Management Of Sellar And Parasellar Lesions: A Retrospective Analysis: A Retrospective Clinical Study

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Citation

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Abstract
Background: The sellar and parasellar region is an anatomically complex area with pathology in this area accounts for distinctive neurological syndromes characterized by visual failure and upper cranial neuropathies. The majority of neoplasms arising in the sella turcica are pituitary adenomas followed by craniopharyngiomas, germ cell tumors, meningiomas, chordomas, gliomas, and Schwannomas. The treatment is basically surgical and the choice of the surgical approaches is first determined by the surgeon own preference and experience, secondly by the site and direction of the growth.

Objective: The aim of this study is to evaluate the incidence of various lesions in the sellar and parasellar area and the different protocols for management of these lesions.

Patients and Methods: This study included 50 cases of sellar and parasellar mass lesions that were admitted and treated in the Neurosurgical Department, Ain Shams University Hospitals, and Dar El Shefa hospital between 2014 and 2017. The patients' data, preoperative, post-operative, complications, approaches, and surgical results were collected and analyzed retrospectively for results.

Results: 27 cases were pituitary adenomas (54%), 6 cases craniopharyngiomas (12%), 11 cases meningiomas (22%), 2 cases astrocytomas (4%), one case Pituitoma (2%), one case Lipoma representing (2%), one case was suprasellar abscess (2%) and one case was Rathke’s cleft cyst (2%). Diminution of vision was present in 35 cases (70%). Total radical resection had been accomplished in 27 cases (54%), subtotal (nearly total) excision in 19 cases (38%) and partial excision in four cases (8%).

Conclusion: The most common lesions encountered in this series were pituitary adenomas representing (54%) followed by meningiomas, representing (22%) of cases. The main symptoms and signs were increased intracranial tension (headache and blurring) followed by visual symptoms and endocrinal disturbances. The choice of surgical approach was determined by the lesion site and the direction of growth. Microscopic transphenoidal approach was suitable for most pituitary adenomas done in 22 cases (44%). Diabetes insipidus was the most common postoperative endocrinal disturbances.

INTRODUCTION:
The area immediately around the pituitary, the sellar and parasellar region is an anatomically complex area that represents a crucial crossroads for important adjacent structures. (1)

While the sellar region has specific anatomical landmarks, the parasellar region is not clearly delineated and includes all the structures that surround the sella turcica. (2)

Vital structures such as the brain parenchyma, meninges, visual pathways and other cranial nerves, major blood vessels, hypothalamo-pituitary system and bony compartments may be involved (3).

The majority of neoplasms arising in the sella turcica are, by far, pituitary adenomas. On occasion, sellar tumors of non-pituitary origin may present with symptoms that mimic those of a nonfunctioning adenoma of the anterior pituitary gland. The most common non-pituitary neoplasms in this location are craniopharyngiomas, germ cell tumors, meningiomas, chordomas, gliomas, and Schwannomas (4).

Pathology in the sellar and parasellar regions accounts for several disabling and distinctive neurological syndromes characterized by visual failure and upper cranial
neuropathies. These features have a major impact on functional outcome more than the commonly associated endocrine morbidity (5).

The treatment of sellar and parasellar nerves is basically surgical, the choice of the surgical approaches is first determined by the surgeon own preference and experience, secondly be the site and direction of the growth. Early postoperative neuroimaging should be used in every patient for future treatment planning purposes and for evaluate the efficacy of the surgical procedure (6).

Aim of the study

This aim of this study is to evaluate the incidence of various lesions in the sellar and parasellar area and the different protocols for management of these lesions.

PATIENTS AND METHODS

This study included 50 cases of sellar and parasellar mass lesions that were admitted and treated in the Neurosurgical Department, Ain Shams University Hospitals, and Dar El Shefa hospital between 2014 and 2017. The patients' data, preoperative, post-operative, complications, approaches, and surgical results were collected and analyzed retrospectively for results.

