

Original Article

## Histopathological Spectrum of Mass Lesions of Sellar and Parasellar Region in a Tertiary Care Centre

Authors

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**ABSTRACT**

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

**Objectives:** *To study histopathological features of the mass lesions in sellar and parasellar region.*

**Material and Methods:** *The present study was prospective study conducted in SMS Medical College, Jaipur between January 2014 to July 2016.*

**Results:** *The commonest benign tumor of sellar and parasellar region was pituitary region was pituitary adenoma (67.14%) followed by craniopharyngioma (15%).*

**Conclusion:** *Both tumorous and non tumorous lesions can present as sellar and parasellar mass. Commonest non tumorous lesions were cysts and infarcts. Overall pituitary adenoma was the commonest lesion presenting as sellar and parasellar mass.*

**Keywords:** *Sellar, parasellar, benign, malignant.*

**INTRODUCTION**

Of the wide variety of lesions that affect the sellar region, pituitary adenomas are by far the most common. The complex anatomy of the sellar region brings a wide variety of lesions into the clinicopathologic differential diagnosis.<sup>1</sup> While pituitary adenomas make up over 90% of all sellar masses, there are a number of less known tumors, both malignant and benign, which may arise within the sella turcica. These include relatively

common tumors such as meningiomas and craniopharyngiomas, as well as extremely rare tumors such as pituitary astrocytomas and granular cell tumors. Unfortunately, many of these tumors lack characteristic imaging features, often making it extremely difficult to distinguish them by imaging alone from the more common pituitary adenoma.<sup>2,3</sup>

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. Thus, correct diagnosis falls to the surgical pathologists.<sup>4,5</sup>

### MATERIAL AND METHODS

This is a prospective study of 140 cases was carried out in the Department of Pathology, Swai Man Singh (S.M.S.) Medical College and Hospital, Jaipur, Rajasthan, India from January 2014 to July 2016.

The biopsy tissues were allowed to fix in 10% buffered formalin for 24–28 hours. After fixation multiple sections were taken. They were processed for histopathological examination and paraffin blocks were made. The blocks were cut at 3–5 µm thickness and stained with hematoxylin and eosin stain. Special stains and IHC were done wherever needed.

### RESULTS

In this study of 140 cases, 85 were males and 55 females thereby giving a male to female ratio of 1.55. Histologically, in tumorous lesions, pituitary adenoma was commonest 95(67.85%) followed by craniopharyngioma 21(15%), Pilocytic Astrocytoma 4 (0.3%) and one case each of meningioma, osteoid osteoma, plasma cell tumor, round cell neoplasm, solitary fibrous tumor, germinoma, chordoma, composite tumor and metastatic carcinoma lung.

In non tumorous, epidermal cysts and pituitary infarct were commonest lesions presenting as mass lesion in sellar and parasellar region with 4 cases each(0.3%) followed by one case each of arachnoid cyst, granulomatous hypophysitis, Central Brown Tumor of Hyperthyroidism. [Table 1].

**Table 1.** Table showing lesions producing mass effect in sellar and parasellar region in this study

| TUMOR                                  | NO. OF CASES |
|--|--------------|
| Pituitary Adenoma                      | 95           |
| Craniopharyngioma                      | 21           |
| Pilocytic Astrocytoma                  | 4            |
| Meningioma                             | 1            |
| Metastatic Carcinoma Lung              | 1            |
| Osteiod Osteoma                        | 1            |
| Plasma Cell Tumor                      | 1            |
| Round Cell Neoplasm                    | 1            |
| Solitary Fibrous Tumor                 | 1            |
| Germinoma                              | 1            |
| Chordoma                               | 1            |
| Composite Tumor                        | 1            |
| NON TUMOROUS LESIONS                   |              |
| Epidermal Cyst                         | 4            |
| Pituitary Infarct                      | 4            |
| Arachnoid Cyst                         | 1            |
| Granulomatous Hypophysitis             | 1            |
| Central Brown Tumor of Hyperthyroidism | 1            |

Peak incidence of sellar masses was between 30–50 years age group. However, craniopharyngioma had a peak incidence in first decade of life.

In present study, most common presenting complaints in patients were headache, nausea, vomiting, and oculomotor palsies. Few cases with endocrinal disturbances like hirsutism, acromegaly, breast discharge and primary infertility were also recorded.

