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Case Reports & Case Series

Pituitary tumor apoplexy presenting as infective meningoencephalitis

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ABSTRACT

Background: Pituitary apoplexy is a rare but life-threatening disorder usually results from sudden hemorrhage or infarction induced swelling in a pituitary adenoma. Clinical presentation of this condition includes severe headaches, impaired consciousness, fever, visual disturbance, and variable ocular paresis. Therefore, the presence of meningeal irritation may lead to misdiagnosis as a case of meningoencephalitis or spontaneous subarachnoid hemorrhage, and delay in the proper management of the disease.

Objective: To demonstrate necrosis of a pituitary adenoma was clinically indistinguishable from infectious meningitis.

Case report: We report a case of 25-year-old man who developed progressive drowsiness with headache and fever. CT scan of the Brain and also MRI were performed, confirming a pituitary macroadenoma with hemorrhage and analysis of the cerebrospinal fluid (CSF) was consistent with bacterial meningitis. Serum investigations revealed panhypopituitarism and he was subsequently started on placement corticosteroid, L-thyroxine therapy and cabergoline After 14 days of antimicrobial therapy with ceftriaxone and ampicillin, the patient improved with 1 year follow up and new Brain MRI clearly demonstrating tumoral reduction.

Conclusion: We highlighted how pituitary apoplexy may mimic the clinical findings of an infectious meningoencephalitis, learning points on how clinical assessment can aid earlier diagnosis and the importance of considering this differential diagnosis, particularly with the associated morbidity and mortality.

1. Introduction

Pituitary apoplexy is often misdiagnosed as meningitis or subarachnoid hemorrhage. The clinical manifestations of pituitary apoplexy generally include acute headache, impaired consciousness, vomiting, visual impairment, and ophthalmoplegia and are clinically indistinguishable from infectious meningitis.

However, Meningitis is the top differential diagnosis to be considered in patients who present meningeal irritation signs. Hereby, we presented an instructive case of pituitary apoplexy with clinical presentation mimicking meningitis, whose initial clinical picture was suggestive of bacterial meningitis. We also highlight the importance of careful clinical and radiological correlation, which led to a timely diagnosis and treatment in our patient.

2. Case presentation

A 25- year- old man with no past medical history, visited the emergency unit of our hospital with a 3-day of gradual onset headache and vomiting. On admission, he was confused with Glasgow Coma Scale of 11 (E3, V3, M5), fever (temperature 38, 5 °C) and neck stiffness, but without neurological deficit and cranial nerve palsies. His skin was well perfused with no rashes, cardiovascular, respiratory and abdominal examinations were normal.

Non contrast computed tomographic (CT) scan of the brain was performed demonstrating enlarged sella with the mass bulging in cavernous sinus suggesting a pituitary lesion with haemorrhage within it (Fig. 1). A brain MRI (Fig. 2) showed a hyperintense pituitary mass extending into the suprasellar compartment and elevating the optic chiasm, in keeping with pituitary apoplexy (haemorrhage).

Lumbar puncture in the left lateral position showed an opening pressure of 22 cm H2O, with turbid cerebrospinal fluid (CSF) white cell count 4500/mm3 (90%polymorph, 10% lymphocytes), red cell count 30/mm3, protein 0.8 g/L and glucose 0,22 g/L; no organisms on Gram stain. He was started on intravenous ceftriaxone at 4 g daily for bacterial meningitis. Over the next 5 days his temperature regularly spiked to 38.5–39 °C. Serum investigations revealed hypopituitarism with hyperprolactinemia. His course and investigations were consistent with pituitary apoplexy, and he was subsequently started on replacement corticoid, L-thyroxine therapy and Cabergoline with good outcome. The patient fully recovered and was discharged with antibiotics and hormonal supplementation on day 21 without any neurologic deficits. One

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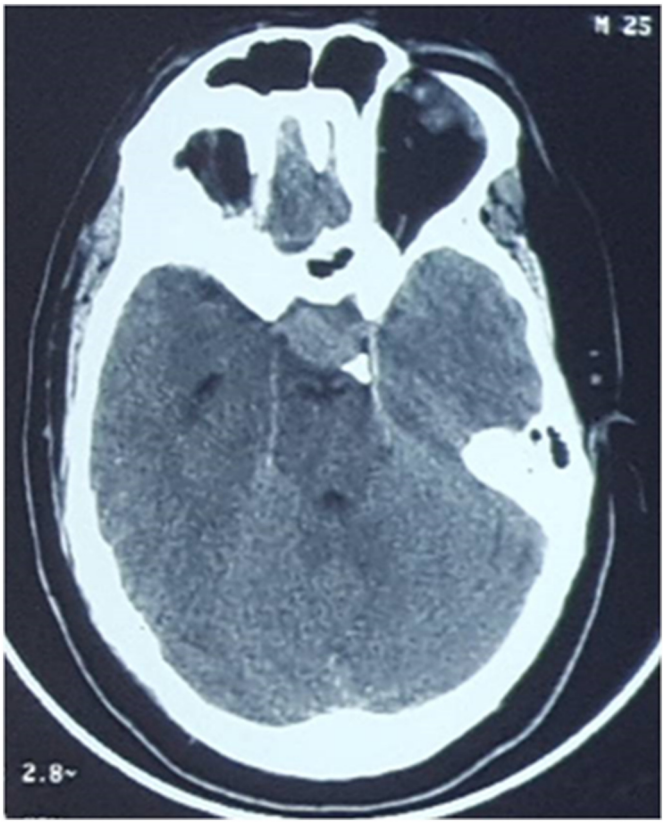