Inclusion Criteria: Each patient with sellar & parasellar SOL.

Exclusion criteria: Each patient with vascular aneurysms diagnosed by cerebral angiography were referred to neurointerventional radiology department and patient with bad general conditions.

In each case that submitted to this study, a full history was taken and a full neurological examination was performed for every patient.

Several investigations were performed including plain X-ray skull for all cases, C.T scanning for all cases, MRI for all cases and cerebral angiography if needed. Hormonal assay was done in most cases.

All the patients were submitted for surgical interference and the various surgical procedures adopted were reviewed and evaluated.

All patients were operated upon under general anaesthesia.

A) Surgical approaches:
The site, size and extension of the lesion and its relationship to important structures in the region, e.g. carotid artery, cavernous sinus and cranial nerves shared in choosing the approach.

B) Surgical concerns:

- Tumor removal:
  - Total excision.
  - Subtotal or nearly total excision.
  - Partial excision.
  - Biopsy.
- C.S.F. diversion.

Nature of the lesion:

This can be proved by histopathological examination for neoplastic lesions.

Post-operative complications

Post-operative management:

(1) Post-operative care.

(2) Post-operative neurological assessment.

(3) Post-operative radiological assessment:

C.T. brain was done to all cases.

(4) Post-operative hormonal status: Estimating the hormonal level laboratory.

(5) Post-operative radiotherapy: It needed in tumors, which were not totally removed and radiosensitive.

Follow up:

Cases were followed up clinically, radiologically and by estimating the hormonal level laboratory. The cases were followed up one time every month within the first six months, one time every three month within the next six months and one time every six months thereafter.

Outcome:

Outcome of the patient was estimated according to the following:

- **Excellent outcome**: No neurological deficits and the patient return to his previous occupation.
- **Good outcome**: Mild neurological deficits, independent but the patient cannot return to his previous occupation.
**Management Of Sellar And Parasellar Lesions: A Retrospective Analysis: A Retrospective Clinical Study**

- **Moderate outcome:** Severe neurological deficits but still independent.
- **Poor outcome:** Bed ridden.
- **Death.**

**RESULTS:**

All cases were submitted to surgery under general anaesthesia.

Histopathological examination was done for all cases.

Interpretation of the data obtained from each case.

Analysis of the results obtained from this study was presented in tables as follow:

Fifty cases of sellar and parasellar space occupying lesions were reviewed. Out of the fifty cases considered, 27 cases were pituitary adenomas representing (54%) (the most common lesions encountered in this series), 6 cases were craniopharyngiomas representing (12%), 11 cases were meningiomas representing (22%), 2 cases were astrocytomas representing (4%), one case was Pituicytoma representing (2%), one case was Lipoma representing (2%), one case was suprasellar abscess representing (2%) and one case was Rathke's cleft cyst representing (2%).

<table>
<thead>
<tr>
<th>Pathology</th>
<th>Number of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pituitary adenoma</td>
<td>27</td>
<td>54%</td>
</tr>
<tr>
<td>Craniopharyngioma</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>Meningioma</td>
<td>11</td>
<td>22%</td>
</tr>
<tr>
<td>Suprasellar Abscess</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Pituiycytoma</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Astrocytoma</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Lipoma</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Rathke's cleft cyst</td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>

The mean age for all cases was 39 and the median age was (41-50).

Out of fifty cases under discussion, 27 were males and 23 were females with preponderance of males over females.

**Duration of symptoms:**

The duration of symptoms ranged from 1 day to 20 years. The duration below 6 months represents 42% of cases, the duration from 7 to 12 months represents 18% of cases, the duration from 13 to 24 months represents 16% of cases, the duration from 25 to 36 months represents 4% of cases, the duration of symptoms from 37 to 48 months represents 12% of cases and the duration of symptoms more than 48 months represents 8% of cases. The high incidence of cases presented by duration of symptoms is from 0 to 6 months and the lowest incidence is from 25 to 36 months duration.

