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Date of submission: 26th March 2020

Date of acceptance: 8th April 2020

DOI: <https://doi.org/10.3126/njn.v17i1.28341>

HOW TO CITE

Pokhrel B, Thapa A. Pituitary Apoplexy with raised intracranial pressure. NJNS. 2020; 17(1):41-43

To access Nepal Journal of Neuroscience Archives,
scan QR code:



Pituitary Apoplexy with raised intracranial pressure

Abstract

Pituitary apoplexy in pre-existing pituitary adenomas occurs as a consequence of acute hemorrhage or infarction. Patients with pituitary apoplexy present with sudden onset headache, vomiting, clouding of consciousness and visual field defects or total oculomotor palsies without any prior diagnosis of pituitary tumor.

In this case report, we report a case of 52 years female who presented to the emergency department with headache throughout her head and periorbital area with vomiting. Investigations revealed sellar cystic lesion suggestive of pituitary apoplexy with normal hormonal profile. She underwent endoscopic trans-nasal trans-sphenoidal surgery with complete resection of pituitary adenoma. Histopathological examination of tumor specimen showed large areas of necrosis with blood surrounded by the adenomatous tissue. Post-operatively she had cerebrospinal fluid rhinorrhea with persistent papilledema and hydrocephalus. Sellar floor repair along with theco-peritoneal shunt lead to good recovery.

Key words: Intracranial hypertension, Pituitary apoplexy, Pituitary macroadenoma

Introduction

Pituitary adenomas apoplexy (PA) can present as a life-threatening condition which requires urgent surgical intervention, mainly because of the mass effect the tumor exerts on its surrounding structures as well as because of endocrinological dysfunction the tumor produces.¹ PA may occur spontaneously or with predisposing factors like surgical intervention, vasospasm, hypertension as a result of acute hemorrhage and/or infarction in the presence of a pre-existing pituitary adenoma.² Classic clinical presentations include sudden severe headache, visual impairment, nausea/vomiting and meningismus; which are determined by the extent of necrosis and hemorrhage of the tumor.³ Patients with intracranial hypertension, visual symptoms or altered sensorium require surgical intervention. Post-operative CSF rhinorrhea with features of intracranial hypertension

requires additional measures to decrease intracranial pressure (ICP).

Case Report

A 52-year-old female presented to emergency department with complains of sudden onset of severe frontal headache, which radiated throughout the head and periorbital area, throbbing in type, severe enough to hamper her daily activities followed by three episodes of vomiting; containing food particles, non-bilious, non-projectile. It was not associated with blurring or loss of vision. She had hypertension for last 5 years and was under medication.

Computerized tomography (CT) scan revealed intrasellar soft tissue density lesion with mild expansion of sella. Magnetic resonance imaging (MRI) of brain done on the same day showed iso to intermediate signal intensity area within the sella surrounding the infundibulum and thin pituitary gland compressed against sellar floor (Figure

1). Hormonal profile (Luteinizing hormone (LH), follicle-stimulating hormone (FSH), Prolactin, Thyroid function test, Growth Hormone, Adrenocorticotrophic hormone (ACTH)) were all within normal limit. Ophthalmological exam revealed papilledema with intact visual acuity. Endoscopic endonasal transsphenoidal surgery (EETS) resection of pituitary macroadenoma was attempted with complete excision of tumor. Intra-operatively the tumor was found pushing the diaphragma sella with dilated hiatus with areas of hemorrhage. Pituitary stalk was intact with thin rim of pituitary gland found pushed posteriorly (Figure 2). On 3rd post-operative day, she complained of CSF rhinorrhea with persistent headache. Lumbar drain along with medical management for a week was in vain. CSF analysis revealed high protein content. Fundus examination revealed papilledema. Repeat CT scan showed hydrocephalus (Figure 3). Hence endoscopic repair of sella floor with autologous fat graft and nasoseptal flap together with theco-peritoneal shunting was performed. This improved her symptoms. Her histopathological reports were consistent with pituitary apoplexy.

