

Panhypopituitarism Due to Internal Carotid Artery Branch Aneurysm Compressing Pituitary Gland

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Abstract

Background: Panhypopituitarism due to compression of pituitary gland by internal carotid artery branch aneurysm is extremely rare.

Case Presentation: A 70 year old male presented with history of fall and altered sensorium. Investigations revealed hyponatremia, hypopituitarism and sellar mass. Evaluation of mass by MRI and CT angiography revealed a large internal carotid artery branch aneurysm.

Case Report

A 70-year-old male, known Hypertensive on Telmisartan 40 mg and Amlodipine 5 mg per day presented with a history of fall at home followed by headache & altered sensorium. His Blood pressure was 110/70 mmHg. The skin and mucous membranes were dry. Laboratory investigations showed hyponatremia (Na -126 mEq/L) and a potassium level of 3.5 mEq/L. His hemogram was normal. Random blood sugar was 95 mg/dl, serum creatinine was 1.2 mg/dl, Urine examination was normal. In view of hyponatremia, hypotension and altered sensorium, CT Brain was obtained which showed a suprasellar mass.

On further hormonal evaluation, he was found to have Panhypopituitarism. (Table 1).

MRI Brain and pituitary showed a space occupying lesion in Pituitary area: Aneurysm pressing over pituitary area (Figures 1 and 2).

Differential diagnosis of a Macro adenoma or Craniopharyngioma was considered. A CT angiogram was

obtained for confirmation, which showed a huge aneurysm arising from internal carotid artery compressing the pituitary area (Figure 3).

The patient was rehydrated with normal saline to achieve euolemia. Intravenous hydrocortisone 100 mg 8 hrly were started followed by levothyroxine 50 µg which was increased to 75 µg. His symptoms improved immediately, and the hyponatremia normalized. Interventional radiologist opinion was sought. The patient underwent further endovascular intervention for the

aneurysm in the form of endovascular coiling with flow diverters. The patient has been on a daily replacement dosage of 5 mg prednisolone and 50 µg thyroid hormone and he is off all anti-hypertensive medications and following up regularly.

Discussion

Sellar aneurysms form internal carotid artery, are an uncommon subtype of intracranial aneurysm and rarely cause hypopituitarism.¹ The most common presenting symptoms of a patient with a giant intrasellar aneurysm are headache and visual



Fig. 1: MRI Brain with Pituitary showing ? aneurysm compressing the pituitary

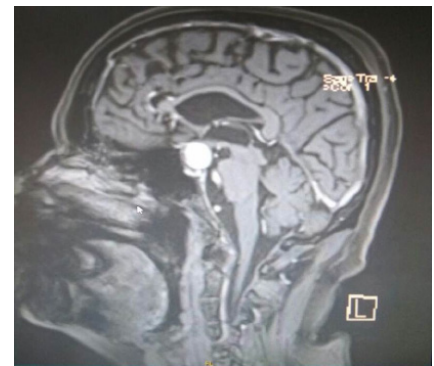


Fig. 2: MRI Brain with pituitary - Post contrast



Fig. 3: CT Angiogram showing a large aneurysm in the sellar region

Table 1: Hormonal evaluation

| Investigation | Value |
|---|-------|
| Free T4 (0.8-1.8 ng/dl) | 0.7 |
| Thyroid Stimulating Hormone (0.35-5.5 uIU/ml) | 0.65 |
| Prolactin (5 - 25 ng/ml) | 12 |
| Cortisol (5-25 µg/ml) | 1.8 |
| ACTH (5-20 pg/ml) | 5 |
| Follicle Stimulating Hormone (2.5 -10 mIU/ml) | 1.8 |
| Luteinizing Hormone (2.5-10 mIU/ml) | 1.2 |
| Testosterone (4-11 ng/ml) | 1.6 |

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field cuts or decreased visual acuity.² Mental changes can occur, albeit rarely, when they rupture. Clinically significant hyponatremia has been reported at presentation in 21% of patients with unruptured intrasellar aneurysms. The decreased mental status can be explained on the basis of hyponatremia induced by secondary adrenal insufficiency and secondary hypothyroidism.

Various pathophysiologic mechanisms have been proposed to explain hypopituitarism in these patients.³ A parasellar mass can impinge on the hypothalamus or pituitary stalk and lead to hormone deficiencies due to interruption of releasing factors arriving at the anterior pituitary. Mass effect may lead to ischemia and necrosis of pituitary tissue.

Historically, the diagnostic dilemma between pituitary tumors and aneurysms has been common.

Raymond in 1978 estimated that between 1.4-5% of aneurysms look like pituitary tumors. Many reports have described an aneurysm initially diagnosed as a pituitary tumor and only later properly identified by carotid angiography, or at the time of autopsy.

To ascertain the diagnosis, the gold standard continues to be angiography. Magnetic resonance imaging has also become a first-line diagnostic tool now because it helps to characterize location, size, lumen size and flow. On pre contrast T1 weighted images; aneurysms have a similar density as cerebrospinal fluid (Figure 1).⁴

The definitive management includes direct surgical clipping or endovascular coiling. Both the techniques eliminate the aneurysm from normal circulation and prevent further dilatation or hemorrhage.⁵ Patients with panhypopituitarism need appropriate hormonal replacement therapy and regular follow up.

Conclusion

Differentiating between pituitary adenoma and intrasellar aneurysm is crucial in order to avoid a potential surgical catastrophe. CT angiography and MRI are useful tools for the differential diagnosis.

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