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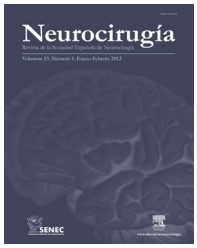

Case Report

Chiasmal haemorrhage secondary to glioma with unusual MRI appearance

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ABSTRACT

Objective: To report a unique case of haemorrhagic presentation of a chiasmal and optic tract glioma (OPG) appearing as an extra-axial lesion on MRI scans.
Case report: A 30-year-old female with a preoperative radiological diagnosis of dermoid cyst was operated. No lesion was found in the chiasmal or carotid cisterns within the operative field. The right posterolateral corner of the chiasma and the beginning of the right optic tract appeared swollen. The area was incised and a haemorrhagic fluid poured through the opening. Several samples were taken and the pathological diagnosis was of pilocytic glioma.
Conclusions: We present a unique case of chiasmal bleeding into the optic pathway secondary to an optic glioma which radiologically mimicked an intracisternal cyst. In similar cases, rapid clinical evolution of the symptoms may be vital for the differential diagnosis. Surgery is warranted to prevent permanent damage to the visual pathway.

Hemorragia quiasmática secundaria a glioma con apariencia inusual en RM

Palabras clave:
Apoplegía optoquiasmática
Glioma
Hemorragia
Quiste dermoide

RESUMEN

Objetivo: Reportamos un caso de presentación hemorrágica de un astrocitoma pilocítico quiasmático (APQ) que aparentaba una masa extraaxial en RM.
Caso clínico: Mujer de 30 años que fue intervenida con diagnóstico preoperatorio de quiste dermoide pero que, en el campo quirúrgico, no se encontró lesión alguna en las cisternas quiasmática ni carotídea. A nivel del borde posterolateral del quiasma se apreciaba una zona enrojecida y abombada que, tras su incisión, demostró la presencia de hemorragia quiasmática. Las muestras tomadas en esta zona fueron diagnosticadas anatomopatológicamente de astrocitoma pilocítico.

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Conclusiones: Presentamos un caso excepcional de sangrado quiasmático de un APQ que imita radiológicamente una lesión extraaxial. En casos similares, la rápida evolución clínica puede ser la clave para el diagnóstico deferencial. La cirugía está justificada a fin de evitar daños visuales permanentes.

Objective

Optic pathway gliomas (OPGs) are neoplasms derived from the fibrillary astrocytes, which are located from the ganglion cells of the retina to the occipital visual cortex.[1,2] They can arise in any part of the optic pathway. Chiasmatic OPGs are tumours affecting mostly the chiasm, with or without anterior or posterior extension along the optic nerves or the optic tracts, respectively.[2–4] Haemorrhagic apoplexy is a very rare presentation of OPCs.[5–7] Typical MRI imaging findings include the appearance of an iso to hypointense lesion on T1-weighted images, with hyperintensity seen on T2-weighted sequences and homogeneous enhancement after Gd administration.[1,2]

We present a unique case of haemorrhagic presentation of a chiasmal and optic tract OPG appearing like an extraaxial lesion on MRI.

Case

A previously healthy 30-years-old woman experienced headache and nausea, associated with blurred vision. She arrived to our department five days later because of worsening of her visual acuity. Neurological examination showed left hemianopsia and blurred vision in all fields. On MRI, an extraaxial lesion that seemed located from the right supraclinod region to the choroidal fissure was shown (Fig. 1). The preoperative radiological diagnosis was dermoid cyst, although there was also some concern about the possibility of a bleeding lesion like a cavernoma.

The patient was surgically treated two days later through a pterional craniotomy with silvian fissure dissection. No lesion was found in the chiasmal or carotid cisterns. However, the right posterolateral corner of the chiasm and the beginning of the right optic tract appeared swollen and slightly reddish (Fig. 2). This pathologic area was incised giving rise to haemorrhagic fluid through the opening. Several intraoperative tissue samples were taken and, with the intraoperative pathological diagnosis of glioma, the intervention was finished. The posterior haematoxylin & eosin study of the samples showed histopathological findings of a pylocitic astrocytoma (Fig. 3).

The postoperative course was uneventful and the patient noticed improvement in her visual acuity immediately after the operation. The ophthalmological examination showed left superior deficit in the visual field with the rest of the visual acuity preserved. Neither Lysch nodules nor cutaneous stigmata were found.

Six months later, no lesion was observed on control MRI and the ophthalmological examination had slightly improved.

Discussion

This case represents a very unusual MRI presentation of an OPG in a patient without neurofibromatosis stigmata, consisting on intratumoral bleeding. Our presurgical diagnosis was dermoid cyst because of the MRI appearance of a well-defined non-enhanced “pearly” mass hyperintense on T1-weighted images located in the midline region without enhancement on contrast-enhanced images.[8] The differential diagnosis of intracranial lesions with high signal intensity on T1-weighted MRI includes those containing metahaemoglobin, melanin, lipids, proteins and minerals.[9] However, the assumption of its intracisternal location was the main cause of our misdiagnosis. This mistake could be explained by the anatomic relationships between the midline cisterns and the chiasmatic and postchiasmal visual pathways.[10] The chiasmatic cistern contains the optic nerves and chiasm and opens into the subarachnoid space surrounding the optic nerves in the optic canals. The crural cistern is situated between the cerebral peduncle and the posterior part of the uncus. The medial wall of the crural cistern is formed by the anterolateral surface of the cerebral peduncle, the lateral wall by the posterior segment of the uncus, and the superior wall by the optic tract. Therefore, there exists a close relationship between the optic pathways and the cisterns in which the location of the lesion was presurgically suspected.

A clinical data that should not have been underestimated was the rapid evolution of the symptoms in our case. Whereas visual field defects due to chiasmal compression from a tumour usually progress slowly, an acute syndrome is usually due to ischaemic, haemorrhagic or demyelinating disease.[11] The term “Chiasmal apoplexy” is essentially used to describe cases of haemorrhage in the chiasm itself and is typically of sudden onset. In this regard, bleeding of OPGs is extremely uncommon.[5–7] Most cases reported in the literature are secondary to vascular malformations.[11–14] Surgical evacuation of the haematoma with resection of the causal lesion is the recommended treatment by most authors.