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Case Report

Vision improvement after trans-sphenoidal resection of pituitary macroadenoma

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ABSTRACT

Introduction: Pituitary adenomas are tumours that occur in the Pituitary gland. Depending on the size it can be divided into Microadenoma (<10mm) and Macroadenoma(>10mm). It can present with endocrine manifestations secondary to hypo or hyper function of pituitary gland and ophthalmological manifestations due to mass effect.

Case Report: A 36-year-old female was admitted to our institution with complaints of loss of vision of right eye, headache and amenorrhea for 3 months, which were progressive in nature. Her MRI Scan revealed a well-defined sellar mass, measuring 27 x 23.18 mm, with suprasellar extension, causing expansion of pituitary fossa and superiorly extending into Hypothalamus with mild compression over optic chiasma. Prolactin level was 72.16 ng/ml. Surgery was done under general anesthesias, by Endoscopic assisted trans-sphenoidal approach. The adenoma was completely removed. Sella opening was closed by synthetic graft. On awakening from anesthesias visual acuity in right eye was immediately and completely restored.

Conclusion: Pituitary adenoma is a complex set of benign tumours that present with hypersecretory syndrome and mass effect. An appropriate imaging of pituitary region using MRI and endocrinological consultation is the standard for detection of pituitary adenoma. Although, medical management and radiotherapy offer effective treatment for these tumours in specific situations, Endoscopic Trans-sphenoidal approach continues to provide optimal outcomes with low incidence of morbidity.

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1. Introduction

Pituitary adenomas are tumors that occur in Pituitary gland. Pituitary adenomasare generally divided into three categories depending upon their biological function – Benign adenoma, Invasive adenoma, and Carcinomas. Mostly adenomas are benign, approximately 35% are invasive and just 0.1 to 0.2 % are carcinomas.[1] Pituitary adenomas comprise 10-15% of intracranial neoplasm andtheirestimated prevalence rate is 17%.[2,3] Approximately 1 in 1000 people develops Pituitary adenoma. Pituitary adenomas are common in sellar area. Micro-adenomas are tumors measuring less than 10 mm in diameter and those of more than 10 mm are termed macro-adenomas. Pituitary adenomas are present with endocrine manifestations secondary to hypo or hyper function of pituitary gland and ophthalmological manifestations due to mass effect. When the tumor grows beyond the confines of sella turcica, it commonly affects visual pathway and visual field deficit are present. Symptoms depend on the presence of Pituitary hypersecretion, absence or reducedhormonal level, destruction of normal Pituitary gland.[4,5]

Pituitary adenomasare usually diagnosed by radiographic examination, history & blood testing for hormonal level.

Here, we present the case of patient with Pituitary macro-adenoma with loss of vision, headache and amenorrhea.

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2. Case Report

A 36-year-old femalewas admitted to our institution with complaints of loss of vision of right eye, headache and amenorrhea for 3 months. Symptoms were progressive in nature.General and systemic examination was found to be normal. Her MRI Scan revealed a well-defined sellar mass, measuring 27 x 23.18 mm, with suprasellar extension, causing expansion of pituitary fossa andsuperiorly extending into Hypothalamus with mild compression over optic chiasma. Her prolactin level was 72.16 ng/ml. Initial diagnosis was pituitary adenoma. Surgery was done under general anesthesia, by Endoscopic assisted Transsphenoidal approach. The adenoma was completely removed. Sella opening was closed by synthetic graft. On awakening from anesthesia visual acuity in right eye was immediately and completely restored. There was some CSF leakage during the surgery that was dealt with at the time. On first post-operative dayvisual acuity was checked and was found 5/6.Intravenous antibiotics and anti-inflammatory drugs were given for 7 days then patient was discharged.

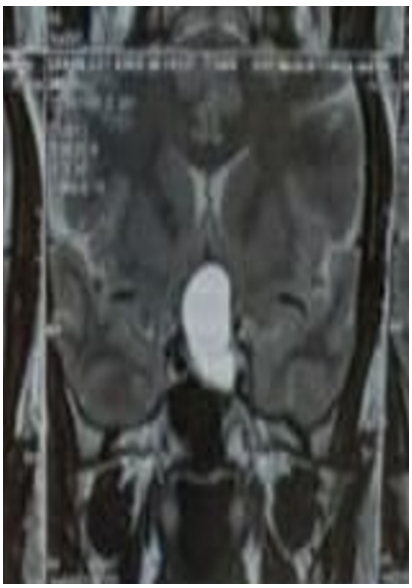

Fig. 1: Pre-operative Contrast-enhanced CT scan of brain showing Pituitary Macroadenoma

