Human Pathology (2015) **46**, 1050–1056

ELSEVIER

Human PATHOLOGY

www.elsevier.com/locate/humpath

Case study

Unusual clear cell, lymphoplasmacyte-rich, dural-based tumor with divergent differentiation: a tricky case mimicking a meningioma

Clelia Miracco MD[a], Marzia Toscano PhD[a], Marie Aimée Gloria Munezero Butorano MD[a,*], Gennaro Baldino MD[a], Damiana Tacchini MD[a], Aurora Barone MD[a], Alfonso Cerase MD[b]

[a]*Department of Medicine, Surgery, and Neuroscience, Section of Pathological Anatomy, Policlinico Santa Maria alle Scotte, 53100 Siena, Italy*

[b]*Department of Medicine, Surgery, and Neuroscience, Unit NINT Neuroimaging and Neurointervention, Policlinico Santa Maria alle Scotte, 53100 Siena, Italy*

Received 8 December 2014; revised 27 February 2015; accepted 9 March 2015

Keywords:
Clear cell tumor;
Dural neoplasms;
Histology;
Immunohistochemistry;
Meningioma

Summary We describe an unusual case of a recurrent dural neoplasm, previously diagnosed as meningioma. Histopathologically, the tumor is characterized by aggregates of divergently differentiated clear cells embedded in an abundant lymphoplasmacyte-rich stroma, mimicking a lymphoplasmacyte-rich meningioma. This study focuses on the histologic and immunohistochemical characterization of a unique dural-based tumor and provides useful guidelines for differentiating meningioma from other uncommon dural-based neoplasms. We propose that this recurrent dural neoplasm is a distinctive entity and, therefore, enlarges the spectrum of dural-based neoplasms that enter the differential diagnosis with meningiomas. Awareness of this tumor entity could prove useful for appropriate patient management.

1. Introduction

Most primary meningeal neoplasms are meningiomas [1]. Of the morphological subtypes, "lymphoplasmacyte-rich (LP-R) meningioma" is very uncommon [1].

We report an unusual case of a dural-based neoplasm extensively constituted by divergently differentiated clear cells admixed with an abundant LP-R stroma that recurred after 5 years. Both the primary and recurrent tumor mimicked an LP-R meningioma, which is considered grade I according to the 2007 World Health Organization (WHO) classification of central nervous system (CNS) tumors [1].

However, LP-R meningiomas exhibit variable biologic behaviors, and in some cases, the defined neoplastic nature of this meningioma subtype has been questioned [2]. It is possible that several non-neoplastic/inflammatory conditions and nonmeningiomatous neoplasms have been misdiagnosed as LP-R meningioma [1,2].

Because of the complex immunophenotype of the present case, other less common dural-based tumors were considered in the differential diagnosis. The aim of this report is to draw attention to this peculiar tumor entity, the recognition of which can be challenging. For this case report, informed consent was obtained from the patient.

* Corresponding author. Sezione di Anatomia Patologica, Policlinico Santa Maria alle Scotte, Via delle Scotte 6, 53100 Siena, Italia.
E-mail address: gbutorano2@hotmail.com (M. A. G. M. Butorano).

http://dx.doi.org/10.1016/j.humpath.2015.03.006
0046-8177/

2. Materials and methods

2.1. Case report

A 48-year-old woman was referred to neurosurgery for a 3-month history of headaches, focal neurologic deficits, episodes of generalized tonic-clonic seizures, and paresthesia. Five years before her referral to neurosurgery, she presented with an extra-axial neoplasm of the left frontal convexity, which was partially removed and diagnosed as WHO 2007 grade I meningioma at another institution. Three months before the second surgical operation, follow-up magnetic resonance imaging confirmed growth of the tumor remnants, showing a 26 × 17 × 32-mm dural-based expansile lesion in the left frontal convexity. The lesion was composed of a central dense and solid component with homogeneous gadolinium enhancement and multiple peripheral polycystic components with marginal gadolinium enhancement (Fig. 1A; Supplementary Fig. 1). Restricted diffusion was not observed; however, vasogenic edema was present. The patient was admitted to our institution for further evaluation. Constitutional symptoms never presented, no systemic hematologic abnormalities were found, and routine imaging analyses for the staging of the disease were all negative. Computed tomography did not reveal calcifications or hyperostosis of the adjacent skull.

A gadolinium-enhanced magnetic resonance imaging for neuronavigation showed no changes in the previous intracranial findings. After obtaining informed consent, the patient underwent tumor resection with postoperative supportive care. The postoperative course was uneventful; no adjuvant therapy was administered.

