Histomorphological Study of Polypoidal Lesions of the Nose and Paranasal sinuses.

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INTRODUCTION

Mass in the nasal cavity is a fairly common finding in clinical practice. A wide array of neoplastic and nonneoplastic conditions present as a mass lesion in the nasal cavity and paranasal sinuses. The aim of this study is to know the relative proportion of neoplastic and nonneoplastic causes for a mass in the nasal cavity and paranasal sinuses. It also aims to discuss the salient features of various conditions affecting these areas. There are very few studies which discuss the distribution of neoplastic and non neoplastic lesions affecting the nose and paranasal sinuses.

METHODS

Seventy seven cases presenting with a polypoidal lesion in nose and paranasal sinuses were studied over a period of one year. Formalin fixed specimens were received with complete clinical data. Routine gross examination was carried out and required number of sections were taken and stained with Haematoxylin and Eosin stain.

RESULTS

A total of seventy seven biopsies were examined. Histopathologic examination revealed that the nonneoplastic lesions were far too many compared to the neoplastic conditions. Among the nonneoplastic conditions nasal polyps constituted 59 cases amounting to 76.6%. The youngest patient was a 3 year old child with an inflammatory polyp and the oldest was a 75 year old male with an inverted papilloma.

Table 1: Distribution of diagnosis with percentage.

<table>
<thead>
<tr>
<th>Histopathologic diagnosis</th>
<th>Total number of cases</th>
<th>Percentage of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal polyp</td>
<td>59</td>
<td>76.6%</td>
</tr>
<tr>
<td>Angiomatous polyp</td>
<td>4</td>
<td>5.2%</td>
</tr>
<tr>
<td>Rhinoscleroma</td>
<td>2</td>
<td>2.6%</td>
</tr>
<tr>
<td>Rhinosporidiosis</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td>Ossifying fibroma</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td>Vascular tumors</td>
<td>4</td>
<td>5.2%</td>
</tr>
<tr>
<td>Inverted papilloma</td>
<td>3</td>
<td>3.9%</td>
</tr>
<tr>
<td>Pleomorphic adenoma</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td>Adenoid cystic carcinoma</td>
<td>1</td>
<td>1.2%</td>
</tr>
<tr>
<td>Mucoepidermoid carcinoma</td>
<td>1</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

Nasal polyps are histologically characterized by loose mucoid stroma with mucus secreting glands and are covered by pseudostratified columnar epithelium which may occasionally show evidence of squamous metaplasia. The stroma is infiltrated by lymphocytes, plasma cells, neutrophils and eosinophils (fig 1). A preponderance of eosinophils in the stroma warrants a diagnosis of an allergic polyp (fig 2).
The stromal cells may at times appear large with a hyperchromatic and bizarre nucleus and strap cell like cytoplasm. In the current study 10 out of 59 nasal polyps showed presence of such atypical cells in the stroma (fig 3 and 4).

The present study had four angiomatous polyps which show a prominent component of dilated blood vessels (fig 5).
Both the cases of Rhinoscleroma showed a heavy infiltrate of histiocytes and Miculikz cells. Also seen were good numbers of Russell bodies in the stroma.

Rhinospordinosis classically presents as a polypoidal mass with a red granular surface which bleeds easily on touch. The single case in the present study was not diagnosed clinically due to its atypical clinical presentation (fig 6). Histopathology revealed extensive squamous metaplasia of the overlying epithelium with the subepithelium showing numerous sporangia containing endospores.

Three cases of inverted papilloma (fig 7) and one case each of pleomorphic adenoma, adenoid cystic carcinoma and mucoepidermoid carcinoma were seen.

DISCUSSION

A wide array of neoplastic and nonneoplastic conditions present as a mass lesion of nasal cavity and paranasal sinuses. Nasal polyps constitute maximum number of cases. Nasal polyps are not true neoplasms. Their formation is associated with inflammation, allergy and very rarely mucoviscidosis. Both in inflammatory and allergic polyps, repeated attacks of rhinitis eventually lead to focal protrusions of the mucosa, producing so called nasal polyps. On histologic examination, these polyps consist of oedematous loose stroma which can occasionally harbour atypical stromal cells. The stromal atypical cells have been reported earlier. Their light microscopic appearance strongly simulates rhabdomyosarcoma. However, it has been found that these cells are of reactive nature. Angiomatous nasal polyps are an extremely rare variant of antrochoanal polyps which are characterized by a prominent component of dilated blood vessels. The four cases in the current study occurred three in males and one in female.

The cases of rhinoscleroma had classical histological features. U Zafar et al studied the incidence of nonneoplastic lesions in which they had seven cases of rhinoscleroma amounting to 4.83%. The percentage of other nonneoplastic conditions like nasal polyps and ossifying fibroma in the present study are comparable with this study.

Inverted papilloma is histologically characterized by
endophytic or downward growth of the epithelium into the stroma with intact basement membrane. The epithelium is composed of proliferating columnar and/or squamous cells with numerous microcysts (fig 8). Ann Sandison et al found that they constitute 2-3% of nasal polyps\(^8\). In the current study they constituted 3.9% of cases. The age incidence ranged from 19 years to 75 years.

**Figure 9**  
Fig 8. Inverted papilloma with squamous lining containing numerous microcysts.

H&E 20X

Lobular capillary haemangiomas are not so common lesions of nasal cavity. They have been associated with microtrauma, pregnancy and oral contraceptives\(^9,10,11,12\). The age incidence in the present study ranged from 10 years to 45 years. Out of the four cases three occurred in males and one in female.

Pleomorphic adenoma of the nasal cavity is relatively rare. The presenting complaint is usually symptoms of unilateral nasal obstruction\(^13,14\). The single case in this study is of a male aged 33 years which was histopathologically diagnosed as cellular pleomorphic adenoma.

Malignancies of the sinonasal tract account for only 3% to 5% of all head and neck cancers. Adenoid cystic carcinoma of the nasal cavity and paranasal sinuses is the second most common malignancy after squamous cell carcinoma\(^15\). It can be composed of more than one histologic subtype, but cribriform pattern is the most common type (fig 9 & 10). Mucoepidermoid carcinoma of nasal cavity is a very rare tumor which is very aggressive and has a poor prognosis\(^16,17,18\). The single case in this study is of a 26 year old male who presented with a moderately differentiated mucoepidermoid carcinoma (fig 11).

**Figure 10**  
Fig 9. Adenoid cystic carcinoma H&E 10X.

**Figure 11**  
Fig 10. Adenoid cystic carcinoma PAS stain 10X.
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Figure 12
Fig 11. Mucoepidermoid carcinoma H&E 20X.

In summary, nonneoplastic causes for polypoidal mass lesion in nose and paranasal sinuses are far too common compared to neoplastic causes. However, very rare tumors like pleomorphic adenoma, adenoid cystic carcinoma and mucoepidermoid carcinoma can present as polypoidal mass.

References
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