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Case report

Pituitary tuberculoma: A consideration in the differential diagnosis in a patient manifesting with pituitary apoplexy-like syndrome

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ABSTRACT

Pituitary tuberculoma is extremely rare, even in endemic regions of tuberculosis and much less frequently as a presentation of pituitary apoplexy. We describe a 25-year-old female presented with sudden onset of headache and vision loss of left eye which mimicking symptoms of pituitary apoplexy. MRI of the pituitary gland showed a rim-enhancing lesion at the intrasellar region extending into the suprasellar area, but absence of posterior bright spot with enhancement of the pituitary stalk. Pituitary hormonal evaluation revealed panhypopituitarism and diabetes insipidus. An urgent transphenoidal surgery of the pituitary gland was undertaken for which the histopathology showed necrotizing granulomatous inflammation with infarcted adjacent pituitary tissue. Despite negative fungal and AFB staining, pituitary tuberculoma was presumptively diagnosed based on imaging, pathology and the high incidence of tuberculosis in the country. After the course of anti-tuberculosis therapy, the clinical findings were dramatically improved, supporting the diagnosis. Pituitary tuberculoma is extremely rare in particular with an apoplexy-like presentation but should be one of the differential diagnosis list of intrasellar lesions in the patient presenting with sudden onset of headache and visual loss. The presence of diabetes insipidus and thickened with enhancement of pituitary stalk on MRI were very helpful in diagnosing pituitary tuberculosis.

Introduction

Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*. Despite the advance of therapeutic treatment, tuberculosis still remains one of the world's biggest problems. In 2014, 9.6 million people were estimated to be new cases of active tuberculosis worldwide [1]. The lungs are the most common sites for *M. tuberculosis* infection, presenting either asymptomatic latent infection or active pulmonary tuberculosis. Extrapulmonary sites of infection, representing about 20% of immunocompetent patients, can occurred in any organ with or without overt pulmonary involvement [2]. Extrapulmonary tuberculosis is often difficult to diagnose and necessitated a high index of suspicion.

Central nervous system (CNS) tuberculosis accounts for only 1% of tuberculosis cases worldwide, mostly in areas where the prevalence of tuberculosis are high. Hematogenous spreading which later developed the tuberculous foci in the brain, meninges, or adjacent bone is the main pathogenesis of CNS tuberculosis. The forms of CNS and most other forms of extrapulmonary tuberculosis, such as tuberculous meningitis, tuberculous encephalitis, tuberculoma or tuberculous brain abscess, depend on the location of tuberculous foci and host immune factors [3].

Pituitary tuberculoma is extremely rare, with the first case reported by Coleman et al. in 1940. Up to 2015, only 81 cases of pituitary tuberculoma had been documented in the previous literatures commonly presenting with gradual onset of headache and visual disturbances with or without systemic symptoms [4]. Pituitary apoplexy is a rare condition that occurs only 2–7% in pituitary adenoma and characterized by acute infacrtion and/or

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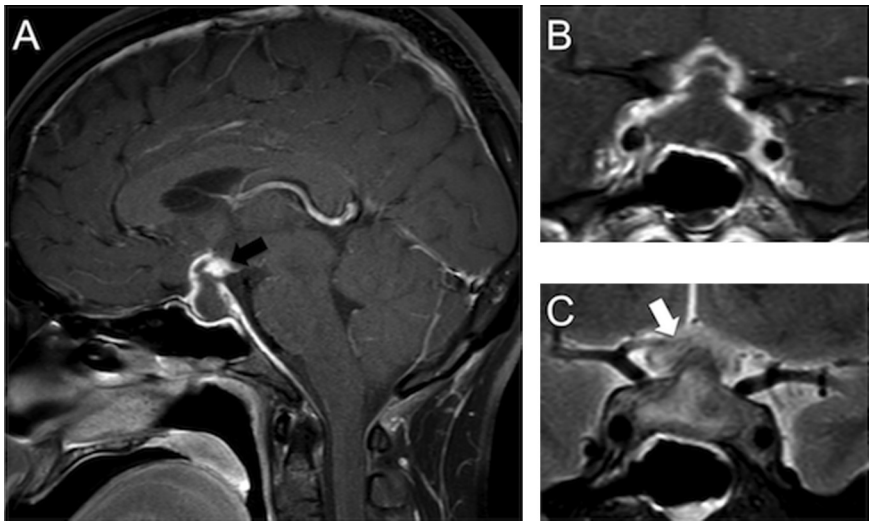

Fig. 1. (A) Sagittal and (B) coronal postcontrast T1-weighted images shows rim enhancing hypointense T1 lesion in the sellar and suprasellar region with thickened enhancement of the pituitary stalk (black arrow) and additional meningeal enhancement along sellar floor an clival area. (C) Coronal T2-weighted image demonstrates compression of the optic chiasm (white arrow) by this lesion with hyperintense T2 change, representing optic neuropathy.

hemorrhage of the pituitary gland [5]. Moreover, pituitary tuberculoma manifesting as apoplexy is extremely rare [6–8]. Without history of fever or multi-organ tuberculosis, the diagnosis of pituitary tuberculoma in a patient with apoplexy-like presentation is even harder to establish. We herein report pituitary apoplexy-like presentation of pituitary tuberculoma in a young female without associated systemic tuberculosis and demonstrate the clues in the differential diagnosis.