### DISCUSSION

Pituitary adenomas make up over 90% of all sellar masses, but there are a number of less known tumors, both malignant and benign, which may arise within the sella turcica. These include relatively common tumors such as meningiomas and craniopharyngiomas, as well as extremely rare tumors such as pituitary astrocytomas and granular cell tumors. Pituitary adenoma are usually found in adults. They are designated as microadenomas if they are less than 1 cm in diameter and macroadenoma if they exceed 1 cm in diameter.

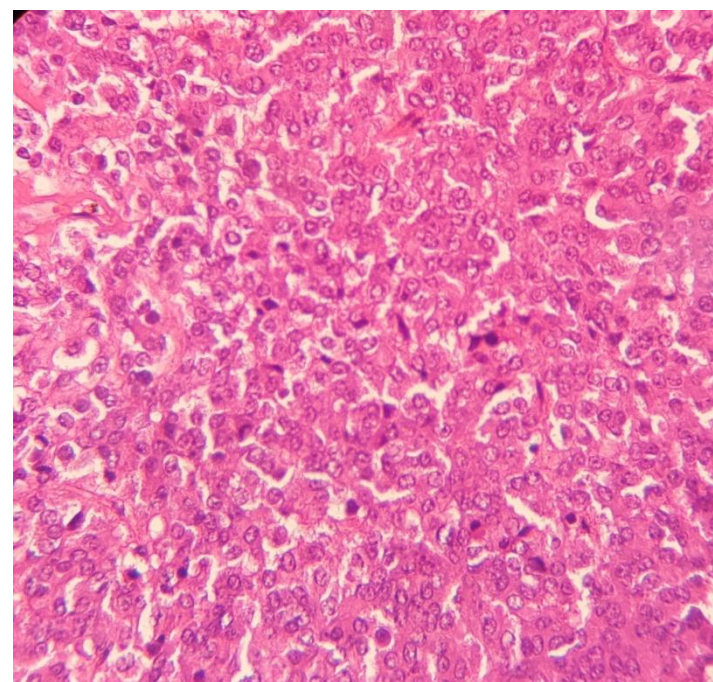


In the present study, 85 males and 55 females were included thereby giving a male to female ratio of 1.55.

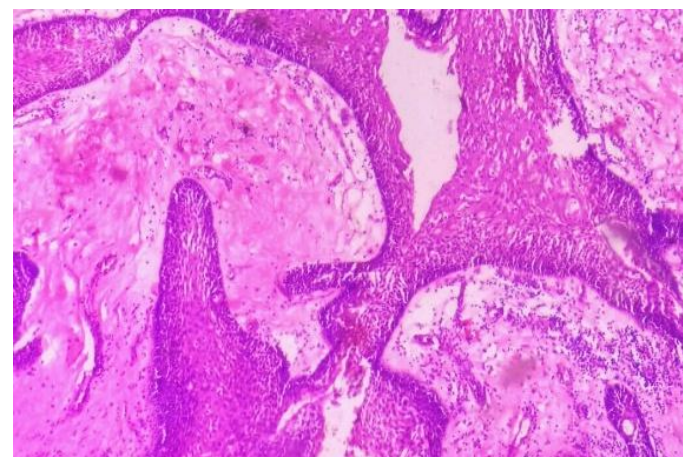
Out of the 140 cases, tumorous lesions (92.14%) more commonly presented as mass lesion in sellar and parasellar region than non tumorous lesions (0.8). Of tumorous lesions, pituitary adenoma was found to be most common 95(67.85%)<sup>1,2,3</sup> followed by craniopharyngioma 21(15%), Pilocytic Astrocytoma 4 (0.3%) and one case each of meningioma, osteoid osteoma, plasma cell tumor, round cell neoplasm, solitary fibrous tumor, germinoma, chordoma, composite tumor and metastatic carcinoma lung. 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.<sup>3,4,5,6,7</sup> 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%.