The mean duration of symptoms was 25.2 months; the median was 0-6 months.

**Symptoms:**

The most common symptom is headache followed by blurring of vision, endocrinological disturbance and nausea & vomiting.

**Headache:**

Headache was the most common complaint and it was present in 37 cases that represent 74% of cases. 22 of which were present in pituitary adenomas (81% of all pituitary adenomas). Three of which were present in craniopharyngiomas (50% of all craniopharyngiomas). Eight of which were present in meningiomas (72% of all meningiomas). Two of which were present in astrocytomas (100%). One of which was present in pituicytoma (100%).

**Diminution of vision:**

Diminution of vision was present in 35 cases that represent 70% of cases. 20 of which were present in pituitary adenomas (74%). 2 of which were present in craniopharyngiomas (33%). Eight of which were present in meningiomas (72%). Table (2)
Table 2
Complaining symptoms of 50 cases of parasellar mass lesions

<table>
<thead>
<tr>
<th>Complaint</th>
<th>Number of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Headache</td>
<td>37</td>
<td>74%</td>
</tr>
<tr>
<td>* Nausea &amp; vomiting</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>* Blurring of vision</td>
<td>35</td>
<td>70%</td>
</tr>
<tr>
<td>(Diminution of vision)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Diplopia</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>* Prostis</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>* Endocrinological</td>
<td></td>
<td></td>
</tr>
<tr>
<td>disturbances</td>
<td>24</td>
<td>48%</td>
</tr>
<tr>
<td>* Exophthalmos</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>* Behavior changes</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>* Epileptic fits</td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>

Table 3
The incidence of each clinical sign and the corresponding percentage

<table>
<thead>
<tr>
<th>Clinical sign</th>
<th>Incidence</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual affection</td>
<td>42</td>
<td>(84%)</td>
</tr>
<tr>
<td>Fundus affection</td>
<td></td>
<td>(32%)</td>
</tr>
<tr>
<td>optic atrophy</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Field of vision affection</td>
<td>19</td>
<td>(38%)</td>
</tr>
<tr>
<td>Extraocular muscle palsy</td>
<td>6</td>
<td>(12%)</td>
</tr>
<tr>
<td>Motor weakness</td>
<td>1</td>
<td>(2%)</td>
</tr>
<tr>
<td>Endocrinological manifestations</td>
<td>19</td>
<td>(38%)</td>
</tr>
</tbody>
</table>

Signs: The most frequent pre-operative clinical finding in the study visual affection and it represents 84% of cases.

Table 4
Endocrin dysfunction in relation to the type of 50 cases of parasellar lesions.

<table>
<thead>
<tr>
<th>Lesion type</th>
<th>Normal GH</th>
<th>Normal TSH</th>
<th>GH hyperfunction</th>
<th>TSH hyperfunction</th>
<th>Protein galactorrhea</th>
<th>Diabetes insipidus</th>
<th>Total affection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pituitary adenomas</td>
<td>13</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>Craniopharyngiomas</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Meningiomas</td>
<td>11</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Pituiticystoma</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Astrocytoma</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Abscess</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lipoma</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Rathke’s cleft cyst</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>6</td>
<td>2</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>50</td>
</tr>
</tbody>
</table>

Lesion Size: The mean average of lesion size was 2-3 cm. 28 cases (56%) showed a lesion size between 2-3 cm in diameter. 19 of which were pituitary adenomas (67.8%), two were craniopharyngiomas (7.1%), four were meningiomas (14.2%), one was pituiticystoma (3.6%), one was astrocytoma (3.6%) and one was lipoma (3.6%). 12 cases (24%) showed a lesion size between 3-4 cm in diameter. Six of which were pituitary adenomas (50%), 3 were craniopharyngiomas (25%), 1 were meningiomas (8.3%), one case was abscess (8.3%) and one case was Rathke’s cleft cyst. 5 cases (10%) showed a lesion size between 4-5 cm in diameter. Two of which were pituitary adenomas (40%), two were meningiomas (40%) and one case was craniopharyngioma. Four cases (8%) showed a lesion size between 5-6 cm in diameter. Three of which were meningiomas (75%) and one was astrocytoma.