Fig. 1. Non-contrast CT of the brain, demonstrating enlarged sella with hyperdensity of the heterogeneous pituitary lesion partly attenuated suggesting a pituitary lesion with haemorrhage within it.

year after, the patient is doing well and brain MRI showed subtotal reduction of the pituitary adenoma (Fig. 3).

3. Discussion

The prevalence of pituitary apoplexy reported in the literature is variable, ranges from 0.6% to 27.7% [9], firstly described by Brougham at 1950 [1]. There are a number of predisposing factors have been identified in approximately 25% of pituitary apoplexy. Head trauma, sudden changes in arterial or intracranial pressure, bromocriptine administration or withdrawal, anticoagulant therapy or bleeding disorders or cardiac bypass, diabetes and postpartum haemorrhage may increase the incidence of pituitary apoplexy [6].

3.1. Clinical findings and differential diagnosis

The clinical presentation of pituitary apoplexy is highly variable and may result in both local and systematic manifestations. The usual clinical manifestations of pituitary apoplexy include sudden onset headaches, vomiting, mental deterioration, ophthalmoplegia, and visual loss. The meningeal irritation signs are rare, with atypical findings. However, the presence of meningeal irritation signs and fever in some cases of pituitary apoplexy has been documented to masquerading the diagnosis [8]. Leakage of blood and necrotic tissue from the infarcted pituitary gland into subarachnoid space may cause fever, meningeal irritation, and altered level of consciousness possibly due to a chemical reaction to the necrotic pituitary tissue [5]. This may contributed to the misleading diagnosis of meningoencephalitis or an acute subarachnoid haemorrhage due to a ruptured berry anevrysm.

The differential diagnosis of pituitary apoplexy includes cavernous sinus thrombosis, an acute hemorrhagic infarct, infectious meningoencephalitis and midbrain infaction [2].

