Case Report

FLUID-FLUID LEVEL WITHIN THE EPENDYMOMA OF THE POSTERIOR FOSSA

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ABSTRACT

We report an unusual case of an ependymoma of the posterior fossa which has an unusual location and radiological findings. MR imaging showed a mixed signal intensity containing mass centered over cerebellopontine angle cistern containing multiple cystic components with fluid-fluid levels as a result of intratumoral hemorrhage.

Key Words: Ependymoma, Intratumoral hemorrhage, Fluid-fluid level

Ependymomas represent from 2% to 8% of all primary intracranial brain tumors. They constitute 15% posterior fossa neoplasms in childhood and are the third most common pediatric brain tumor (1). The peak age range is 1 to 5 years but there is a second smaller peak in the mid-30s. Approximately 60% of intracranial ependymomas are located in the posterior fossa, and 40% are found above the tentorium. Ninety percent of infratentorial ependymomas occur in the fourth ventricle (2). We present an unusual case of posterior fossa ependymoma centered over the cerebellopontine angle (CPA) cistern with atypical imaging findings.

CASE

A 37-year-old man presented with complaints of headaches, vertigo, falls, vomiting and facial pain in the distribution of the first division of the trigeminal nerve. On neurological examination, the positive findings were mild facial paresis and gait ataxia. Audiometry revealed mild hearing loss in the right ear. Cranial MR imaging showed a nonhomogenously faint enhancing CPA mass with mutiple cystic components that contained fluid-fluid levels as a result of hemorrhage (Figs 1, 2, 3). The mass centred over the right CPA with extension into the prepontine cistern and towards the right cavernous sinus resulting in compression of the right cerebellar pedincle, fourth ventricle and pons, with a small component entering the meatus acoustics internus. A small component of the mass was also present in the right foramina Luschca and lateral recess of the fourth ventricle. Since the bulk of the mass was seen in the CPA, it was

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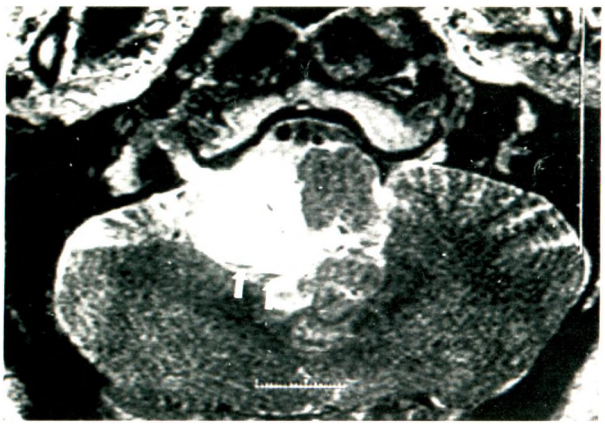

Fig.1 : Axial FSE T2W (TR/TE: 3000/90 msec, ET: 16) image. The mass contains cysts with fluid-fluid level (arrows). A small part of fluid-fluid level containing mass is seen in the right foramina Luschca and lateral recess of the fourth ventricle. There is minimal displacement of the medulla to the right and compression of the fourth ventricle.

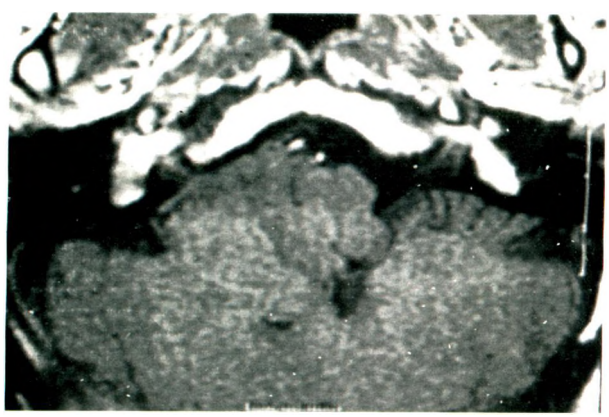

Fig.2 : Axial non-enhanced SE T1W (TR/TE: 440/10 msec) image. The lesion is seen as heterogeneously hypointense.

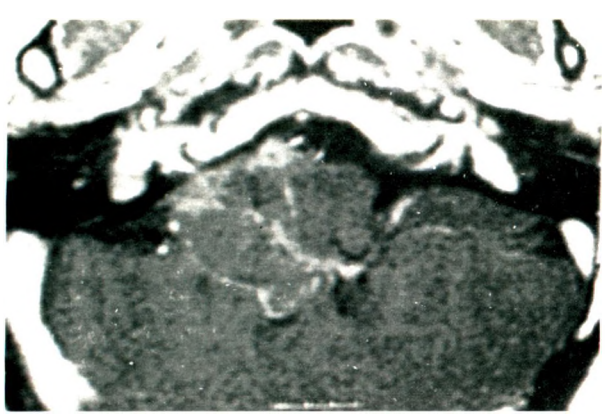

Fig.3 : Axial contrast enhanced SE T1W (TR/TE: 440/11 msec) image. The mass shows heterogeneous and faint enhancement.

thought that the mass was a CPA mass. Fifth cranial nerve could not be identified within the mass. The cysts showed faint rim enhancement. There was moderate ventriculomegaly. CT imaging showed no calcification in the mass or bony changes in the posterior fossa. The preoperative differential diagnoses were epidermoid tumor and cystic neurinoma.

The patient underwent total removal via the right transtentorial approach. Histopathologic diagnosis was low-grade ependymoma based on combined histomorphological and immunohistochemical findings.

Postoperatively the patient did well and was discharged from the hospital on the sixth postoperative day.

DISCUSSION

The ependymoma is a thin layer of ciliated or columnar epithelium that lines the ventricular walls and central canal of the spinal cord (3). Ependymomas are slow-growing lobulated neoplasms that arise from ependymal cells. Although ependymomas most frequently occur in intraventricular or intraspinal locations, they have also been reported in a variety of soft tissue locations including lung, mediastinum, ovary, and subcutaneous tissues (4-8). The most common site for ependymomas is the roof, floor or lateral medullary velum of the fourth ventricle (9, 10).

Ependymomas frequently grow out of the fourth ventricle and into surrounding cistens and foramina. Approximately 15% extend into the CPA through the foramine Luschca, and up to 60% grow through the foramina Magendie into the citerna magna, through the foramen magnum, and into the cervical spinal canal (11). Occasionally, ependymomas of the CPS can arise without evidence of tumor within the ventricle or lateral recess. The occurrence of extra-axial, extraventricular intracranial ependymomas is unusual. A few cases of intracranial extra-axial ependymomas have been reported (12-17). Most of those are supratentorial cases (13, 14, 16). There are a few reported extra-axial ependymoma cases of the posterior fossa (12, 15, 17). Extraventricular and extra-axial ependymomas are believed to originate

from glial rests deposited in the subarachnoid space or meninges during embryological development (12, 13).

In our case, imaging studies and intraoperative observation clearly established that the mass was centred over the CPA cistern. It was hard to tell that the mass originated from the fourth ventricle and extended into the CPA. The uniqueness of our case is that the mass had multiple cystic components that contained fluid-fluid levels probably as a result of hemorrhage. These radiological findings are seen very rarely in ependymomas. In review of the literature, there is no illustrated case of fluid-fluid levels in ependymomas.

As a conclusion, ependymomas should also be included in the differential diagnosis of the fluid-fluid levels containing multicystic masses of the CPA of the posterior fossa as an uncommon cause.

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