Outcomes and Complications of Locally Advanced Sinonasal Malignancies (SNM) Treated with Open and Endoscopic Resections
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Outcome Objectives
1. To compare outcomes of patients with SNM treated with an open resection to patients treated with an endoscopic approach
2. To analyze the differences in surgical complications, length of hospital stay, and margin status between open and endoscopic approaches

Methods
- A retrospective review of all patients with a pathologically diagnosed T3 or T4 SNM treated definitively at a tertiary care academic center from 1995 to 2012
- 104 total patients treated from 1995 to 2012
- Stage: 28% T3, 72% T4
- Pathology: 57% Squamous cell, 11% adenoid cystic CA, 10% SNUC, 7% adenoCA, 7% esthesio, 5% SNEC, 4% sarcoma
- Location: 50% maxillary sinus, 27% nasal cavity, 19% ethmoid, 3% ethmoid, 1% frontal
- Treatment: 53% open resection, 26% endoscopic or endoscopic-assisted, 21% non-operative

Results

<table>
<thead>
<tr>
<th>Surgical approach</th>
<th>Open</th>
<th>Endoscopic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-year DSS</td>
<td>64%</td>
<td>67%</td>
<td>0.39</td>
</tr>
<tr>
<td>Mean length of stay (days)</td>
<td>6.5</td>
<td>3.8</td>
<td>0.001</td>
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<tr>
<td>Negative margins</td>
<td>34.5%</td>
<td>37.0%</td>
<td>0.91</td>
</tr>
<tr>
<td>Post-op CSF leak</td>
<td>14.3%</td>
<td>5.0%</td>
<td>0.56</td>
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<tr>
<td>Other major complication</td>
<td>7.3%</td>
<td>7.4%</td>
<td>0.99</td>
</tr>
</tbody>
</table>

Conclusions
1. Endoscopic resection of locally advanced SNM in the appropriately selected patient results in similar long-term oncologic control as open resection
2. Endoscopic skull base reconstruction with free mucosal and cartilage grafts resulted in a low rate of postoperative CSF leaks and a decreased mean length of stay
3. 6 of 33 patients (18%) with attempted endoscopic resection required conversion to a bifrontal craniotomy due to tumor invasion of brain parenchyma. The endoscopic surgeon should be prepared for this possibility when addressing advanced malignancies of the skull base with possible intradural extension

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