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Case report

Intraventricular meningioma with fatal haemorrhage: Clinical and autopsy findings

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Abstract

Only a few cases of intraventricular meningioma have been reported and the association with intracranial haemorrhage is even rarer. More than ever, autopsy findings are scarce. Here, we report a case of primary intraventricular meningioma with intraventricular haemorrhage in a 57-year-old woman. A CT scan of the head initially suggested a malignant brain tumour as the lesion was quite inhomogeneous with hyper- and hypodense sections accompanied by fresh haemorrhage. At autopsy, the tumour was histologically diagnosed as a fibroblastic meningioma WHO-Grade I. The source of haemorrhage was most likely the tumour itself as it contained focally rather large angiomatous and additionally small cavernous vessels and acute haemorrhage in various sections. The assumptive adherence of the tumour to the choroid plexus was probably disrupted by the haematoma.

Keywords: Brain neoplasm; Cerebral ventricle neoplasm; Hydrocephalus; Intracranial haemorrhage; Meningeal neoplasm; Meningioma apoplecticum

1. Introduction

Intraventricular tumours are rare. However, in adults the most common intraventricular tumour is a meningioma [1]. Of all meningioma only 0.5–3% occur in the cerebral ventricles [2,3]. The co-incidence of a lateral ventricular meningioma causing nontraumatic intraventricular haemorrhage is an exceedingly rare and often fatal event [4–8].

Here, a case of intraventricular meningioma with fatal intraventricular haemorrhage is presented. Detailed clinical features and autopsy findings are described.

2. Case report

A 57-year-old woman was found unconscious at home. There was no history or noticeable sign of head trauma. Her previous history was not contributory. She had no history of hypertension. On admission, she presented with Glasgow Coma Scale of 6. Both pupils were without reaction to light and the corneal reflex was obtainable only at her right eye. A CT scan of her head demonstrated a large inhomogeneous mass with hyper- and hypodense sections paramedian in the left lateral ventricle with midline shift to the right (Fig. 1A). The tumour was surrounded by a fresh intracerebral and intraventricular haematoma. The right frontal horn and the left occipital horn of the lateral ventricles were enlarged due to obstructive hydrocephalus. The serologic workup did not reveal any coagulopathy. Despite insertion of bilateral ventricular drains the patient's condition continued to deteriorate due to uncontrollable increased intracranial pressure. The

