Nasal Septal Perforation: Review of Etiology and Role of Biopsy in the Work-Up

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INTRODUCTION
- Nasal septal perforations (NSP) are septal defects characterized by direct communication between the two nasal cavities
- Etiology includes iatrogenic causes, such as sinonasal surgery, trauma, autoimmune disease, intranasal drug use, systemic inflammatory and vasculitic conditions, and neoplasms1,2
- Symptomatology has been shown to be heterogeneous and includes epistaxis, pain and congestion1,3
- Biopsy has been used for diagnosis of Wegener’s granulomatosis, sarcoidosis, or neoplasia,4 but may have low sensitivity, specificity, and usefulness in NSP5

OBJECTIVES
(1) To investigate the etiology, presentation, and evaluation of NSP
(2) To investigate the diagnostic usefulness of biopsy in NSP

METHODS
Data Collection
- Data collection via retrospective chart review
- 162 consecutive patients presenting to the Massachusetts Eye and Ear Infirmary from 2007 to 2012 with a diagnosis of NSP
- Etiology of perforation had to be established as known or idiopathic by the treating otolaryngologist at time of diagnosis or during follow up.
- Cases were excluded when the treating otolaryngologist did not comment on the potential etiology of the perforation (known or idiopathic).

Exposures of Interest
- Patient age, sex, location of perforation, number of perforations, presenting symptoms, physical exam findings, condition of the mucosa (normal, crusting, abnormalities other than crusting), laboratory investigations, imaging, and operative treatment of the perforation

Outcomes of Interest
- Diagnostic value of biopsy (diagnostic vs. non-diagnostic)

RESULTS

<table>
<thead>
<tr>
<th>Etiology</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma</td>
<td>11/158</td>
</tr>
<tr>
<td>Infection</td>
<td>24/158</td>
</tr>
<tr>
<td>Surgery</td>
<td>9/158</td>
</tr>
<tr>
<td>Drug use</td>
<td>1/158</td>
</tr>
<tr>
<td>Autoimmune disease</td>
<td>2/158</td>
</tr>
<tr>
<td>Inflammatory disease</td>
<td>1/158</td>
</tr>
<tr>
<td>Others</td>
<td>10/158</td>
</tr>
</tbody>
</table>

Table 1: Description of Variables

DISCUSSION
- Sinonasal surgery, cocaine use, the use of nasal sprays (steroid and non-steroid), as well as trauma were the most common causes for NSP, which is consistent with prior literature
- High prevalence of preventable etiologies
- 15% of NSP were classified as idiopathic
- More than 95% of NSP presented symptomatically
- Most common symptoms were congestion, facial pressure, epistaxis, and crusting
- Of 28 biopsies, only 5 were classified as diagnostic (4 neoplasia, 1 Wegener’s)
- Symptomatic presentation was similar between patients with vs. without biopsy, but in 4/5 diagnostic cases decision was based on suspicious findings on exam

LIMITATIONS
- Small sample size
- Examination, evaluation, and diagnosis of patients in study by several physicians, allowing for potential between-physician differences in patient assessment
- Retrospective chart review methodology

CONCLUSIONS
- The majority of causes of NSP are preventable (surgery, nasal sprays, cocaine use)
- Cases suspicious for a neoplastic process warrant biopsy
- Biopsy for evaluation of potential systemic causes of NSP yields predominantly nonspecific results, and should only be used in cases of high clinical suspicion

REFERENCES