SINONASAL MASS – A DIVERSE CLINICOPATHOLOGICAL ENTITY – AN EXPERIENCE IN A TERTIARY CARE CENTRE IN THE NORTH EASTERN INDIA

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ABSTRACT

BACKGROUND

Mass in the nasal cavity is frequently encountered in routine ENT practice. The histopathological profiles of these masses are diverse and diagnosis can often be challenging for the clinician and the pathologist.

MATERIALS AND METHODS

A one-year observational study was conducted in a tertiary care centre to study the clinicopathological profile of sinonasal mass.

RESULTS

A total of 34 cases were included in the study which included 22 males and 12 females. The most common presenting complaints were nasal obstruction (88.2%) followed by epistaxis (44.1%). Though majority of the patients presented within six months of onset of symptoms, about 35.3% of the patients presented within six to twelve months of the onset of symptoms. Sinonasal polyps (47.1%) were the most common histological diagnosis while squamous cell carcinoma of the maxilla was the most common malignancy (17.6%), followed by sinonasal lymphoma and melanoma (5.9% each) and olfactory neuroblastoma (2.9%). 73% of the lesions were amenable to surgical treatment.

CONCLUSION

The treatment of sinonasal lesions depend on the histological profile and the diagnosis of the same can often be a challenging task. One has to be aware of the differential diagnosis and rule them out by proper histological evaluation.

KEYWORDS

Sinonasal Polyposis, Nasal Mass, Maxillary Carcinoma, Lymphoma, Olfactory Neuroblastoma, Haemangioma.

RESULTS AND OBSERVATIONS

A total 34 cases were recorded during the study period of which 64.7% (22 cases) were males and 35.3% (12 cases) were females. Majority of the patients belonged to the age group of 20–40 years (32.3%) (Table 1). 23 cases (67.6%) were benign in nature while 11 cases (32.3%) were malignant. The presenting symptoms and clinical findings are shown in Table 2 and Table 3 respectively. Most of the patients presented within six months of presentation of symptoms (Figure 1). The most common histological diagnosis was sinonasal polyps (47.1%). The breakup of the histological diagnosis of the lesions are shown in Table 4. It is important to note that certain conditions presenting as a sinonasal mass pose significant diagnostic challenge. These include melanoma of the nose and paranasal sinus, olfactory neuroblastoma (OLN) and sinonasal lymphoma. In this series, OLN and one case of amelanotic melanoma were clinically diagnosed as polyps. Radiological feature of the melanoma was indistinguishable from a polyp and was diagnosed at biopsy after immunohistochemistry (IHC). The case of OLN was suspected due to its radiological features which showed involvement of the olfactory fossa and the cribriform plate and was confirmed with a prior biopsy. All the patients diagnosed with squamous cell carcinoma of maxilla (six cases) presented at an advanced stage and refused surgery and were subsequently treated with radiotherapy. Of these, two patients had residual tumour and refused further treatment, one died of the disease and the rest were lost to followup. Two cases of sinonasal lymphoma were diagnosed where one had intracranial metastasis and died of the disease. The other case of lymphoma was diagnosed by IHC as extranodal NK/T cell lymphoma nasal type and needed multiple biopsies from different areas of the granulation filled nasal cavity. The patient was a young male and responded favourably to chemoradiation and remained disease free for one year after the treatment and was subsequently lost to followup. The details of the followup of the patients are shown in Table 5.

<table>
<thead>
<tr>
<th>Types of Lesion</th>
<th>No. of Cases</th>
<th>Percentage</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyp</td>
<td>16</td>
<td>47.1%</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Sq cell Ca Maxilla</td>
<td>6</td>
<td>17.6%</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Nasopharyngeal angiofibroma</td>
<td>3</td>
<td>8.9%</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Melanoma</td>
<td>2</td>
<td>5.9%</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sinonasal Lymphoma</td>
<td>2</td>
<td>5.9%</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Haemangiomata</td>
<td>2</td>
<td>5.9%</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Inverted papilloma</td>
<td>2</td>
<td>5.9%</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>OLN</td>
<td>1</td>
<td>2.9%</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>100%</td>
<td>22</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 4. Table showing Final Diagnosis on the basis of Histopathology Report and their Distribution on the Basis of Sex