Cystic changes: Cystic changes were evident in 9 cases (18%). 6 were craniopharyngiomas (12%), 1 were pituitary adenomas (2%), one case of meningioma (2%) and one case of astrocytoma (2%).

Calcification: Abnormal calcification was detected in 7 cases (14%). 4 of which were craniopharyngiomas (66.7%) where calcification was parasellar and 3 of which were meningiomas (27.3%) where calcification was parasellar in two case and hyperostosis of sphenoid wing in 1 case.

Intraventricular extension: Intraventricular extension was evident in 6 cases (12%), 3 were craniopharyngiomas (6%), 2 were astrocytoma (4%) and one was pituitary adenoma (2%).

Endocrinological disturbances:
Endocrinological disturbances were present in the form of obesity, diabetes insipidus, acromegaly, erectile dysfunction, decreased lipido, amenorhea and galactorrhea. They were present in 24 cases representing 48% of all cases. 18 of which were present in pituitary adenomas (75% of all adenomas), three of which were present in craniopharyngiomas (50% of all craniopharyngiomas), one meningioma (9%), one pituicytoma (100%) and one Rathke’s cleft cyst (100%) are presented by endocrin disturbance. Table (4)
Hydrocephalic changes: Hydrocephalus was evident in 3 cases (6%), 2 of which were craniopharyngiomas (4% of all cases) and one case was thalamic astrocytoma.

Cerebral angiography: Cerebral angiography was done in 8 cases in the study. It was needed to determine displacement or engulfment of the carotid artery before surgical intervention or delineate the surrounding vascular elements.

Surgical treatment:

(A) Surgical procedures:

Total radical resection:
It had been accomplished in 27 cases (54%), 6 of which were meningiomas (54.5% of all meningiomas), 17 of which were pituitary adenomas (62.9% of all pituitary adenomas), one of which was craniopharyngioma (16.6% of all craniopharyngiomas), one of which was abscess (100% of all abscesses), one of which was Rathke's cleft cysts (100% of all Rathke's cleft cysts) and one of which was lipoma (100% of all lipomas).

Subtotal (nearly total) excision:
It had been accomplished in 19 cases (38%), ten of which were pituitary adenomas (37.1% of all pituitary adenomas), four of which were craniopharyngiomas (66.6% of all craniopharyngiomas), four were meningiomas (36.4% of all meningiomas) and the last one was astrocytoma (50% of all astrocytomas).

Partial excision:
It was performed in four cases (8%) in the study, one of which was meningioma, one was astrocytoma, one was craniopharyngioma and one was pituicytoma.

Table 5
The various surgical procedures in 50 cases of parasellar lesions

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Extent of tumor resection</th>
<th>C.S.F. diversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pituitary adenoma</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Craniopharyngioma</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Meningioma</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Pituicytoma</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Astrocytoma</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Abscess</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Lipoma</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Rathke's cleft cyst</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>19</td>
</tr>
</tbody>
</table>

B) Operative approaches:

Microscopic transsphenoidal approach was done in 22 cases (44%), 20 cases of pituitary adenoma, 1 case of pituitary abscess and the only case of pituicytoma.

Pterional approach was done in 15 cases (30%), 9 cases of meningiomas, 2 cases of craniopharyngiomas and one case of lipoma, Rathke's cleft cyst, pituitary adenoma and astrocytoma.