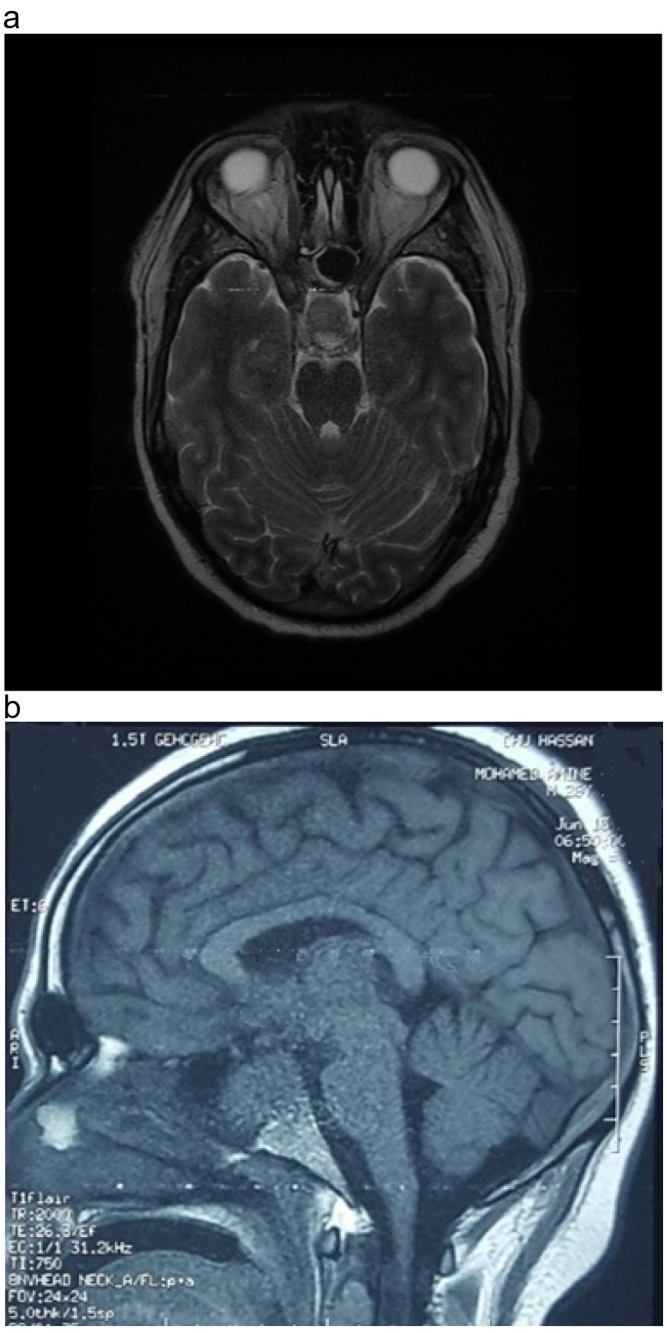

Fig. 2. Cerebral MRI axial T2 (a), and T1-weighted sagittal sequences (b) showing an heterogeneous pituitary mass, isointense T1 and iso/hyperintense T2.

In our patient, the combination of clinical signs such as decreased conscious state, fever, neck rigidity contributed to the misleading diagnosis of PA. This report underlies the importance of considering the diagnosis of pituitary apoplexy in each patient with clinical features suggestive of meningoencephalitis with brain CT evidence of concomitant intrasellar lesion. Pituitary apoplexy should, therefore, be entertained in the differential diagnosis of any individual who presents with an acute headache [5].

3.2. Neuroimaging

Neuroimaging studies may demonstrate atypical findings not compatible with a pituitary apoplexy in the very early stages, and

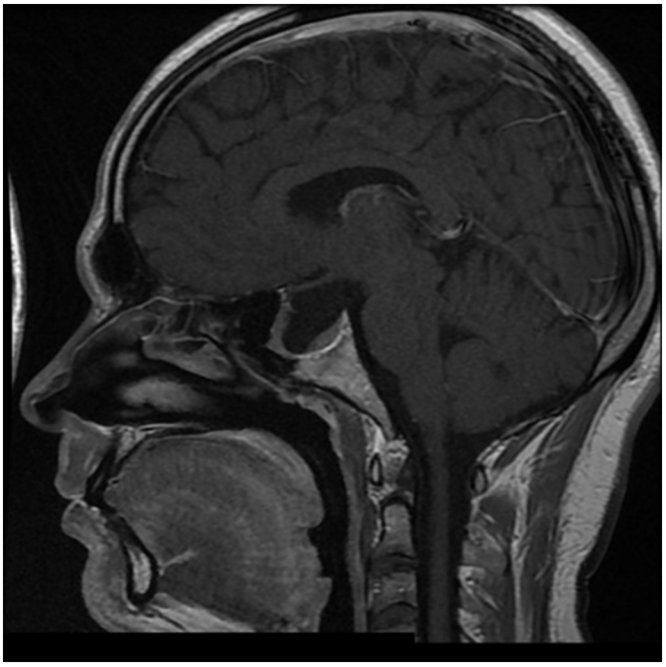

Fig. 3. Cerebral MRI T1 weighted sagittal sequence postcontrast, one year later after medical treatment demonstrating tumoral reduction.

meningeal irritation signs may be the presenting symptoms. [8].

Diagnosis of the pituitary adenoma with CT (isodense to brain tissue) is difficult even when intra tumoral hemorrhage is present or Subarachnoid hemorrhage invaded the basal cisterns. Brain CT scans may reveal the mixed density of acute blood and hypodense necrotic tissue within the lesion in the sellar area [4]. In our case, CT scan reveals moderate subarachnoid haemorrhage with heterogenic pituitary lesion. Although, MRI is superior to CT imaging for delineating pituitary haemorrhage and hence is the procedure of choice [5].

More interestingly, Brain MRI is currently the most accurate tool for diagnosis of pituitary tumor apoplexy, study of the adjacent structures that can be involved and also detection of the intrasellar haemorrhage. In our patient, brain MRI revealed a slightly heterogeneous lesion intrasellar iso/ hyperintense T2 suggesting intratumoral pituitary haemorrhage.

3.3. Treatment

Once suspected, pituitary apoplexy can be initially treated with conservative therapy (case reported), adequate hormonal substitution therapy (glucocorticoids and hormonal replacement therapy). Swift neurosurgical decompression of the sella may be essential and performed by trans-sphenoidal approach only in patients who had worsening neurological signs [10]. Outcomes after surgery are usually good and promptly recognized, neurological improvement appeared within days, with decreased need of hormonal replacement therapy over time [7,3].

This case reminds us of the difficulties one may encounter in the clinical diagnosis of meningoencephalitis associated with pituitary lesion in neuroimaging.

4. Conclusion

Pituitary apoplexy is a rare and underdiagnosed clinical syndrome, as the underlying cause of meningitis should be suspected in patients with evidence of pituitary endocrine disturbances or lesion of structures adjacent to the sellar area. We highlighted how pituitary apoplexy can mimic bacterial meningitis possibly due to a chemical reaction to the necrotic pituitary tissue, and the importance of considering this differential diagnosis.

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