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Peritumoral cystic meningioma

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CASE REPORT

PERITUMORAL CYSTIC MENINGIOMA

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ABSTRACT

A case of 39 years old male is described who presented with headache, right-sided focal fits and decreased power in the right hand. CT scan brain showed a left fronto-parietal cystic lesion with centrolateral intramural nodule with homogenous enhancement. At surgery, the extra-axial lesion with cyst containing xanthochromic fluid had a well-defined capsule that could easily be separated from the peri-lesional cortical surface. The dural-based nodule with its cyst wall was resected in toto. The histopathology of mural nodule was reported as meningioma while the cyst wall histology revealed meningothelial cells.

KEY WORDS: *Cystic meningioma. CT scan. extra-axial. Cystic tumors. Peritumoral cyst.*

INTRODUCTION

The cystic meningiomas are uncommon tumors with an incidence of 1.6-7%. They may be associated with either intratumoral or peri-tumoral cyst formation.[1,2,3] These are easily confused with metastatic tumors, glial tumors with cystic or necrotic change, a haemangioblastoma or a neuroblastoma.[1] Controversy exists regarding the pathogenesis of the cyst, whether extrinsic to tumor mass (peritumoral cyst) or part of the meningioma itself (intratumoral cysts).[2-6] We are describing a case of a peritumoral cystic meningioma with its unusual CT scan appearance correlating with operative and histopathological findings.

CASE REPORT

A 39 years old male was admitted with complaints of headache, right-sided focal fits and weakness of the right hand for the last 6 months. On examination, he only had weakness of the right hand grip with no papilloedema or other neurological features. CT scan brain showed a 5cm x 5cm left fronto-parietal cystic lesion with a 2 cm centrolateral intratumoral nodule that was hyperdense on plain CT scan (Figure 1). The intramural nodule showed marked enhancement on contrast administration (Figure 2). A diagnosis of pilocytic astrocytoma was made. At surgery, the lesion was found to be extra-axial. The cyst contained xanthochromic fluid and was lined by a distinct, well-defined capsule, which could easily be separated from the peri-lesional pial surface of the cerebral cortex. The intramural nodule was grayish in color and attached to the dura. En bloc resection of the cyst wall with dural-based nodule was performed. Separate histopathological examination of the nodule and the cyst wall was done. The histology of the nodule was consistent with meningioma. The examination of the cyst wall revealed neoplastic meningothelial cells in the wall as well. Postoperatively, there was a complete recovery of weakness in the right hand grip and the fits were controlled on anti-epileptic medication. A contrast enhanced CT scan (Figure 3), performed after the operation, showed complete resection of the lesion .

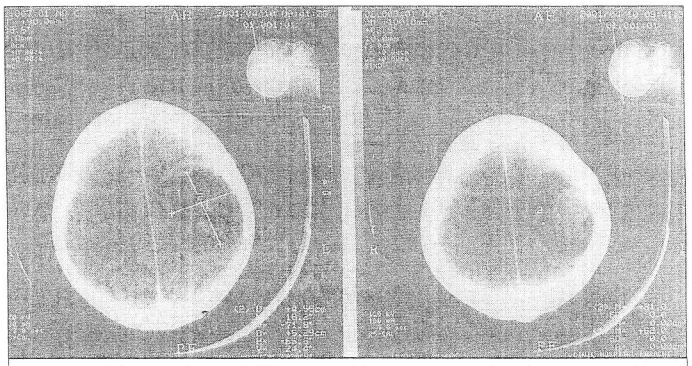

Figure-1. Axial sections of CT scan without contrast showing a centrolateral hyperdense nodule close to the convexity with circumferential hypodense cyst

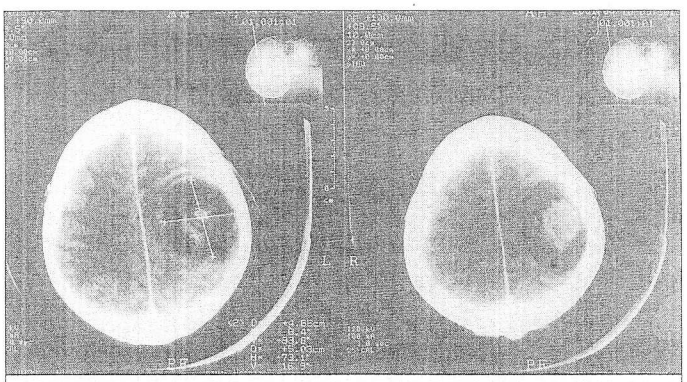

Figure-2: Contrast-enhanced study showing homogenous bright enhancement of the intramural nodule with minimal peripheral ring enhancement around the cyst as well.

