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Case Report

Spindle cell oncocytoma of adenohypophysis: Report of a case and immunohistochemical review of literature

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ABSTRACT

We present a case of spindle cell oncocytoma (SCO) of the adenohypophysis in a 70-year-old Vietnamese male. The patient was admitted to Cho Ray Hospital after suffering from headache and visual disturbance for 6 months. Clinicians detected a $60 \times 55 \times 45\ mm^3$ mass located in the suprasellar-sellar region. Histopathologically, the resected tumor was composed of spindle cells with oncocytic appearance. Immunohistochemical examination revealed expression of anti-mitochondria antibody (AMA), vimentin, thyroid transcription factor 1 (TTF-1), epithelial membrane antigen (EMA) and galectin-3. These histologic and immunohistochemical findings are suggestive of SCO.

1. Introduction

Spindle cell oncocytoma (SCO) was categorized as a separate entity tumor of anterior pituitary and recently included in the WHO 2007 classification of tumors of the Central Nervous System [9]. This extremely rare tumor was first described by Roncaroli et al. in 2002 [15]. To date, 24 cases have been reported [1,2,4–6,10,12–20]. SCO typically occurs in adults around 50–60 years of age. Despite its slow growth and benign histopathological features, several studies reported recurrence following both subtotal or gross total resection. SCO can resemble pituitary macroadenoma as regards clinical behavior and neuroimaging. Histopathologically, it is a great challenge to differentiate SCO from pituicytoma, which can only be confirmed by immunohistochemistry or ultrastructure examination. This rare tumor is composed of spindle cells containing numerous mitochondria and is typically immunoreactive for AMA, EMA, TTF-1 and galectin-3. We report the 25th case of SCO arising in a 70-year-old male. We compared our histopathological findings with those previously reported in the literature and made an immunohistochemical review of all 24 cases published previously. Typical immunohistochemical features can help distinguish SCO from other neoplasms arising in the sellar region.

2. Case report

This 70-year-old patient was admitted to Neurosurgery Department of Cho Ray Hospital, Vietnam with complaints of visual disturbance and headache in the last 6 months. Magnetic resonance imaging (MRI) revealed a $60 \times 55 \times 45\ mm^3$ sellar-suprasellar lesion with involvement of cavernous sinus and optic nerve compression (Fig. 1). Clinicians initially considered this non-functioning tumor a pituitary macroadenoma. Surgery using a transphenoidal approach was attempted to resect the tumor totally. The tumor was firm, and was grossly viewed as cartilage tissue. Intraoperative hemorrage was extensive. Therefore, only partial resection was performed. The patient was closely followed-up to detect tumor recurrence.

Histopathologically, the tumor contained short fascicles of plump spindle cells. The spindle cells were arranged in storiform and short fascicle pattern (Fig. 2A). Mitotic figures were absent. Scattered hemosiderin and adjacent normal pituitary tissues containing mostly acidophilic cells could be seen (Fig. 2B). No intratumor calcification or necrosis was detected. Immunohistochemistry staining showed diffuse immunoreaction with vimentin, TTF-1 (Fig. 2C), EMA (Fig. 2E) and galectin-3. Staining with S100 showed diffuse cytoplasmic staining and only focal nuclear