Subfrontal approaches were done in 13 cases (26%), 6 cases of pituitary adenomas, 4 cases of craniopharyngiomas, 2 cases of meningiomas and a case of astrocytoma. Table 6

Table 6
The operative approaches to 50 cases of parasellar lesions

POST-OPERATIVE COMPLICATIONS

The post operative morbidity and mortality:

Eighteen of patients suffered from post operative morbidity and mortality. Two of which died (4%) of the total. 7 patients resolved (14% of the total), 9 patients had permanent post-operative neurological damage (18% of the
total). Where hypothalamic damage complicated 1 case, damage to optic nerve complicated 2 cases, ocular nerve palsy complicated 2 cases, postoperative fit complicated 1 case, diminution of vision complicated 3 cases, subarachnoid hemorrhage complicated 4 cases, endocrinial disturbances complicated 4 cases and C.S.F. leak complicated one case. We have 2 cases that have a combined complication: one of them had hormonal disturbance and diminution of vision and the other had blindness and 6th nerve palsy. Table (7)

Table 7 shows Correlation between post-operative complications and lesion

<table>
<thead>
<tr>
<th>Lesion Type</th>
<th>Hypothalamic Damage</th>
<th>Blindness</th>
<th>Diminution of Vision</th>
<th>Ocular nerve palsy</th>
<th>Diabetes Insipidus</th>
<th>Subarachnoid hemorrhage</th>
<th>C.S.F. leak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cases</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Percentage</td>
<td>5%</td>
<td>4%</td>
<td>6%</td>
<td>2%</td>
<td>2%</td>
<td>8%</td>
<td>2%</td>
</tr>
</tbody>
</table>

PROGNOSIS:
The outcome in the study were 16 cases (32%) had an excellent outcome, 22 cases (44%) had a good outcome, 8 cases (16%) had a moderate outcome, 2 cases (4%) had a poor outcome and 2 cases (4%) died.

Correlation between the outcome and the lesion type:

In pituitary adenomas, 10 cases had an excellent outcome; 12 cases had a good outcome and 3 cases had moderate outcome, one case had poor outcome and one case died. In craniopharyngiomas, 4 cases had a good outcome; one case had a moderate outcome and 1 case died. In meningiomas, 5 cases had an excellent outcome, 3 cases had a good outcome, 2 cases had a moderate outcome and 1 case had a poor outcome. In astrocytoma, the 2 cases had a good outcome. The case of pituicytoma had a good outcome. The case of abscess had an excellent outcome. The case of lipoma had a good outcome. The case of Rathke’s cleft cyst had good outcome.

Case samples:

Case 1: Figure (1): preoperative MRI images of case (1) (craniopharyngioma), and Figure (2): postoperative images of case (1).

Figure 1
preoperative MRI images of case (1) (craniopharyngioma).

Figure 2
postoperative images of case (1).

Case 2: Figure (3): preoperative MRI sella with contrast for case (2) (pituicytoma), and Figure (4): postoperative images of case (2). (total removal)

Figure 3
preoperative MRI sella with contrast for case (2) (pituicytoma).
Figure 4
postoperative images of case (2). (total removal)

Case (3): Figure (5): preoperative MRI sella of case (3) (functioning pituitary adenoma), and Figure (6): postoperative MRI of case (3). (total removal).

Figure 5
preoperative MRI sella of case 3 (functioning pituitary adenoma).

Figure 6
postoperative MRI of case 3 (total removal).

DISCUSSION:

This study reviewed fifty patients with sellar and parasellar mass lesions in the period from 2014 to 2017.

Out of the fifty cases considered, 27 were pituitary adenomas, 11 were meningiomas, 6 were craniopharyngiomas, 2 were astrocytomas, one was pituicytoma, one was pituitary abscess, one was lipoma and one was Rathke's cleft cyst.

The age presentation in this series ranged from < 10 years to 65 years with the highest incidence between 21-30 years (12 cases).

In pituitary adenomas, 27 cases were studied, 16 were male and 11 were female with a male to a female ratio of 3: 2 and the highest incidence at the age from 21 and30 years (8 cases). This is in contrast to results reported by (6) that found the peak of incidence at 3rd and 4th decades with equal male and female ratio.