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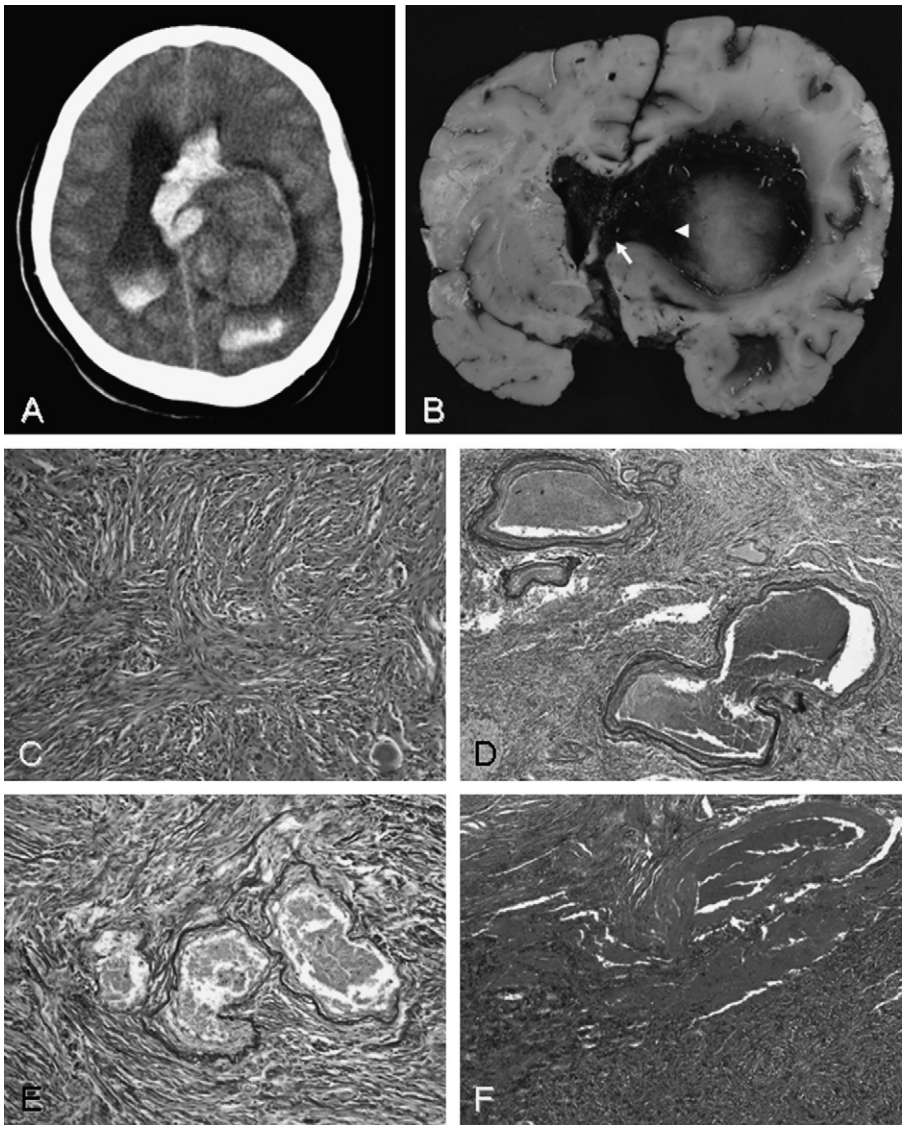

Fig. 1. (A) Imaging study of the intraventricular meningioma. An axial CT image revealing a large inhomogeneous mass the left lateral ventricle surrounded by heterogeneous hyperdensity. The lesion obstructed the outlets of both lateral ventricles and caused biventricular hydrocephalus. (B) Photograph of coronal slice of formalin fixed brain. The tumour is located rather lateral and acute haemorrhage (arrow head) seems to separate the tumour from the choroid plexus (arrow). (C) Histological section of the tumour showing typical fibroblastic composition. Haematoxylin and eosin stain (100×). (D) Focal angiomatous blood vessels in the tumour. Elastica van Gieson stain (40×). (E) Focal cavernous blood vessels in the tumour. Elastica van Gieson stain (100×). (F) Foci of fresh intratumoural haemorrhage with neighbouring large vessel. Haematoxylin and eosin stain, (40×).

2nd day after admission she was pronounced brain dead by neurological examination and electroencephalogram.

After authorization an autopsy was performed. Examination of the brain revealed diffuse gyral flattening consistent with cerebral oedema. Brainstem structures were softened. Inspection of the cerebellum revealed tonsillar herniation. Serial coronal sections through the cerebral hemispheres revealed dusky discoloration of the cortical ribbon accompanied by blurring of the junction of the cortex and subjacent white matter. The entire ventricular system was filled with blood. The tumour in the left lateral ventricle was measuring 4 cm in diameter. It was gray and solid with hypervascularity at its periphery and demonstrated several small intratumoural haemorrhages (Fig. 1B). The cerebral parenchyma surrounding the hemorrhagic mass was friable. The tumour was separated from the choroid plexus by acute haemorrhage. Representative sections were processed in paraffin for histological examination and stained with haematoxylin and eosin. Selected sections of the tumour were also stained with van Gieson stain and immunohistochemically for vimentin, epithelial membrane antigen (EMA), and Ki-67 to assess the proliferation index.

Microscopical sections of the haemorrhagic mass revealed typical elongated fibroblastic cells with fibrillary cytoplasm (Fig. 1C). Whorled growth pattern was not observed. Focally, the tumour contained atypical rather large vessels (Fig. 1D)