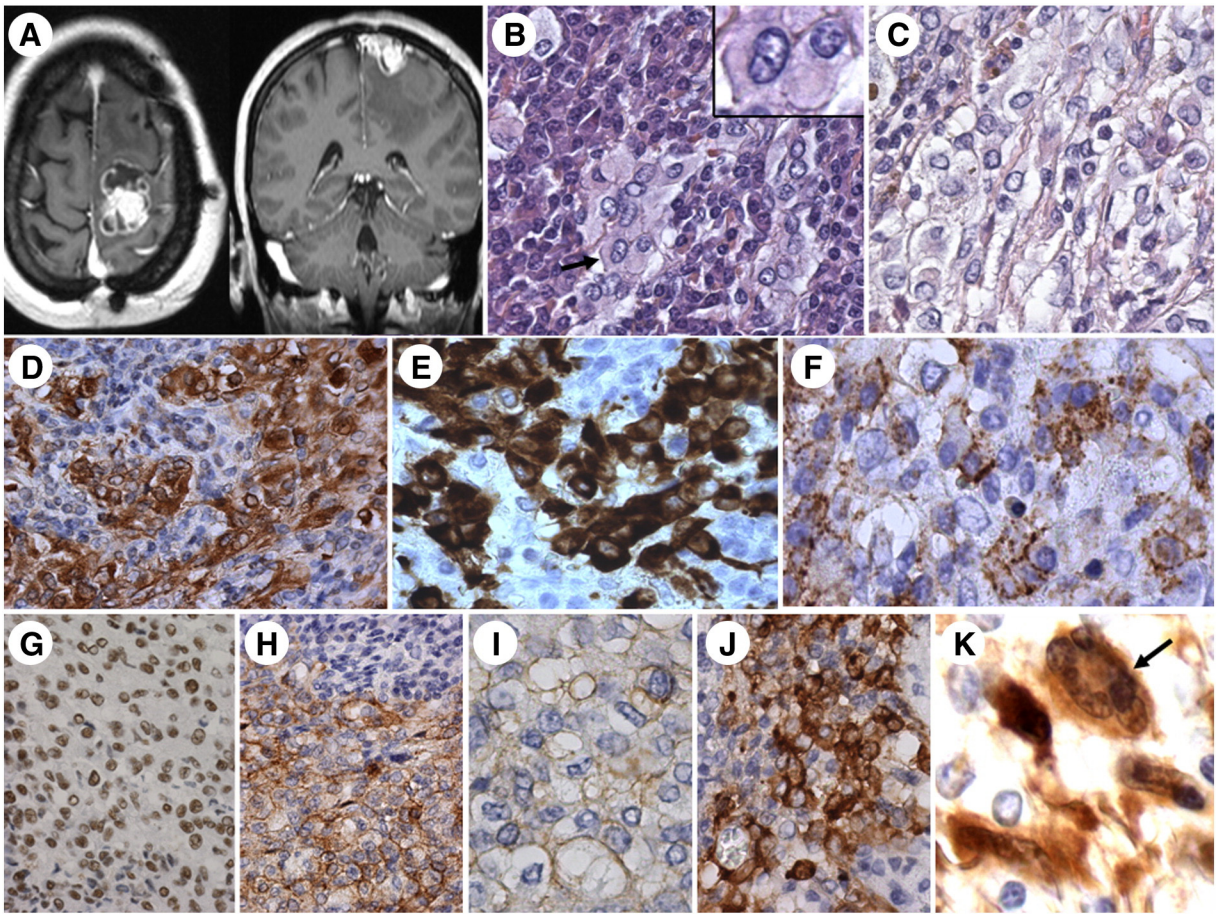

Fig. 1 Recurrent neoplasm, left frontal lobe: A, Gadolinium-enhanced T1-weighted axial and coronal images show solid and cystic components of the dural-based tumor. B, Small clusters of neoplastic cells showing rhabdoid morphology almost partially obscured by a dense plasma cell infiltrate (the arrow indicates tumor cells exhibiting rhabdoid-like features; a detail of 2 of these cells is shown in the inset). C, Tumor cells displaying well-defined cytoplasmic contours. Strong, diffuse cytoplasmic positivity for striated actin (D), desmin (E), CD56 (H), and synaptophysin (J); some cells show elongated cytoplasmic processes (E). F, Epithelial membrane antigen shows granular, membranous positivity. G, Tumor cell nuclei are positive for INI1. I, Membranous positivity for CD99 in several tumor cells. K, Nuclear and cytoplasmic positivity for S-100 protein; the arrow indicates a horseshoe-shaped giant cell, usually considered a diagnostic clue of CCSST. A, Magnetic resonance imaging of the brain; B-C, Hematoxylin and eosin. A, Original magnification ×200; B-K, ×400.