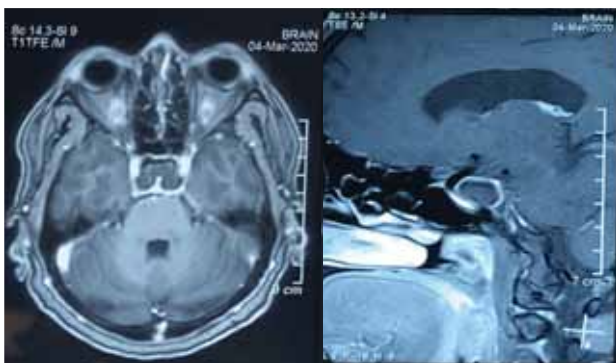


Figure 1: Axial and sagittal section from Contrast enhanced MRI brain showing an intrasellar soft tissue density with expansion of Sella.

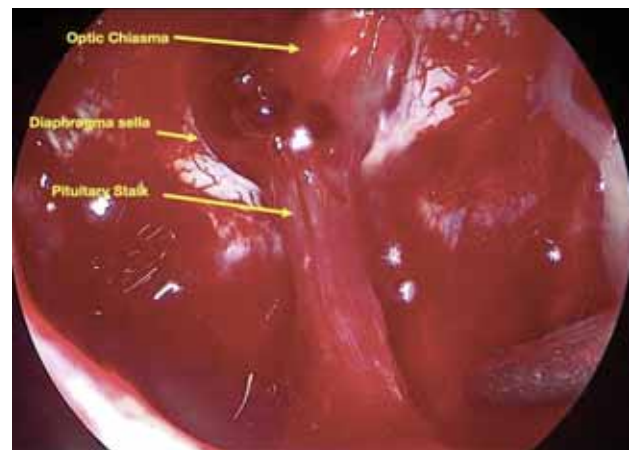


Figure 2: Intraoperative photo depicting the margin between the apoplectic tumor and surrounding pituitary gland structures.

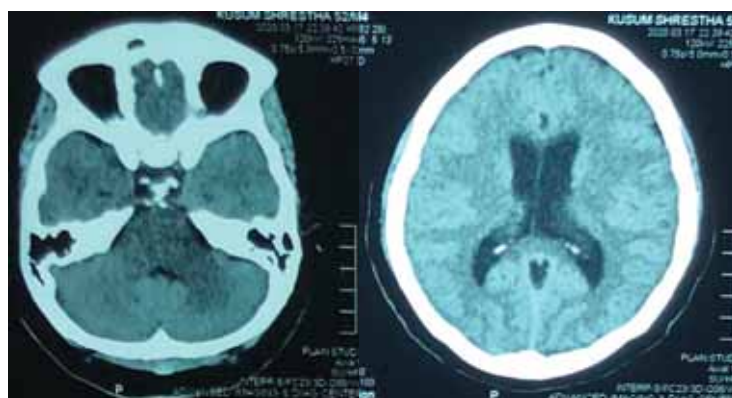


Figure 3: 8th post op day CT scan showing a. postoperative changes in sella b. hydrocephalus

DISCUSSION

Pituitary Apoplexy (PA) is common in fifth decade of life occurring in 0.6-9.1% of patients with symptomatic pituitary tumor and in 9.5% of patients with asymptomatic pituitary tumor.² PA can be associated with multiple factors as mentioned above, out of which hypertension is one of the cause⁴, which could be accountable for PA in this patient. Dilated sella explains the possibility of PA which was asymptomatic till she bled in the tumor. Occasionally due to necrosis of tumor, histopathological examination fails to find any evidence of tumor.

Management of PA is controversial with some authors favoring conservative management until visual loss is seen while others are in the favor if surgery after the diagnosis has been established and all work up has been done. The endoscopic trans-nasal trans-sphenoidal approach is preferred over traditional craniotomy in cases of acute vision loss, cranial neuropathy or increased intracranial pressure (ICP).⁵

CSF rhinorrhea is a common encountered complication in endoscopic trans-nasal trans-sphenoidal surgery, which manifests as clear CSF, unilateral rhinorrhea and headache (suggestive of raised ICP). In this patient, postoperative CSF rhinorrhea occurred due to persistence of intracranial hypertension⁶ probably due to high protein content following contamination of CSF with blood (pituitary apoplexy). Week long lumbar drainage with medical management to decrease CSF leak did not help. Finally, theco-peritoneal shunt⁷ during the Endoscopic repair with autologous fat graft and naso-septal flap relieved the patient of her symptoms.

Conclusion

Pituitary apoplexy with raised intracranial pressure can be managed effectively with endoscopic trans-nasal trans-sphenoidal route. However, persistence of raised intracranial pressure due to high protein content causing hydrocephalus may require CSF diversion.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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