3. Discussion

The Pituitary gland is about 2 to 8 mm in size and weight about 0.5 g. It is located within the sella turcica of sphenoid bone at the base of skull & covered by dural fold. Various important structures are present around Pituitary gland. The cavernous sinus and internal carotid artery are present on either side of it. The optic chiasma lies about 10 mm above it. The pituitary gland has two lobes. Anterior lobe secretes seven hormones like TSH, ACTH, GH, FSH, LH & Prolactin. Posterior lobe secretes two hormones-

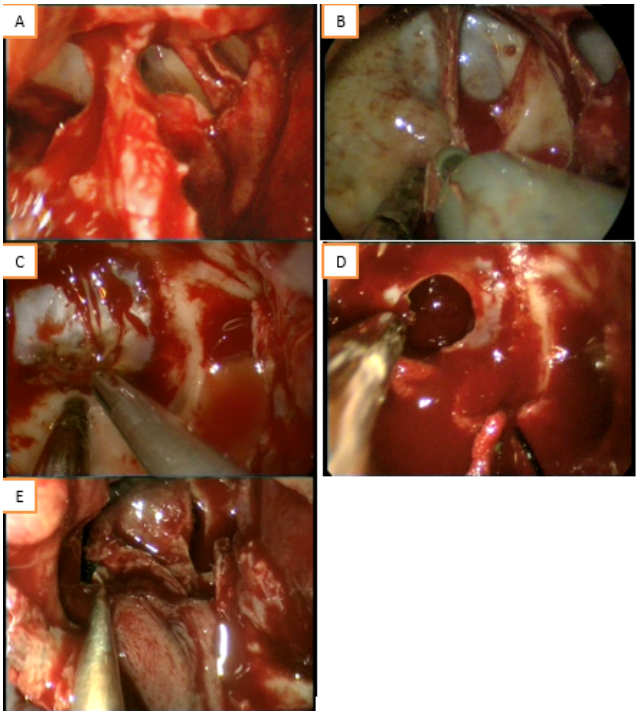

Fig. 2: (A)Bilateral sphenoidotomy; (B)Drilling inter sphenoid septum; (C) Incision of duramater; (D)Complete removal of Pituitary Macroadenoma; (E)Closure of defect with HADAD flap

Vasopressin and Oxytocin. Pierre Marie was the first to describe a disease that involved the pituitary gland.[6,7]

Pituitary tumors comprise 10-15% of intracranial neoplasm. Pituitary tumors can be classified on the basis of size. Macro-adenomas are more than 10 mm in diameter and micro-adenomas are less than 10mm in diameter. The tumor can also be classified as Chromo phobic, Acidophilic and Basophilic, depending upon the basis of histological staining. The tumors can also be divided on the basis of immune-histochemical staining & by serum hormone level, into secreting and non-secreting. The secreting tumorsconstitute 75% of pituitary adenoma.[8,9] They include:

1. PRL cell adenoma
2. Growth hormone
3. Mix GH & PRL adenoma
4. Thyrotropin releasing hormone cell adenoma
5. ACTH cell adenoma
6. LSH & FSH cell adenoma

Prolactinomas comprise 40-50% of all pituitary adenoma. Prolactinomas generally occur in reproductive aged females and manifest with amenorrhea, galactorrhea. In males, it presents with gynecomastia, testicular atrophy, reduced body hair and impotence.[10] Pituitary adenomas can also present with sudden onset of headache and loss of vision due to hemorrhage and necrosis of tumor as pituitary

apoplexy.[11]

Diagnosis of pituitary adenomas is based upon radiological imaging (CT and MRI) and measurement ofserum hormone level. They can be hyperdense orisodense compared with adjacent brain tissue and can show homogenous contrast enhancement with contrast material.[12]

Differential diagnosis includes olfactory neuroblastoma, Germinoma, Rhabdomyosarcoma.[13]

Pituitary adenomas can be treated by medical therapy, surgery and radiation therapy depending upon size, sign and symptom.

4. Conclusion

Pituitary adenoma is a complex set of benign tumors that present with hypersecretory syndrome and mass effect. An appropriate imaging of pituitary region using MRI and endocrinologic consultation is the standard for detection of pituitary adenoma. Although, medical management and radiotherapy offer effective treatment for these tumors in specific situations, Endoscopic Trans-sphenoidal approach continues to provide optimal outcomes with low incidence of morbidity.

5. Conflicts of Interest

All contributing authors declare no conflicts of interest.

6. Source of Funding

None.

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