DISCUSSION

Penfield[7] was the first to describe cyst formation in a meningioma secondary to central degeneration. Cushing[1] described primary formation of a cyst and de novo appearance of nodule within the cyst. The most frequent location of cystic meningiomas is on the cerebral convexity with parasagittal location, the next commonest site.[2,3,5,8] The clinical presenta-

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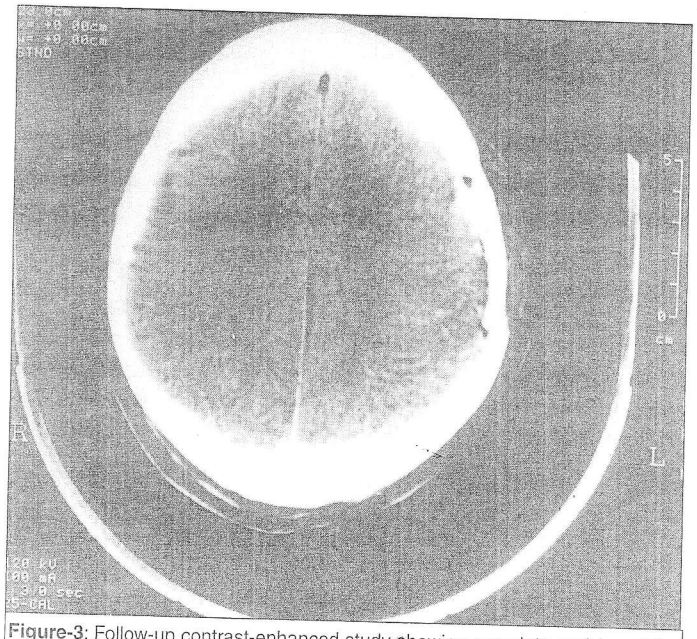

Figure-3: Follow-up contrast-enhanced study showing complete excision of the cystic lesion with complete resolution of mass effect.

tion and radiological appearance of the lesion are difficult to be distinguished from pilocytic astrocytomas, cystic metastases, supratentorial haemangioblastomas and neuroblastoma.[2] As against some of these lesions like cystic metastases and pilocytic astrocytomas where a subtotal resection may be complemented by adjuvant therapy, a complete surgical excision is the optimal method of treating meningiomas. Hence, it is important to have an accurate pre-operative diagnosis in order to plan complete resection. Unfortunately, despite recent advances in imaging, the differential diagnostic dilemma between the cystic meningioma and other intracranial tumors has not been resolved.[6] Although 56% diagnostic accuracy of CT scan is reported,[9] the introduction of MRI has made pre-operative diagnosis simpler. In this case too, in retrospect, the CT scan findings were also suggestive of a meningioma. For instance, plain CT scan showed a slightly hyperdense nodular lesion (Hounsfield value is +62) with surrounding.hypodensity (Hounsfield value is +31). On contrast study, the dural-based nodule enhanced brightly with minimal enhancement of the cyst wall. The typical location, broad surface contact with dura and high attenuation on plain CT scan with contrast enhancement were all suggestive of this lesion being a meningioma.

Two morphological types of tumor cysts are described intratumoral and peritumoral. It is said that the extra-tumoral cyst walls consist of brain parenchymal with glial cell proliferation only and is not part of mass lesion itself.[7] The cyst consists of either locally entrapped CSF or xanthochromic fluid acting as an interface between the nodule and the adjacent brain, implying that the cyst is extrinsic to the tumor mass.[10] In our case the peroperative findings included the well-defined encapsulated cyst and its wall was merging with the dural-based nodule. The separate histopathology of the circumferential cyst wall showed neoplastic meningothelial cells, emphasizing that the cyst wall also had the same histology as that of the intramural nodule and it was a part of the tumor.

Conclusion

The unusual appearance of cystic meningioma should be kept in mind while considering the differential diagnosis of cystic brain lesions, as en bloc surgical resection of these tumors along with its neoplastic cyst wall is essential in order to avoid recurrences.

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