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Quadrigeminal cistern lipoma

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Introduction

Intracranial lipomas are rare slow growing benign lesions, commonly involve the corpus callosum, quadrigeminal/superior cerebellar cistern, suprasellar/interpeduncular cistern, cerebellopontine angle cistern and sylvian cistern and account for 0.1-0.5% of all primary brain tumors. (1-5) A 30 year female presented with headache of one and half year duration. There was no history of fever, vomiting, loss of consciousness or focal deficits. She was not a known diabetic or hypertensive. Here general and systemic examination was normal. Higher mental functions and cranial nerves were normal. Fundus examination was normal. There were no motor or sensory deficits. In view of persistent headache a CT scan of the brain was performed 6 months back. It showed a hypodense non-enhancing lesion in the region of right quadrigeminal cistern without any mass effect (Figure 1). To further confirm the diagnosis and growth of the lesion an MRI of the brain was performed. It showed a well-defined lesion in the region of right quadrigeminal cistern brightly hyperintense lesion of T1W images, mildly hyperintense on T2W images, hyperintense on FLAIR images, hypointense on fat suppression sequences

and hypointense on fat suppression sequences (Figures 1 and 2). There was no evidence of mass effect on surrounding structures. All these findings were suggestive of quadrigeminal cistern lipoma. The patient responded well to counseling and mild analgesics.

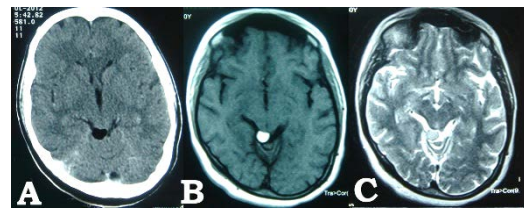


Figure 1 - (A) CT scan of the brain showing a hypodense non-enhancing lesion in the region of right quadrigeminal cistern without any mass effect, (B) MRI brain showing a well-defined lesion in the region of right quadrigeminal cistern brightly hyperintense lesion of T1W images and (C) mildly hyperintense on T2W images

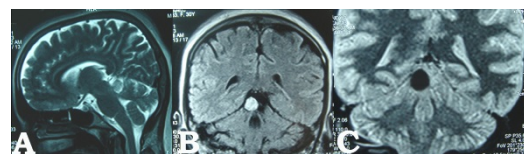


Figure 2 - (A) On MRI sagittal T2W image the lesion is mildly hyperintense, (B) hyperintense on FLAIR coronal image and (C) hypointense on fat suppression sequences

Lipoma in the quadrigeminal region has been addressed with many names including lipoma in the quadrigeminal cistern, the quadrigeminal plate, the ambient cistern, the superior vermis, or the superior medullary velum. (6, 7) These lesions are rare and have been described in children and young adults. 8 Most of the time quadrigeminal cistern lipoma are asymptomatic (3, 4, 6, 9) but it has been reported that in about 20% of patients, lipomas of the quadrigeminal plate/ambient cistern produce symptoms. (2) Because of the mass effect, some patients may present with pressure symptoms (obstructive hydrocephalus or raised intracranial pressure) and neurological deficits. (1, 10) As was seen in present case, it can be an incidental finding in patients who have been investigated for headache (although may not be responsible for the headache). (3) Characteristic and definitive radiological findings have been described for quadrigeminal cistern lipoma hence histological confirmation is almost never required. (3, 5, 6, 10) As in present case, on CT scan the quadrigeminal cistern lipoma is characterized by non-enhancing hypodense lesions with attenuation values of fat density (-50 to -100 Hounsfield units). (5, 11, 12) MRI will provide greater details and on MRI these lesions has short T1 and T2 and are hyperintense T1-weighted images and a relatively low to moderately hyperintense on T2-weighted images. (5, 10) The lesion was moderately hyperintense of FLAIR images and hypointense on fat suppression sequence in the present case confirming the diagnosis of a lipoma. Although imaging findings can help to narrow the diagnosis but from a theoretical

point of view, there are many pathologies which can present in quadrigeminal cistern region on imaging. (6) These lesions needs to be differentiated with other lesions of quadrigeminal cistern region including arachnoid cysts, tectal plate cyst, tectal gliomas, abscess, dermoid and epidermoid cysts, and rarely pineal region tumors. (3, 10) As in present case, asymptomatic lesions which are identified on neuroimaging may not need any surgical intervention except reassurance and management of the headache. (4-6, 13) However, if there are features of mass effect than the patient may need decompression of the lesion and or CSF diversion procedure i.e. ventriculo-peritoneal shunt. (3, 6, 10)

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