A Rare Cause of Hypopituitarism: Pituitary Tuberculosis

Hipopituitarizmin Nadir Bir Nedeni: Hipofiz Tüberkülozu

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Abstract

Pituitary tuberculosis is a rare condition that can present with hypopituitarism even without any evidence of systemic tuberculosis and is easily confused with pituitary adenomas. Headache and hypopituitarism are the most common presenting symptoms. We report the case of pituitary tuberculosis in a 39-year-old male patient who presented with panhypopituitarism. Although it is rare and difficult to diagnose, pituitary tuberculosis should be considered in every nonfunctional sellar masses, especially in fairly small ones with unexpected hypopituitarism. *Turk Jem 2012; 16: 26-8*

Key words: Hypopituitarism, pituitary, pituitary tumors, tuberculosis

Özet

Hipofiz tüberkülozu, sistemik tüberkülozun herhangi bir kanıtı olmaksızın hipopituitarizm ile prezante olabilen ve hipofiz adenomları ile kolaylıkla karışabilen nadir bir durumdur. Baş ağrısı ve hipopituitarizm en sık görülen başlangıç semptomlarıdır. Bu yazıda panhipopituitarizm nedeniyle başvurmuş, 39 yaşında bir erkek hastada saptanan hipofiz tüberkülozu olgusu sunulmuştur. Hipofiz tüberkülozu, özellikle beklenmeyen hipopituitarizme neden olmuş, küçük boyutlu, non-fonksiyone sellar kitlelerde göz önünde bulundurulması gereken nadir ve tanısı zor bir hastalıktır. *Türk Jem 2012; 16: 26-8*

Anahtar kelimeler: Hipopituitarizm, hipofiz, hipofiz tümörleri, tüberküloz

Introduction

Granulomatous hypophysitis, which is histologically characterized by histiocytes, plasma cells and giant cells, is a rare condition that can be caused by tuberculosis, fungal infections, sarcoidosis, and autoimmune diseases (1). While granulomatous hypophysitis due to tuberculosis is extremely rare overall, it is relatively common in developing countries. Tuberculosis has been relatively well controlled following the development of efficient therapies and with global improvements in socioeconomic status (2,3). The incidence of pituitary tuberculosis has markedly decreased in recent decades. Since pituitary tuberculosis is very rare, clinicians seldom consider it in cases of hypopituitarism. If the condition is recognized preoperatively, it can be effectively managed with anti-tuberculosis drug therapy without requiring surgery. In this case report, we present a patient with pituitary tuberculosis who presented with hypopituitarism and was successfully treated with drug therapy without requiring surgery or pathologic examination.

Case Report

A 39-year-old male presented with headache, generalized weakness and decreased libido two weeks after the diagnosis of skin tuberculosis. His neurological findings and visual field examination results were normal. Except for erythrocyte sedimentation rate of 88mm/h and low levels of anterior pituitary hormones, his biochemical test results were unremarkable. Magnetic resonance imaging (MRI) of the sellar area revealed a large intrasellar mass with a dimension of 15x14x12mm that extended to the suprasellar cisterns, with thickening of the infundibular stalk and elevating optic chiasma. After injection of gadolinium, the pituitary lesion was markedly enhanced except the central cystic or necrotic portion (Figure 1). Endocrine evaluation

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showed panhypopituitarism, and commencement of pituitary hormones replacement therapy significantly resolved the patient's complaints (Table 1). Surgical intervention was discussed with the patient and was pending until the response to the medical treatment of tuberculosis obtained. After four months of anti-tuberculosis treatment with isoniaside, rifampicin, pyrazinamide and streptomycin, the dimensions of the lesion were regressed to 9x7x5mm and it was confined to the pituitary gland. The lesion was totally invisible after eight months of therapy (Figure 2). However, the patient remained in need of hormone replacement treatment.

Discussion

Pituitary tuberculoma was first described in 1940 by Coleman and Meredit, and many cases have been reported in subsequent years (4). Tuberculosis bacillus may usually reach the hypophysis via the hematogenous pathway but might also spread directly from the meninges or paranasal sinuses (3-5). On the other hand, in more than 70% of pituitary tuberculosis patients, primary focus could not be identified (5).

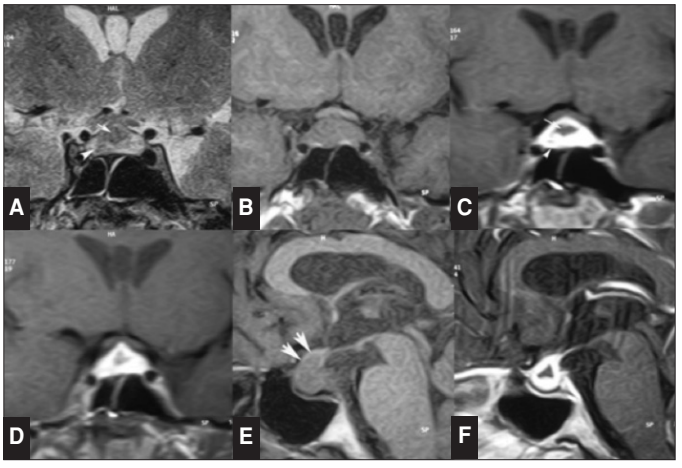

Figure 1. Coronal T2W (A), T1W (B), contrast-enhanced T1W (C-D) and sagittal T1W (E) and contrast-enhanced T1W MRI (F) of sella obtained at presentation. T2 (A) and T1W (B) MRI show well-defined isointense intrasellar mass (thin arrow) lesion (tuberculoma) with slightly deviated stalk. After gadolinium T1W coronal (C-D) and sagittal (F) MRI showed the pituitary lesion (arrows) was markedly enhanced except for the central cystic or necrotic portion (thin arrow). Post-gadolinium MRI showing the pituitary mass extending up to the suprasellar area, thickened infundibular stalk (thick arrows) and elevating optic chiasma

