and it is usually discovered incidentally on plain radiograph or computed tomogram (CT) of the sinuses or on panoramic radiography.1,3,6 Radiographically, the cyst is a rounded, dome-shaped, soft tissue mass, most commonly situated on the floor of the maxillary sinus; it often contains clear, yellowish fluid. In our experience, the cyst is usually asymptomatic, but it can cause a headache and periorbital or facial pain if it fills the sinus space and exerts pressure on the mucosal lining. If it is in the ostium, it may obstruct the opening of the sinus and lead to infection.7,8

About 6–23% of maxillary sinus cysts rupture spontaneously.7–9 If symptomatic cysts are treated, it has traditionally been by puncture and aspiration through the inferior meatus or excision through an intranasal antrostomy or by a Caldwell–Luc operation.10–12 With the development of the rigid nasal endoscope and the introduction of functional endoscopic intranasal sinus surgery,13–16 the management of sinus disease has changed.17–19

The purpose of this retrospective study was to describe our experience with endoscopic surgery for symptomatic cysts of the maxillary sinus.

**PATIENTS AND METHODS**

We retrospectively reviewed all cases of maxillary sinus cyst treated by rigid endoscopy in the Nose and Sinus Unit of Rabin Medical Center during the five-year period 1992–1996. Only patients with symptomatic cysts were included in the study. Those thought to have dental problems as well were examined by a dentist and excluded from the study.

Sixty patients were identified, 55 with unilateral, and five with bilateral, cysts. Their ages ranged from 12 to 73 years (mean 43). All presented with at least one of the following symptoms: headache or facial pain in the frontal, orbital, cheek or nasal area (Table 1), nasal discharge, nasal obstruction, recurrent sinusitis, postnasal drip, and dizziness (Table 2). The duration of symptoms was four months to three years (mean 11 months). Ten patients had undergone puncture of the cyst and aspiration which led to temporary symptomatic relief (4–7 months).

The preoperative endoscopic nasal examination was made with a rigid 0°- and 30°, 4-mm Storz nasal endoscope after topical application of lignocaine 4% and adrenaline 1/100 000 to the nasal cavity.

**Table 1** – Sites of pain in 60 patients with mucus retention cysts of the maxillary sinus

<table>
<thead>
<tr>
<th>Symptom</th>
<th>No. of patients</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache (Frontal)</td>
<td>26</td>
<td>(47)</td>
</tr>
<tr>
<td>Headache (Orbital)</td>
<td>12</td>
<td>(21)</td>
</tr>
<tr>
<td>Facial pain (Nasal)</td>
<td>6</td>
<td>(11)</td>
</tr>
<tr>
<td>Facial pain (Cheek)</td>
<td>12</td>
<td>(21)</td>
</tr>
</tbody>
</table>

**Table 2** – Symptoms in 60 patients with mucus retention cysts of the maxillary sinus

<table>
<thead>
<tr>
<th>Symptom</th>
<th>No. of patients</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dizziness</td>
<td>3</td>
<td>(5)</td>
</tr>
<tr>
<td>Postnasal discharge</td>
<td>6</td>
<td>(10)</td>
</tr>
<tr>
<td>Sinusitis</td>
<td>6</td>
<td>(10)</td>
</tr>
<tr>
<td>Nasal obstruction</td>
<td>6</td>
<td>(10)</td>
</tr>
<tr>
<td>Nasal discharge</td>
<td>8</td>
<td>(13)</td>
</tr>
<tr>
<td>Facial pain</td>
<td>18</td>
<td>(30)</td>
</tr>
<tr>
<td>Headache</td>
<td>38</td>
<td>(63)</td>
</tr>
</tbody>
</table>
included an enlarged middle turbinate ($n = 6$), small polyps in the middle meatus ($n = 3$), and hypertrophy of the inferior turbinate ($n = 2$). Coronal or axial CT showed a rounded soft tissue mass filling more than half of the maxillary antrum in all cases. The masses were large enough to press into the wall of the sinus.

**SURGICAL TECHNIQUE**

The operation was done under local anaesthesia in adults and general anesthesia in the two children (12 years old).

Cotton saturated with lignocaine 4% and adrenaline 1/100 000 was applied to the nasal cavity for 10 min, and then the middle turbinate and lateral nasal wall were infiltrated with lignocaine 2% and adrenaline 1/100 000 through a 0°, 4-mm rigid nasal endoscope. After uncinectomy the natural ostium of the sinus was expanded and the sinus inspected with a 30° or 70°, 4-mm-endoscope. The cyst was aspirated and extracted through the sinus opening with forceps (Fig. 1). (*Giraffe* forceps with curved jaws were used for cysts on the floor of the sinus) The specimens were sent for histopathological examination.

For the last three years, this has been our method of choice. However, if we failed to extract the cyst through the natural ostium we entered the sinus through the inferior meatus with a 5-mm trocar and examined the sinus with a 0°, 30° or 70°, 4-mm telescope. The cyst was extracted through the cannula or the inferior antrostomy. A third option was to enter the sinus through the canine fossa with a 5 mm trocar (Figs 1 & 2).

**RESULTS AND DISCUSSION**

We used an endoscopic surgical approach to treat 60 patients with symptomatic maxillary cysts that filled at least half of the sinus. In 23 patients, we failed to extract the cyst through the natural ostium, and the inferior meatal approach was used; in two patients the sinus was entered through the canine fossa. Nasal packing was necessary because of bleeding in only four patients. There were no postoperative complications. In most patients the pathological examination showed fragments of tissue lined with pseudostratified ciliated respiratory epithelium and an infiltrate of chronically inflamed cells beneath the epithelium.

On follow-up examination at two weeks, three months, and one year postoperatively, five patients had had no relief of symptoms. CT of the sinuses in the coronal plane showed a further cyst in two of them. These patients were reoperated on and the cysts removed endoscopically; there were no further recurrences.

The technique described has several major advantages: it can usually be done under local anaesthesia; it involves no incision; it is associated with a low rate of recurrence (3% in this study); and there are no
complications. We therefore recommend endoscope-guided surgery as the technique of choice for symptomatic cysts of the maxillary sinus.

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References


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