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>No. of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal obstruction</td>
<td>30</td>
<td>88.2%</td>
</tr>
<tr>
<td>Epistaxis</td>
<td>15</td>
<td>44.1%</td>
</tr>
<tr>
<td>Mass protruding from nasal cavity</td>
<td>8</td>
<td>23.5%</td>
</tr>
<tr>
<td>Pain</td>
<td>7</td>
<td>20.6%</td>
</tr>
<tr>
<td>Cheek mass</td>
<td>7</td>
<td>20.6%</td>
</tr>
<tr>
<td>Repeated sneezing</td>
<td>6</td>
<td>17.6%</td>
</tr>
<tr>
<td>Discharge</td>
<td>16</td>
<td>47.1%</td>
</tr>
<tr>
<td>Anosmia</td>
<td>4</td>
<td>11.8%</td>
</tr>
<tr>
<td>Proptosis</td>
<td>3</td>
<td>8.9%</td>
</tr>
<tr>
<td>Visual loss</td>
<td>2</td>
<td>5.9%</td>
</tr>
<tr>
<td>Loose tooth</td>
<td>2</td>
<td>5.9%</td>
</tr>
</tbody>
</table>

Table 2. Table showing Common Presenting Symptoms

<table>
<thead>
<tr>
<th>Clinical Findings</th>
<th>Total No. of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass in nasal cavity</td>
<td>28</td>
<td>82.3%</td>
</tr>
<tr>
<td>Facial swelling</td>
<td>7</td>
<td>20.6%</td>
</tr>
<tr>
<td>Mass in nasopharynx</td>
<td>6</td>
<td>17.6%</td>
</tr>
<tr>
<td>Palatal and gum involvement</td>
<td>6</td>
<td>17.6%</td>
</tr>
<tr>
<td>Orbital extension</td>
<td>3</td>
<td>8.9%</td>
</tr>
<tr>
<td>Granulations in nasal cavity with crusting</td>
<td>2</td>
<td>5.9%</td>
</tr>
<tr>
<td>Palpable Cervical lymphadenopathy</td>
<td>2</td>
<td>5.9%</td>
</tr>
<tr>
<td>Cranial nerve palsy</td>
<td>1</td>
<td>2.9%</td>
</tr>
<tr>
<td>Features of raised ICT</td>
<td>1</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

Table 3. Table showing Clinical Findings

<table>
<thead>
<tr>
<th>Age (Yrs.)</th>
<th>No. of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20</td>
<td>7</td>
<td>20.6%</td>
</tr>
<tr>
<td>20-40</td>
<td>11</td>
<td>32.3%</td>
</tr>
<tr>
<td>41-60</td>
<td>10</td>
<td>29.4%</td>
</tr>
<tr>
<td>61-80</td>
<td>5</td>
<td>14.7%</td>
</tr>
<tr>
<td>&gt;80</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>34</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1. Table showing Age Distribution of the Patients

<table>
<thead>
<tr>
<th>Disease</th>
<th>No recurrence (after 12 months)</th>
<th>Recurrence</th>
<th>Lost to followup</th>
<th>Referral to oncology centre</th>
<th>Incomplete treatment/treatment refusal</th>
<th>Death</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Ca Maxilla</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Inverted papilloma</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>OLN</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Polyp</td>
<td>9</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Haemangiomata</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>JNA</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 5. Table showing Breakup of Followup of the Cases
DISCUSSION

