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Case Report

Pituitary Stalk Thickening

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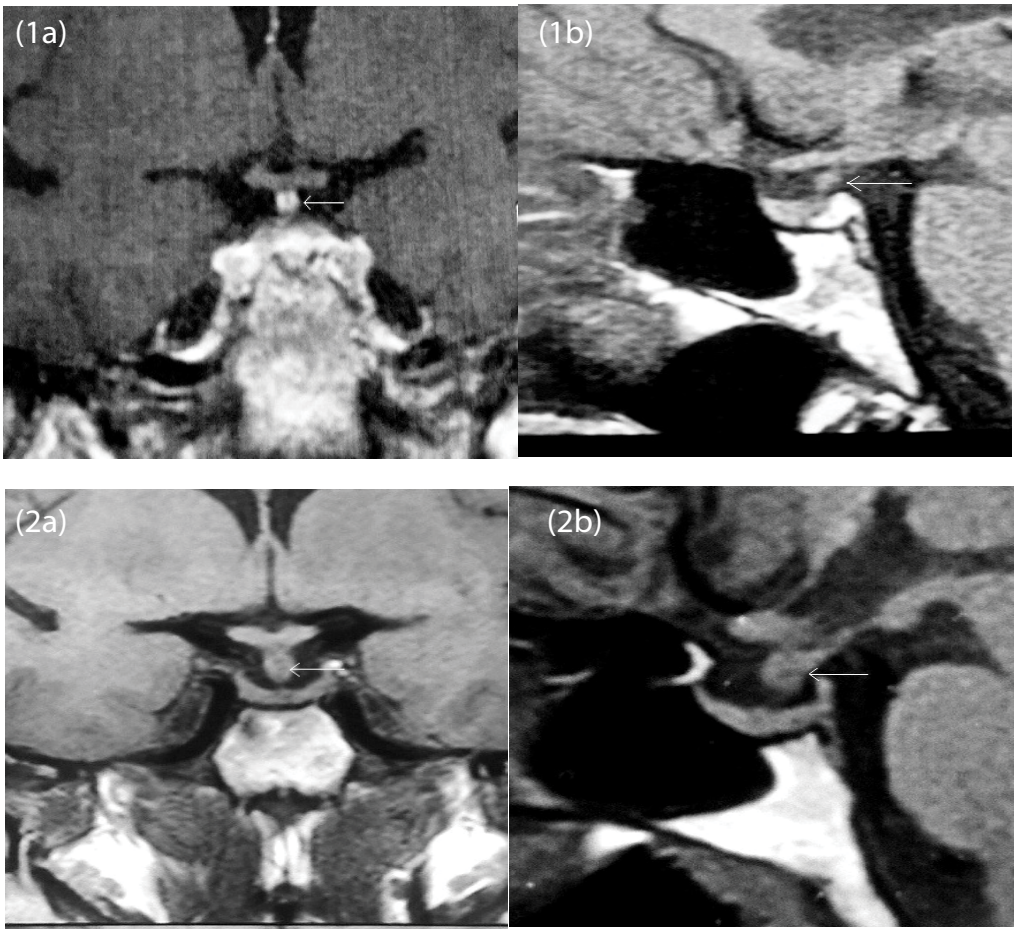

Figures 1a and 1b: Coronal and sagittal pituitary MRI showing a thickened V shaped pituitary stalk above the gland.

Figures 2a and 2b: Coronal and sagittal pituitary MRI showing a round shaped thickened pituitary stalk above the gland.

Abstract

MRI revealed enlargement of the pituitary stalk in two patients with different clinical presentations. A 60 y/o female had autoimmune hypothyroidism associated with blunted cortisol response to ACTH, while the other, a 30 y/o female had amenorrhea and polyuria with high plasma and low urinary osmolality.

Keywords: Pituitary stalk thickening; Hypothyroidism; Adrenal insufficiency; Amenorrhea; Polyuria

Case Report

As a result of the advances in imaging technologies, the finding of pituitary stalk lesions presents a diagnostic challenge to

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clinicians and endocrinologists. They are usually discovered incidentally on magnetic resonance imaging (MRI), or during the investigation of symptoms related to hypothalamic-pituitary dysfunction such as central diabetes insipidus or hypopituitarism. The etiology of these lesions may be congenital/developmental, inflammatory, infectious or neoplastic. Due to its particular location and function, the pituitary stalk is not often biopsied and diagnosis is based generally on clinical evaluation and images [1].

Report of two cases

Enlargement of the pituitary stalk was found during the endocrine evaluation of two patients with the following clinical presentations.

Patient 1: A 64 year old woman was admitted to the emergency room for vomiting and high blood pressure. Otherwise normal, she had been suffering from proximal muscle weakness, fatigue, reduced appetite, cognitive impairment and pre-tibial myxedema during the last two months. The patient denied glucocorticoid intake. Mild hyponatremia (132 mEq/l) and anemia (hct: 30%) were detected. TSH was high (13.74 µU/ml) with low FT4: 0.57ng/dl. Anti-peroxidase antibodies were positive. Serum potassium was normal (4.2 mEq/l). Serum morning cortisol was less than 1.0 µg/dl and ACTH was 6.7 pg/ml and 5.0 pg/ml in two different occasions. An ACTH stimulating test (Synacthen 250.0 µg, i.m) showed a blunted cortisol response at 30 and 60 min after stimulus, confirming adrenal insufficiency. The remaining pituitary function was normal. MRI showed a thickened pituitary stalk (Figure 1). The patient improved on hydrocortisone and LT4.

Patient 2: A 30 year old woman complained of amenorrhea and polyuria (9 L/day). She had high plasma and low urinary osmolality (311 mOsm/kg and 136 mOsm/kg, respectively). Low serum estradiol and gonadotropins were found. Thyroid and adrenal functions were normal. MRI showed a thickened pituitary stalk (Figure 2). She started on desmopressin (0.1 mg/day) which reduced daily diuresis by 60% and lowered plasma osmolality (290 mOsm/day). Additionally she began on estrogen and progestin replacement.

Discussion

Pituitary stalk lesions may be found by chance or during the evaluation of endocrine disorders.

In a series of 152 patients, the etiologies were attributed to neoplasia in 32%, inflammatory lesions 20%, and congenital anomalies in 9% and in 39% remained unknown [2].

Primary hypophysitis is rare, between 0.2 and 6.5% among pituitary pathologies. Three histopathological types are described in this category: lymphocytic, granulomatous and xanthomatous hypophysitis [3].These conditions are usually confined to the pituitary.

In secondary hypophysitis, a systemic disease is the cause of the pituitary lesion: Sarcoidosis, Wegener granulomatosis, Langerhans cell histyocitosis and IgG4 related plasmatic histiocytosis may affect the pituitary. Monoclonal antibodies against the cytotoxic T-lymphocyte antigen-4 (CTLA-4) for treating metastatic cancer, may induce hypophysitis [4,5]. In the setting of immunosuppression, fungal infection, tuberculosis and toxoplasmosis may involve the pituitary gland [4].

Interestingly, these two patients showed different clinical presentations.

After excluding secondary etiologies, primary hypophysitis was suspected in both [4]. Although histological confirmation is needed, biopsy of a pituitary stalk lesion is technically demanding, and must be performed by an experienced neurosurgeon. In order to avoid invasive procedures, the approach was based on clinical, biochemical and radiological features. A close follow-up is mandatory to detect new symptoms and to determine if the lesions progress over time.

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