In craniopharyngiomas, 6 cases were studied, 4 cases were male and 2 cases were female with a male to a female ratio of 2: 1 and the age of presentation varied from < 10 years to 60 years with the highest incidence from 11 to 20 years (2 cases). This is in contrast to results reported by Robertson et al. who found equal sex incidence with the highest incidence at the age 20 to 30 years. (8)

This coincides with results of Raffel where the majority of the patients were above 9 years with a male predominance than female. (9)

In meningiomas, 11 cases were studied, 3 were male and 8 were female with a male and a female ratio of 1: 2.6 and the highest incidence of age were at the age 41 to 50 years. This coincides with the result reported by Schnegg et al. (10)

In pituicytoma, one case was presented where the case was male between 41 to 50 years.

The most frequent preoperative clinical findings were visual acuity affection that represented in 42 cases (84%), and fundus affection was present in 16 cases (32%). Field of vision was affected in 19 cases (38%), ocular nerve palsy was present in 6 cases (12%) and endocrinal disturbances were present in 19 cases (38%). This coincides with (6).

In craniopharyngiomas, visual acuity affection was present in 4 cases (66.7%), 1 case had papilledema (16.6%), 2 cases had optic atrophy (33.3%), Cushing's syndrome was present in 2 cases and diabetes insipidus was present in one case (50%). This is similar to Juraj. (11)

In meningiomas, visual acuity was affected in 11 cases (100%), fundus was affected in 7 cases (63.6%), papilledema was present in 3 cases (27.2%), optic atrophy was present in 2 cases (18%), 2 cases had unilateral 3rd nerve palsy and 2 cases had unilateral 6th nerve palsy. This is similar to Federico & Peter. (12)

Optic atrophy was present in 12 cases (24% of total), 7 cases were pituitary adenomas (5 cases were bilateral and 2 cases were unilaterally), 2 cases of meningiomas (one case was bilaterally and one case was unilaterally), 2 cases of craniopharyngiomas (the 2 cases were bilaterally) and the case of Rathke’s cleft cyst (it was bilaterally). Similar data
Endocrinological disturbances were present in 20 cases (40% of total), 14 cases were pituitary adenomas, 3 cases were craniopharyngiomas, one case of astrocytoma, the case of pituicytoma and the case of Rathke’s cleft cyst.

In pituitary adenomas, they had the highest incidence, 6 cases had acromegaly and 8 cases had galactorrhea. This coincides with Carrie & Nelson in 2012 as endocrinopathies present in 40% of pituitary adenomas. (13)

In craniopharyngiomas, one case had diabetes insipidus and 2 cases had Cushing’s syndrome. This coincides with Mottolese et al as endocrinopathies present in 45% of craniopharyngiomas. (14)

Total resection had been done in 27 cases (54%), 6 cases were meningiomas, 17 cases were pituitary adenomas, 1 case was craniopharyngiomas, one of which was abscess, one of which was Rathke’s cleft cysts and one of which was lipoma.

Subtotal resection had been done in 19 cases (38%), 10 cases were pituitary adenomas, 4 cases were craniopharyngiomas and 1 case was astrocytoma.

Partial resection had been done in 4 cases (8%), one of which was meningioma, one was astrocytoma, one was craniopharyngioma and one was pituicytoma.

The pterional approach was utilized in 15 cases (30%) of the cases, 9 cases of meningiomas, 2 cases of craniopharyngiomas and one case of lipoma, Rathke’s cleft cyst, pituitary adenoma and astrocytoma.

The decision to perform right or left frontal craniotomy or a bifrontal craniotomy was found to depend on the side to which supra-and parasellar extensions are localized as well as the side of greatest visual loss and the size of the tumor.

