Objective: to formulate an updated applicable algorithm for selection of the optimal surgical approach to the sphenoid sinus.

Method: Retrospective review for the records of patients undergone sphenoid sinus surgery from four different surgical approaches identified: Endoscopic transnasal sphenoidotomy (ETNS), Endoscopic transethmoidal sphenoidotomy (ETES), Endoscopic transpterygoid sphenoidotomy (ETPS) and Endoscopic transnasal sphenoidotomy with posterior septectomy (ETNS with PS). Results: ETNS was the most commonly used approach (60%). Endoscopic transethmoidal sphenoidotomy was used in about 20% of patients, Endoscopic transpterygoid sphenoidotomy was used in 5 % for sphenoid, parasellar, and clival lesions. No lesions, complications, and outcomes for each approach were discussed. Conclusion: Selection of the appropriate approach to the sphenoid sinus depends mainly on the disease extent displayed by preoperative imaging.

ABSTRACT

DISCUSSION

RESULTS

INTRODUCTION

The English literature includes several classifications of sphenoid sinus diseases which are based on etiologic categorization. However, we advocate a new classification of the sphenoid sinus diseases according to the extent of the disease as displayed by imaging studies.

The ETNS is the least invasive, direct, safe, and physiological approach. It is safe as it deals with the medial part of the anterior sphenoid wall thus avoiding the injury of optic nerve and carotid artery in the sphenoid sinus. It is physiological as it deals with the nasal cavity with minimum disruption of osteomeatal complex. ETES is less invasive than ETNS and ETPS and more physiological than ETNS and ETPS in the vast majority of the cases in which the surgical approach is limited to the lateral nasal wall with or without septum. It was used for management of inflammatory lesions (39.6 %), neoplastic lesions (6.3 %), fibro-osseous lesions (3.1 %), and miscellaneous lesions (15.8 %). ETPS was used for management of lateral sphenoid recess lesions involving the lateral recess of the sphenoid sinus, and sellar, parasellar, and clival lesions. ETNS with PS was used in about 6% of patients. It was used for management of sellar, parasellar, and clival lesions. The different surgical approaches were compared in the following Table 1:

<table>
<thead>
<tr>
<th>Surgical approach</th>
<th>ETNS</th>
<th>ETES</th>
<th>ETPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biographic</td>
<td>41(40%)</td>
<td>17(17%)</td>
<td>4(4%)</td>
</tr>
<tr>
<td>Pathological diagnosis</td>
<td>35,3(35%)</td>
<td>24,7(25%)</td>
<td>2,7(3%)</td>
</tr>
<tr>
<td>Percentage of revision</td>
<td>2%</td>
<td>5%</td>
<td>15%</td>
</tr>
<tr>
<td>Percentage of complications</td>
<td>10%</td>
<td>15%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Table 1: Surgical approaches to the sphenoid sinus

The study population underwent sphenoid sinus surgery through four different approaches. In our study, the endoscopic approaches to the sphenoid sinus were used for the management of different sphenoid sinus lesions. Some factors were considered for selecting the optimal surgical approach. The factors included the disease extent as displayed by imaging studies, disease location, radiological extent of the disease, and presence of complications. The surgical procedure was attempted with or without septectomy.

METHODS AND MATERIALS

The study was a retrospective review performed on 62 patients who had undergone surgery for sphenoid sinus lesions at the Department of Otolaryngology, Tanta University between September 2003 to July 2008. Concomitant involvement of the other paranasal sinuses or lesion in the same sphenoid sinus and extending into the sphenoid sinus e.g. pituitary adenoma was included in the study. The study was approved by the ethical committee of Tanta University. The study population represents the patients who signed a consent form prior to participating in research studies and reviewing their operative and follow-up data. All patients were investigated with CT scan of the paranasal sinuses. MRI was performed in 47 patients (74.6 %). Patients were classified according to the extent of the disease as displayed by imaging studies as follows: 1- Isolated sphenoid sinus lesions, 2- Paranasal involvement of the sphenoid sinus and other paranasal sinuses, 3- Isolated sphenoid sinus lesions involving the lateral sphenoid recess, and 4- Isolated sphenoid sinus lesions (1-3). The different surgical approaches were compared in the following Table 1:

DISCUSSION

Sphenoid sinus diseases can be classified according to the disease extent as displayed by imaging studies (CT scan or MRI) into isolated sphenoid sinus lesions, paranasal involvement, lateral sphenoid recess lesions, and sellar, parasellar, and clival lesions. Endoscopic approaches to sphenoid sinus lesions are relatively safe in the trained hands without major surgical complications. Selection of the appropriate surgical approach to the sphenoid sinus depends mainly on the disease extent as displayed by preoperative imaging studies (CT scan or MRI).

Sphenoid sinus; disease extent

CONCLUSIONS

Figure 1: Algorithm for selection of the endoscopic approach to the sphenoid sinus

REFERENCE