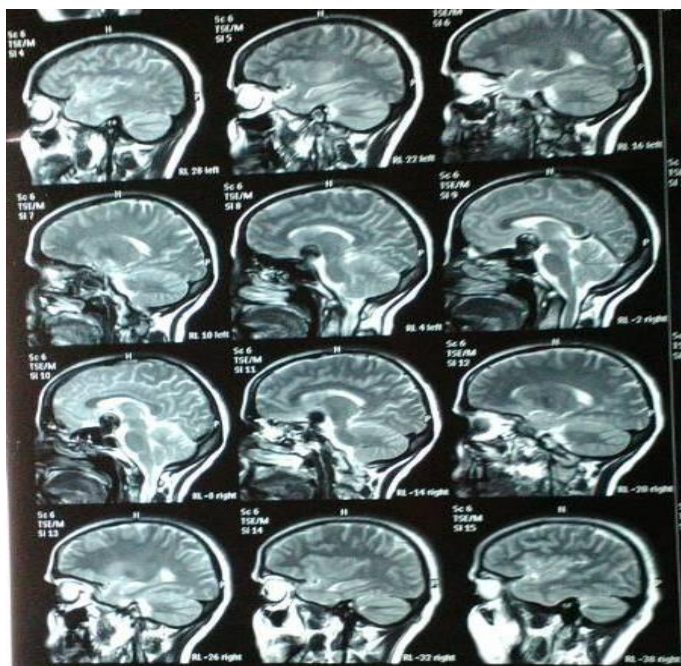
Central Brown Tumor of Hyperthyroidism. These results were in concordance with similar other studies done by Nandha et al, Paz Maya et al, Attanasio et al.<sup>8,9,10,12,13,14</sup>



**Fig 2.** Pituitary adenoma having monomorphic tumor cells with amphophilic cytoplasm. (H&E, 40 X)



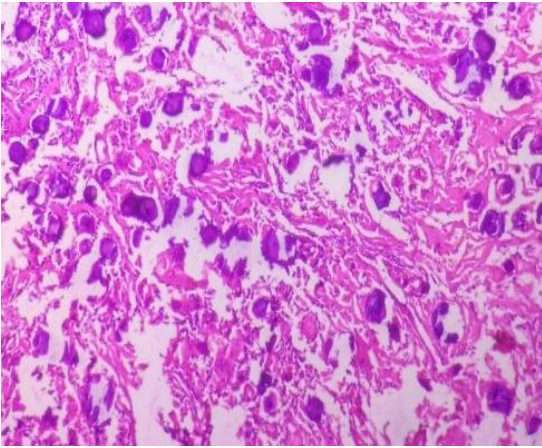
**Fig 3.** Craniophayngioma demonstrating lamellar wet keratin lined by squamous epithelium with peripheral palisading(H&E, 10 X)



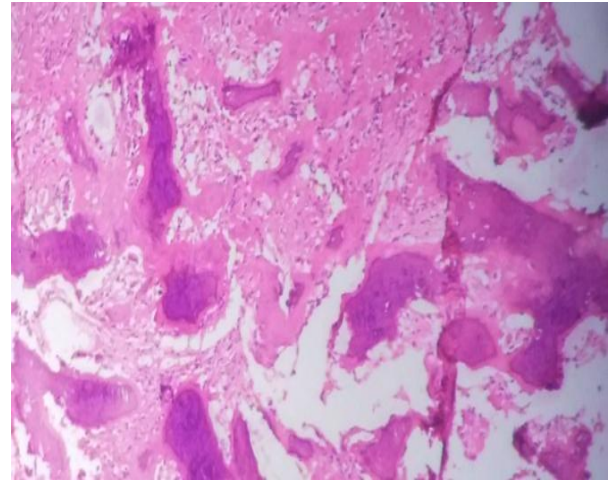
**Fig 1.** CT of a pituitary macroadenoma: isointense to the grey matter.

In non tumorous, epidermal cysts and pituitary infarct were commonest lesions presenting as mass lesion in sellar and parasellar region with 4 cases each(0.3%) followed by one case each of arachnoid cyst, granulomatous hypophysitis and