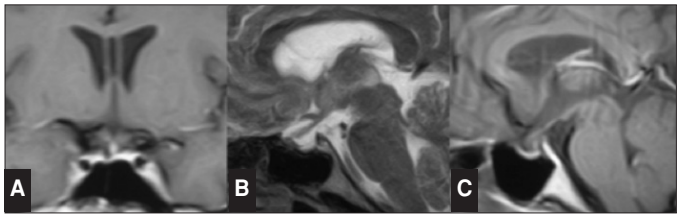

Figure 2. Follow-up (after 8 months), coronal post-gadolinium T1W (A) and sagittal T2W (B-C) MRI shows the pituitary lesion totally regressed. The pituitary and infundibular stalk was normal, and tuberculoma was not detected

In many ways, pituitary tuberculosis resembles a nonfunctional pituitary adenoma. Usual presenting symptoms are headache, visual disturbances or typical symptoms of hypopituitarism (2,5). When a mass compresses on the dopaminergic axis, symptoms due to hyperprolactinemia may occur. Although panhypopituitarism is a common laboratory finding, the majority of patients do not clearly manifest clinical features of impaired pituitary function. There is no definitive symptom or laboratory finding that can clearly differentiate nonfunctional adenoma from pituitary tuberculosis (3,5). Increased erythrocyte sedimentation rate (ESR), as seen in systemic tuberculosis, is a distinctive clue towards pituitary tuberculosis in a patient with pituitary mass lesion. Our patient had been diagnosed with skin tuberculosis prior to experiencing complaints due to hypopituitarism.

Due to the distinguishing image capabilities of MRI, it is the preferred imaging modality for pituitary lesions. Nevertheless, there is no radiological finding that is specific to pituitary tuberculoma (3-5). Pituitary tuberculous lesions are usually hypodense and homogenous lesions, frequently extending to the suprasellar area. Various case series reported differing rates of suprasellar extension (1-3). Although thickening and nodularity of the pituitary stalk are considered indications of pituitary tuberculoma, it should be kept in mind that these can also be seen in other inflammatory diseases such as sarcoidosis, syphilis, and in some neoplastic diseases (2,5). Thickening of sphenoid sinus is another non-specific finding associated with pituitary tuberculosis. In our patient, T1-weighted MRI showed an isointense intrasellar mass with slightly deviated stalk. After administration of gadolinium, the lesion was well defined, homogenous and obviously enhanced with thickened infundibular stalk. We were not able to perform peripheral ring leptomeningeal enhancement or other parenchymatous brain tuberculomas (Figure 1).

Surgical therapy for pituitary tuberculoma is indicated when tissue diagnosis or tumor debulking is essential (5). It has been reported that the response to bactericidal drug combination therapies such as rifampicin, isoniaside, pyrazinamide or streptomycin is extremely positive, as these drugs can effectively penetrate the blood-brain barrier. Even though there are no guidelines on

Table 1. Results of the hormonal parameters at presentation

	Patient's Serum Level	Normal Range
Free T3 (pg/ml)	1,55	1,71-3,71
Free T4 (ng/dl)	0,49	0,7-1,48
TSH (µIU/ml)	0,012	0,35-4,94
FSH (µIU/ml)	0,86	1,1-13,9
LH (mIU/ml)	0,12	0,67-23,5
Total testosterone (ng/ml)	0,08	2,8-11
Prolactin (ng/ml)	2,84	2,58-18,12
GH (ng/ml)	0,17	0,06-5
IGF-1 (ng/ml)	86	94-358
ACTH (pg/ml)	5	0-46
Cortisol (µg/dl)	1	6-19

duration of therapy, it is recommended to continue combined therapy with isoniaside and rifampicin for at least nine months (2,5). Long-term chemotherapy could lead to resolution of the lesion and also reversal of the hypopituitarism. Our patient was already receiving anti-tuberculosis therapy for skin tuberculosis. Four-agent therapy was given for three months, and then a two-agent therapy with isoniaside and rifampicin was continued for an additional nine months. While this report was being prepared, the patient was at the eighth month of therapy. His pituitary lesion was totally resolved visually and his disease was following a stable course, but recovery of the endocrine functions has not yet been achieved.

In conclusion, although it is a rare condition and difficult to diagnose, pituitary tuberculosis should be considered in all non-functional sellar masses, especially in relatively small masses with unexpected hypopituitarism. Thickening of the stalk and leptomeningeal enhancement may be radiologic clues to the diagnosis of tuberculosis. Although most patients have no history of tuberculosis, this is the most critical evidence for diagnosis without surgery.

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