The study included 34 patients. Of them, 64.7% (22 cases) were males and the rest were females. Bakhari et al found a slight female preponderance in their study (M:F=1:1.2) \(^2\) while a study carried out among the Indian population found a higher ratio of males. \(^3,4,5\) It is thus seen that sinonasal masses has a predilection to occur more commonly among the male population. The reason for this is not known and could be due to the relatively more exposure of the male population to environmental allergens or carcinogens. Most of the patients
Evidence of bone 19
he most common
inonasal-
umed as the exact data are
50x74]
lacking.
50x86]underprivileged can only be ass
50x109]patients who presented within 3 months of onset of
50x144]the factors contributing to such delay included self
50x179]are treated as nonspecific rhinitis without proper evaluation.
50x215]polyps. These findings suggest a relative lack of awareness of
50x226]lymphoma with intracranial extension and the rest were nasal
50x238]symptoms. Of this group
50x296]maxilla who presented to us had symptoms ranging from 7
50x308]12 months after onset of symptoms. All six cases of carcinoma
50x343]Most cases presented within a span of 1
50x413]patients and cervical lymphadenopathy in 9.1% of the
50x425]approximately 48.2% ca
50x437]case of olfactory neuroblastoma. Bist et al found nasal mass in
50x460]lymphadenopathy was present in only two cases (5.9%) of
50x472]cases (14.7%) had orbital extension. Cervical
50x530]extension of the mass
50x552]s extension of the mass
50x589}erosion or infiltration and invasion to nearby structures
50x601}which can be d
50x624}juvenile nasopharyngeal angiofibroma comprised almost
50x659}many cases of sinonasal malignancies. These
50x683}lesions as seen in various studies.3,4,5,7,9 Polyps remain a
50x718}with nonspecific symptoms
50x729}similar findings were noted by Kalpana et al while Lathi et al
50x741}common lesions (47.1%) followed by angiofibroma (8.9%),
50x753}

Sinonasal lesions are diverse in their histological profile and
often provide a diagnostic and therapeutic challenge. Majority
of the lesions are benign in nature as seen in the present study
(23 cases, 67.6%). Sinonasal polyps comprised the most
common lesions (47.1%) followed by angiofibroma (8.9%),
haemangioma (5.9%) and inverted papilloma (5.9%). Almost
similar findings were noted by Kalpana et al while Lathi et al
found a higher percentage (71.4%) in their study.3

Benign polyps are the most common non-neoplastic
lesions as seen in various studies.3,4,5,7,9 Polyps remain a
simple clinical diagnosis, but it should always be confirmed
histologically. Rarely polyps may masquerade an underlying
malignancy. Amelanotic melanoma may also be mistaken as a
polyp if one is unaware of the entity.10,11

Juvenile nasopharyngeal angiofibroma comprised almost
5–6% of sinonasal tumours in studies among Indian
population3,4 and its overall incidence has been quoted to be
0.05 to 0.5% of all head and neck neoplasms.12 It is worth
mentioning that these tumours are highly vascular tumours
which can be diagnosed on the basis of its typical history,
clinical examination and radiological and angiographic
findings.13 Preoperative biopsy is contraindicated because of
the risk of torrential bleeding. Nasal haemangiomas are rare
lesions and are mostly capillary type and arise from the nasal
septum. Cavernous haemangioma usually arise from the
lateral nasal wall and have similar presentation like that of the
capillary counterpart.14 It is important to differentiate these
lesions from those arising from the nasal bones or the maxilla
which are primarily bony lesions and warrant a different
surgical approach.15

Inverted papilloma constitutes 0.4% to 4% of all sinonasal
tumours16,17 and in studies on Indian population inverted
papilloma comprised nearly 6% of all sinonasal tumours.3,4
Though rarely these tumours may be bilateral, inverted
papilloma tumours should always be suspected in case of
unilateral nasal mass in patients above 40 years age. Although
not seen in the present study, it is not unusual to encounter
fibro-osseous lesions, schwannoma, dentigerous cyst and
rarely microcystic papillary adenoma and spindle cell lesions
which may present with a mass in the nasal cavity.7,4

Squamous cell carcinoma (SCC) of the maxillary sinus was
the most common malignant lesion encountered (17.6%)
followed by 2 cases (5.9%) of melanoma and sinonasal
lymphoma each and one case of olfactory neuroblastoma
(2.9%). SCC maxilla is the commonest sinonasal
malignancy.3,7,9,18 SCC of paranasal sinuses is a straightforward
histological diagnosis provided the tissue sampling is done
from the representative areas. Certain conditions like
sinonasal lymphoma, ophthalmic neuroblastoma and melanoma
can challenge the pathologist and cause delayed diagnosis. In
the present study, there were two cases (5.9%) of sinonasal
lymphoma and one case of melanoma and ophthalmic
neuroblastoma each.