Case report

A 25-year-old Laotian female, who lived in Thailand for ten years, presented with low-grade fever, sudden onset of headache, and rapidly progressive visual loss in both eyes for 5 days. There was no previous history of headache, chronic cough, weight loss, prolonged fever or history of exposure to tuberculosis. She gave birth to her second child 2 years before without any complications and successfully breastfed for 9 months, indicating intact hypothalamic-pituitary-gonadal axis previously.

On examination, the patient was alert and cooperative, but acutely ill looking. Vital signs were: body temperature 37.8 °C, blood pressure 100/60 mmHg, pulse rate 60 beats/min and respiratory rate 16 breaths/min. Best corrected visual acuity was hand movements of the left eye and 20/40 of the right eye. Right temporal hemianopia was detected by Goldmann perimeter. Other cranial nerves and neurological examinations were normal. A magnetic resonance imaging (MRI) of brain showed rim-enhancing lesion, hypointense on T1-weighted image, mixed hypo- and hyperintense on T2-weighted image, occupying the sellar region with suprasellar extension, measuring about $1.4 \times 2.5 \times 2.2$ cm (Fig. 1). Meningeal enhancement and thickened enhancement of pituitary stalk was seen with absence of posterior bright spot. The lesion compressed optic chiasm causing hyperintense signal in T2-weighted image of both optic nerves and optic chiasm. Chest x-ray was unremarkable. Anti-HIV and VDRL testing were negative.

Anterior pituitary hormone evaluation revealed panhypopituitarism; thyroid stimulating hormone 0.081 uIU/mL (0.35–4.94), serum free T4 0.71 ng/dL (0.70–1.48), early morning cortisol <1 mcg/dL, prolactin <0.6 ng/mL (5.18–26.53), insulin like growth factor-1 81 ng/mL (117–329). Hyponatremia with serum sodium of 124 mmol/L was found. With regular menstrual cycles by using oral contraceptive pill, luteinizing hormone (LH) and follicle-stimulating hormone (FSH) were not evaluated. Then the patient was initially treated adrenal insufficiency with intravenous hydrocortisone. Polyuria from central diabetes insipidus was unmasked after hydrocortisone therapy.

Due to acute visual loss, the patient underwent urgent endoscopic transphenoidal pituitary surgery. Thickening of dura mater was noted intraoperatively. A firm un-suckable mass at sellar and suprasellar region, appeared like caseous necrotic tissue, was found separately from normal adjacent pituitary gland. Decompression of optic chiasm and excisional biopsy of mass were performed. Histopathology showed necrotizing granulomatous inflammation with adjacent infarcted normal pituitary tissue (Fig. 2). Gomori Methenamine Silver stain and acid fast bacilli stain were negative. In addition, polymerase chain reaction (PCR) of *Mycobacterium* spp. was negative.

The combination of histological findings, enhanced pituitary stalk in post-contrast MRI and the fact that patient living in endemic area highly suggested the diagnosis of pituitary tuberculoma. Treatment was initiated with a 2-month combination of isoniazid, rifampin, pyrazinamide and ethambutol, followed by 7 months of isoniazid and rifampin. Mycobacterium and fungus

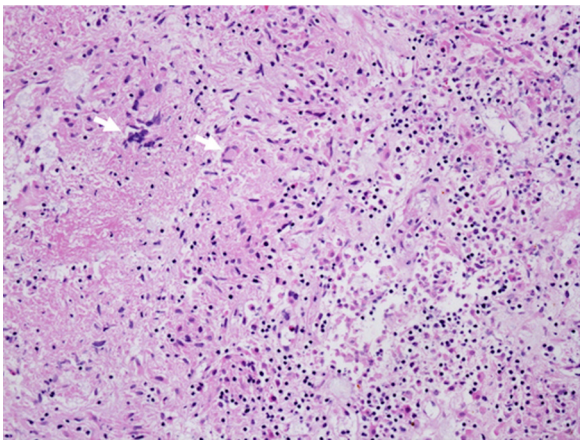

Fig. 2. Tissue biopsy from intrasellar region revealed necrotizing granulomatous inflammation (left) with multinucleated giant cells (white arrows) and infarction of the pituitary parenchyma (right) (H&E, 200×).