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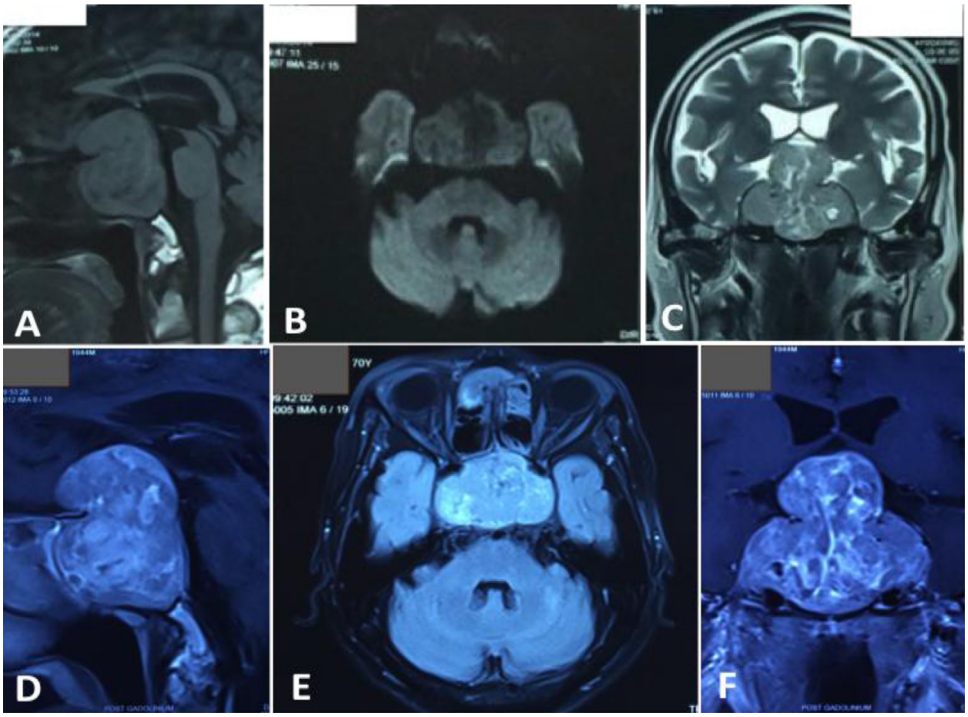

Fig. 1. (a and b) Magnetic resonance images (MRI) of the T1-weighted and (c) T2-weighted images without contrast revealed a huge sellar-suprasellar mass. (d, e and f) T1 post-contrast MRI demonstrated an enhancing $60 \times 55 \times 45\,mm^3$ mass.

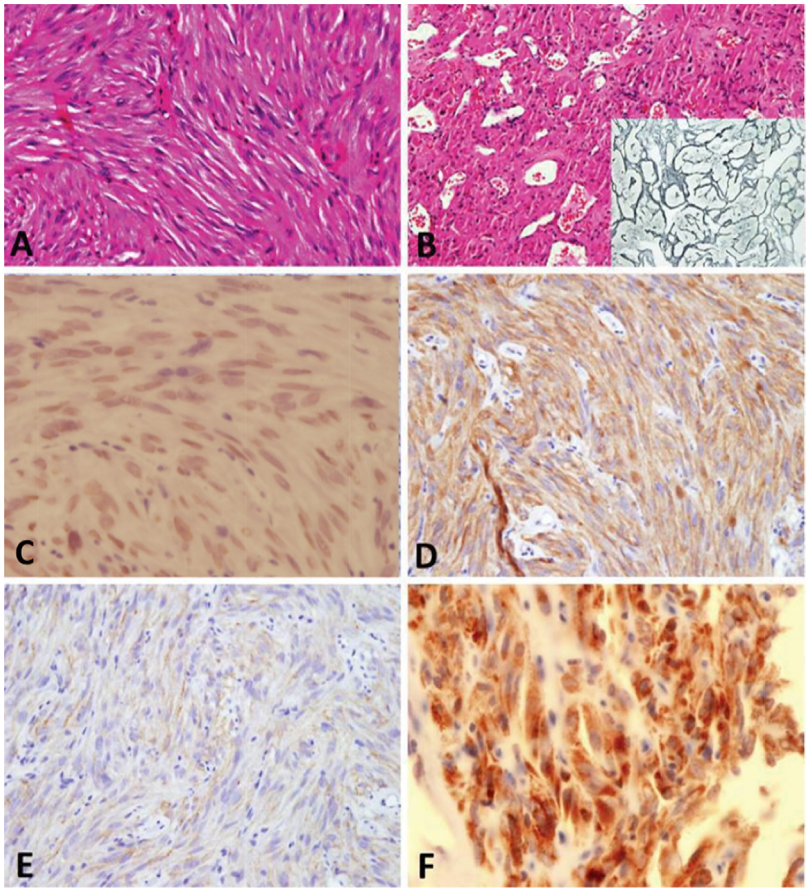

Fig. 2. The neoplastic cells showed plump spindle cells with open nuclei arranged in short fascicles (A) and adjacent normal pituitary tissues (B) confirmed by delicate reticulin network (B, inset). Immunohistochemistry staining showed strong immunoreactivity with thyroid transcription factor 1 (TTF-1) (C), epithelial membrane antigen (EMA) (E), vimentin (not shown) and focal nuclear positive with S100 (D). Typical granular cytoplasmic expression for anti-mitochondria antibody (AMA) staining (F).