The pterional approach was reserved for parasellar, retrostellar and suprasellar lesions, as it provides a direct and better access to such lesions. This coincides with results of Juraj. (11)

The subfrontal approach was adopted in 13 cases (26%) of the cases in the study. 6 cases of pituitary adenomas, 4 cases of craniopharyngiomas, 2 cases of meningiomas and a case of astrocytoma. Its main indication in the study was sellar and suprasellar tumors mainly midline with lateral or anterior extension. In most cases a rightcraniotomy was performed following tumor exposure and visualization the area of the visual apparatus.

The incidence of post-operative morbidity and mortality following surgery of sellar and parasellar lesions in the study was 36%.

This relative high ratio is explained by the large lesion size dealing with in most of the cases, the lesion in such area were anatomically related to many crucial neural and vascular structures, where, inferiorly the pituitary gland and stalk. The suprasellar cistern contains the optic nerve and chiasm, as well as the carotid arteries and their branches. Superiorly, the hypothalamus and posteriorly, the mid brain and cranial nerves III, IV, V and VI might be encountered as well as the basilar artery and its branches.

In this study, one patient (2%) had postoperative early hypothalamic damage and it was in a case of craniopharyngioma, such patient had large tumor with preoperative clinical and radiological evidence of hypothalamic involvement. Thus attempted removal of such lesions, specially the superior surface of the cyst capsule which was in some circumstances adherent to the hypothalamic floor eventually led to such complication and this patient died short time after the operation. Similar to results with Juraj. (11)

In the study, 1 case (2%) was complicated by post-operative seizures in the immediate postoperative period and the occurrence of seizures was due to cortical irritation as a result of removal adherent capsule or from retraction during surgical exposure. This is in contrast with Juraj where no post-operative fits occurred. (11)

In the study, ocular nerve palsy complicated 1 case of meningioma and the case of astrocytoma similar to results by Gregory et al. (15)

In the study, endocrinological disturbances complicated 4 cases (8%), 4 cases of pituitary adenoma. This coincides with Carrie & Nelson. (13)

In the study of fifty patients with parasellar lesions, 4 cases (8%) developed endocrinological compromise, the 4 cases of pituitary adenoma which had 14 cases of endocrinopathies preoperatively and no cases of craniopharyngiomas which had 3 cases of endocrinopathies preoperatively. They had hormonal therapy either in the early post-operative period or in the follow up.

Post-operative death presented in 4% of the cases (2 cases).
In one case, the cause of death may be due to hypothalamic direct damage during dissection of the superior part of the capsule, or it may be indirect via vascular injury of the perforators. The case which died due to hypothalamic affection was craniopharyngioma and had history of preoperative hypothalamic affection.

The outcome in the study was 16 cases (32%) had an excellent outcome, 22 cases (44%) had a good outcome, 8 cases (16%) had a moderate outcome, 2 cases (4%) had a poor outcome, and 2 (4%) cases died. The data of outcome in the study is close to the data obtained by Federico & Peter. (12)

CONCLUSION

The most common lesions encountered in this series were pituitary adenomas representing (54%), followed by meningiomas, representing (22%) of cases, craniopharyngiomas representing (12%) of cases, astrocytomas representing (4%) of cases, pitucytaoma representing (2%) of cases, Rathke's cleft cysts representing (2%) of cases, lipoma representing (2%) of cases and pituitary abscess representing (2%) of cases.

The main symptoms and signs were increased intracranial tension (headache and blurring) followed by visual symptoms and endocrinal disturbances.

The choice of surgical approach was determined by the lesion site and the direction of growth. Microscopic transsphenoidal approach was suitable for most pituitary adenomas done in 22 cases (44%).

Early postoperative neuroimaging should be done to determine the extent of surgery for future treatment planning purposes and to evaluate the efficacy of the surgical procedure and the presence of complications.

The most common early postoperative complication was subarachnoid hemorrhage. Diabetes insipidus was the most common postoperative endocrinal disturbances.

References

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