Histopathological Spectrum of Mass Lesions of Sellar- Suprasellar Region at Tertiary Care Centre

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Abstract
Introduction: The complex anatomy of the sellar-suprasellar region brings a wide variety of lesions into the clinicopathologic differential diagnosis. Both malignant and benign lesions may arise within the sellar turcica.

Objectives: To find incidence and histomorphological spectrum of the mass lesions in sellar and suprasellar region.

Material and Methods: The present study was retrospective study conducted in SMS Medical College, Jaipur between January 2017 to May 2019. During this period total 148 cases received.

Results: The commonest benign tumor of sellar and supra sellar region was pituitary adenomas followed by craniopharyngiomas.

Conclusion: Both benign and malignant lesions can present as sellar- suprasellar mass. Pituitary adenoma constituted the bulk of sellar and suprasellar region lesions.

Keywords: Sellar, suprasellar, benign, malignant.

Introduction
Sellar and parasellar region lesions spectrum includes a wide variety of conditions ranging from adenoma to empty sella syndrome, apoplexy, congenital or acquired condition.¹²³⁴ Other than adenoma, genetic causes of pituitary disease are increasingly recognized.⁵ Pituitary adenomas are not rare and account for 20% all intracranial tumors.⁴⁵ They can cause mass effect, in addition to hypersecretion / hypopituitarism.⁶ Wide variety of lesions that affect the sellar region, pituitary adenomas are by far the most common. The complex anatomy of the sellar-suprasellar region brings a wide variety of lesions into the clinicopathologic differential diagnosis.⁷⁸⁹ The pituitary gland rarely hosts cysts, infarcts, inflammatory diseases and infectious diseases also. However, when these do occur, they closely mimic adenoma on neuroimaging studies. So, correct diagnosis falls to the surgical pathologists.¹⁰¹¹

Material and Methods
The specimens are collected at our department during January 2017 to May 2019.
The data including age, sex, tumor site and histological diagnosis are taken. Patients more than 12 years were counted as adult. The study comprises of 148 consecutive cases of posterior cranial fossa in all age groups. Neurosurgical intervention was carried out in all these cases. After surgery, specimens were sent for histopathological evaluation and microscopic diagnosis was made.

**Exclusion Criteria**
Non-operated children and adults were excluded from this study.

The requisition form of patients presenting with sellar-suprasellar lesions were received from department record from January 2017 to May 2019 and the data of patients along with histopathological reports were collected and studied.

**Results**
In our study 148 cases involved, 90 were male and 58 female patients so there were male to female ratio are 1.55. Histologically, in tumorous lesions, pituitary adenoma was commonest 100(74%) followed by craniopharyngioma 23(17%), Pilocytic Astrocytoma 5 (3.7%), collision tumor 2(1.5%) and one case each of meningioma, metastatic carcinoma, solitary fibrous tumor, round cell neoplasm and chordoma. In nontumorous lesion, epidermoid cysts 7(53.8%) and pituitary infarct 3 (23%), arachnoid cyst 2(15.5%) and one case granulomatous hypophysitis, Table 1 showing lesions produce mass effect in sellar-suprasellar region in our study.

Peak incidence of sellar-suprasellar masses are between 20–50 years age group. However, peak incidence of craniopharyngioma was in first decade of life. In our study, most common presenting symptoms in patients were headache, nausea, vomiting, and decrease vision. Few cases are presented with endocrinal disturbances like hirsutism, acromegaly, breast discharge and primary infertility.

**Discussion**
Pituitary adenomas are almost 80% of all sellar-suprasellar masses, but there are a number of less known tumors, both malignant and benign, which may arise within the sellar turcica. These include relatively common tumors such as craniopharyngiomas and meningiomas, as well as extremely rare tumors such as collision tumor and chordomas. Pituitary adenomas are usually present in adults.
They are divided as microadenomas if size is less than 1 cm in diameter and macro adenoma if they exceed 1 cm in diameter.
In our present study, 90 males and 58 females were included, so male to female ratio of 1.55:1. Out of the 148 cases, tumorous lesions (91.22%) more commonly presented as mass lesion in sellar- suprasellar region than non tumorous lesions (8.78%). In tumorous lesions, pituitary adenomas were most common 100(74%) 1,2,3 followed by craniopharyngioma 23(17%), Pilocytic Astrocytoma 5 (3.7%), collision tumor 2(1.5%) and one case each of meningioma, round cell neoplasm, solitary fibrous tumor, chordoma, and metastatic carcinoma. Similar results were found in studies of Sautner et al, Benjamin and Huang et al, Brownyn and Hamilton et al, Brian and Chin et al Kleinschmidt et al.12,13,14,15,

**Table 2** showing non-tumorous lesions in sellar-suprasellar region.

<table>
<thead>
<tr>
<th>Lesion</th>
<th>No. of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pituitary adenoma</td>
<td>100</td>
<td>74</td>
</tr>
<tr>
<td>Craniopharyngioma</td>
<td>23</td>
<td>17</td>
</tr>
<tr>
<td>Pilocytic astrocytoma</td>
<td>5</td>
<td>3.7</td>
</tr>
<tr>
<td>Collision tumor</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Meningioma</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Metastatic carcinoma</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Solitary fibrous tumor</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Round cell neoplasm</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td>Chordomas</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>135</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
In a study done by Benjamin and Huang pituitary adenoma constituted more than 90% cases. Study done by Kleinschmidt et al showed adenoma as high as 85%. In our study pituitary adenoma cases are 74%.

In non tumorous, epidermal cysts and pituitary infarct were commonest lesions presenting as mass lesion in sellar-suprasellar region followed by arachnoid cyst, granulomatous hypophysitis. These results were in concordance with similar other studies done by Nandha et al, Paz Maya et al, Attanasio et al.\textsuperscript{16,17,18,19,20,21}

H&E section (40X) of Pituitary adenoma showing monomorphic tumor cells with amphophilic cytoplasm.

H&E section (10X) of Craniophayngioma showing lamellar wet ketatin lined by squamous epithelium with peripheral palisading and brain tissue.

H&E section shows psammomatous meningioma showing psammoma body.

H&E (10X) section shows pilocytic astrocytoma showing eosinophilic granular body.
H&E (10X) section of chordoma showing physaliferrous cells.

Conclusion
Pituitary adenomas constitute the bulk of pituitary disease in patients followed by craniopharyngioma.

Acknowledgement
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