Journal of Clinical Neuroscience 30 (2016) 170

Contents lists available at ScienceDirect

Journal of Clinical Neuroscience

journal homepage: www.elsevier.com/locate/jocn

Images in neuroscience: Answer

Suprasellar lesion: answer

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1. Answer

B. Spindle cell oncocytoma

2. Discussion

The MRI brain showed a 2 × 2.5 cm spherical, suprasellar mass arising from the infundibulum with elevation and compression of the optic chiasm. A right pterional craniotomy was performed, revealing a large tumour mass expanding the pituitary stalk. It was noted to be attached to the under surface of the chiasm. The tumour capsule was entered and a soft, vascular tumour was encountered. The pituitary stalk was cut at the superior surface of the pituitary gland and on the inferior surface of the chiasm. Frozen section confirmed a spindle cell tumour.

Less than thirty cases of spindle cell oncocytoma (SCO) have been reported in the literature since it was first described in 2002 [1,2,7]. In 2007, it was formally recognised as a new entity in the 4th edition of the World Health Organisation (WHO) classification of central nervous system tumours, hence it is a relatively poorly described pathology [2,3]. SCO is a rare sellar tumour and is thought to arise from the folliculostellate cells of the adenohypophysis [1]. The cellular origin has come under dispute recently when Mete et al. demonstrated a lack of thyroid transcription factor-1 (TTF-1) expression in the adenohypophysis and folliculostellate cells [4,5]. Other authors have suggested the cell of origin to be a neuron-like precursor cell, or that this tumour is in fact a variant of pituicytoma, arising from pituicytes in the neurohypophysis [1,4,5].

Patients typically present in adulthood with headaches, associated with features of panhypopituitarism or visual disturbance due to compression of the infundibulum or optic pathway respectively [6]. Features that suggest SCO on imaging include a sharply demarcated, solid tumour with contrast enhancement [6]. SCO are non-functional, comprising of spindle-shaped cells with rough endoplasmic reticulum, bunches of intermediate filaments and densely packed mitochondria (Fig. 1A) [4]. Immunohistochemistry shows strong nuclear staining in tumour cells of TTF1 (Fig. 1B) and patchy cytoplasmic staining for epithelial membrane antigen, vimentin and S-100 protein (Fig. 1C). In our patient the topoisomerase index was less than 1%. These tumours are histologically benign, WHO grade 1, however several cases of recurrence have been reported [6].

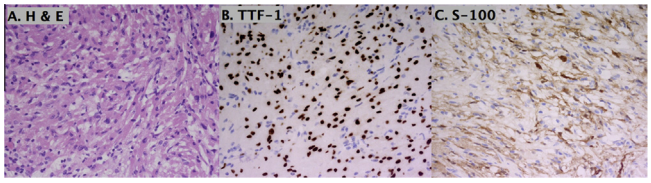

Fig. 1. Histopathology (×400). (A) Haematoxylin and eosin staining (H & E), (B) thyroid transcription factor-1 (TTF-1), (C) S-100 protein staining.

Treatment includes gross macroscopic resection, by a transsphenoidal or transcranial approach. Radiotherapy has been suggested for recurrent cases, however due to very small numbers it is unclear if these tumours are radiosensitive [5].

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DOI of question: http://dx.doi.org/10.1016/j.jocn.2016.02.029
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http://dx.doi.org/10.1016/j.jocn.2016.04.001