Sinonasal lymphomas are rare tumours but have
aggressive course and require immunohistological typing to
arrive at a definitive diagnosis.19 One of the patients in the
study was diagnosed as extranodal NK/T cell lymphoma nasal
type while in the other patient definitive typing of lymphoma
could not be done. Extranodal NK/T cell lymphoma can occur
in any age group with peak incidence in 5th decade and are
more frequent among the Asian population. These tumours
are found to be associated with Epstein Barr virus and the

prodromal stage of the disease may have an indolent course that may last many years.\textsuperscript{19,20,21} These tumours show positive immunostaining to CD3, CD56.\textsuperscript{21,22}

Olfactory neuroblastoma is a rare tumour. Tural et al found only nineteen cases in a 24-year retrospective analysis.\textsuperscript{23} A retrospective study by Menon et al conducted in one of the premier tertiary care oncology referral centre in India found about 14 cases of olfactory neuroblastoma over a period of 5 years study.\textsuperscript{24} Preoperative diagnosis helps in proper planning and management of these tumours as they frequently involve the cribriform area and require a craniofacial resection for complete tumour removal. The patient in the present study was diagnosed preoperatively and had radiological evidence of involvement of the cribriform area and was referred to an oncology centre for further treatment.

Most of the lesions in the present study were treated surgically (25 cases, 73.5%). Of them, 18 cases (which included 16 polyps & 2 haemangiomas) were addressed by endoscopic approach, 3 cases of angiofibroma were dealt by transpalatal approach while 4 cases (2 cases of inverted papilloma and 2 nasal melanomas) required lateral rhinotomy approach for complete tumour removal. Surgery is the mainstay of treatment for most lesions and in the present day scenario, ESS remains the gold standard for many sinonasal tumours. Even highly vascular lesions like angiofibroma can be removed endoscopically.\textsuperscript{13} In the present study, all the cases of JNA were addressed by the transpalatal approach with complete resection and without recurrence. Various other approaches like lateral rhinotomy, Caldwell-Luc approach, etc. may be undertaken depending on the pathology and the extent of the lesion.

We encountered a recurrence of 25% among the 12 postoperative cases of nasal polyps in patients who were under regular followup for at least one year (4 patients lost to followup). The recurrence rates of sinonasal polyposis are high and has been found to be 19% and 60% in studies by Akhtar et al and Wynn et al respectively.\textsuperscript{25,26} Inverted papilloma has a tendency of recurrence and proper surgical planning is recommended to minimise such recurrence. Saha et al found a recurrence rate of 38% of cases.\textsuperscript{27} Barnes quotes a recurrence rate of 0-30% within 2-3 years following lateral rhinotomy and medial maxillectomy.\textsuperscript{28} Few cases were lost to followup and as such the final outcome of all the cases in the study are not known. Effective surgical resection of maxillary carcinoma followed by postoperative chemoradiation is associated with better outcome.\textsuperscript{3} However, even with multimodality treatment, the overall prognosis is disappointing.\textsuperscript{29} Sinonasal lymphoma responds to chemoradiation. Even though early diagnosis is associated with a better diagnosis,\textsuperscript{30} the 5-year survival rate is about 50%.\textsuperscript{31}

CONCLUSION

Sinonasal masses are encountered commonly but are of diverse histological profile. The management and prognosis of the lesions also vary depending on the histology. A clinician and the pathologist should be aware of all the possible differential diagnosis of a mass in the nasal cavity and rule them out. We suggest that every tissue removed from the nasal cavity be subjected for histopathological evaluation so as not to miss out on any uncommon lesions. It is also important to make the general population aware of symptoms of sinonasal pathology and encourage them to seek early consultation. As has been seen, there is chance of recurrence in certain histological entity, so regular followup is needed. It is also necessary to initiate a multicentric study to know the clinical behaviour and the response rates of certain uncommon lesions of the nose and paranasal sinus so that a uniform treatment protocol can be formulated.

REFERENCES