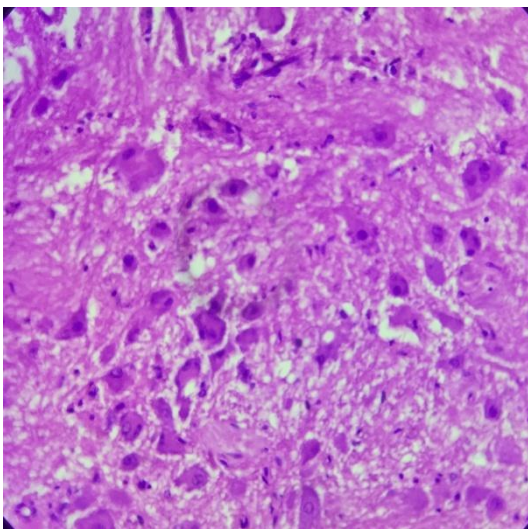


**Fig 4.** Psammomatous meningioma showing numerous psammoma bodies (H&E, 10X)

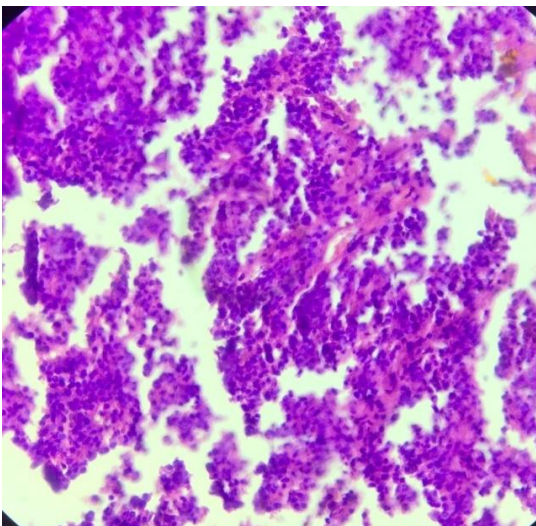


**Fig 6.** Osteoid osteoma showing osteoid lined by osteoblasts

5a

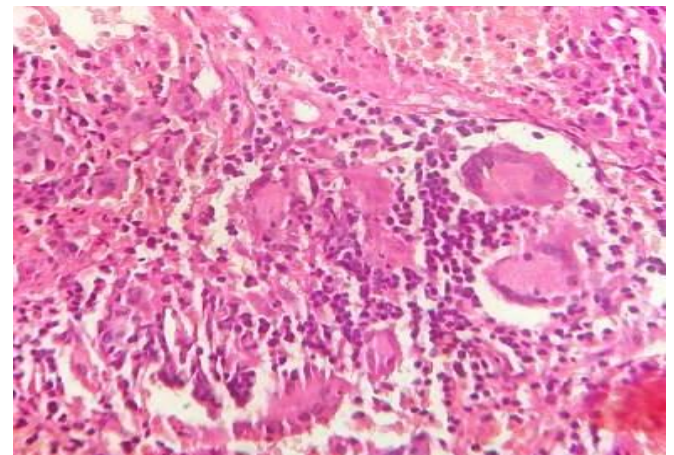


5b

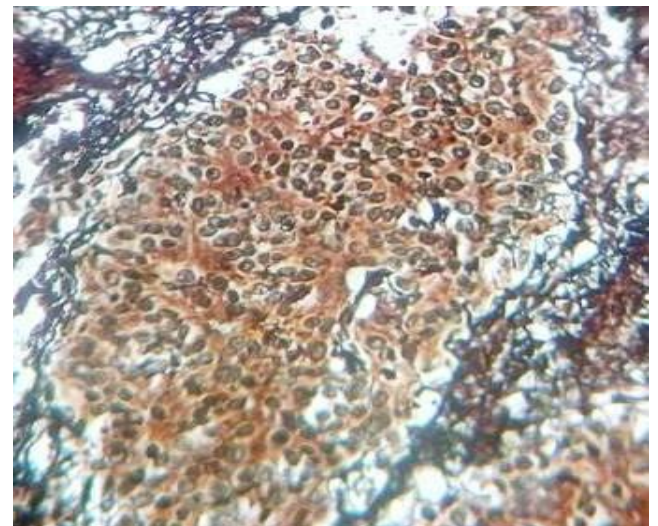


**Fig 5.** Collision tumor showing two types of tumor component (a.ganglion cells and b. pituitary adenoma) (H&E 10X, 40X)

7a



7.b.



**(Fig. 7a.** Granulomatous hypophysitis showing necrotizing granulomas, langhans giant cells, caseous necrosis (H&E, 40 x). **7b** .Reticulin stained slide showing normal reticulin pattern (RS, 40 x).

**CONCLUSION**

Mass effect can be produced by a variety of diseases in sellar and parasellar region as inflammatory/granulomatous, infectious, neoplastic, and vascular diseases can involve the pituitary gland, infundibular stalk, vascular structures, leptomeninges, or skull base. Hence, a thorough sampling and histological evaluation is needed to precisely diagnose the lesion for better treatment and follow up.

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**Conflicting Interest (If present, give more details):** None

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