

MR Appearance of Interpeduncular Lipoma

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ABSTRACT

Interpeduncular lipoma (IPL) is a very rare benign intracranial lesion. Non-invasive diagnosis of this condition is important, as these lesions are usually asymptomatic and are found incidentally. We describe a rare case of IPL in a 35-year-old woman presenting with headache of long duration and a recent increase in severity and frequency of headache. There was no neurological abnormality on clinical examination. MR imaging demonstrated a homogeneous lobulated T1-hyperintense and T2-hypointense lesion in interpeduncular fossa. A T1-weighted fat suppression sequence with chemical shift method confirmed the fatty nature of the lesion. The patient was managed conservatively.

Keywords: Interpeduncular lipoma, MRI

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INTRODUCTION

Intracranial lipomas (ICLs) are very rare, benign lesions of the central nervous system. ICLs account for less than 0.5% of all intracranial mass lesions⁽¹⁾. Patients with intracranial lipomas usually present with symptoms attributable to co-existing conditions^(2,3) and rarely with neurological symptoms like epilepsy, headache, obesity, tinnitus and behavioral changes⁽¹⁻⁵⁾. Surgical excision of ICL can result in morbidity and the presenting symptoms are often not relieved^(1,3,4). A non-invasive diagnosis of this benign condition is therefore important to prevent surgical intervention. We report a case of interpeduncular lipoma diagnosed by magnetic resonance imaging and managed conservatively.

CASE REPORT

A 35-year-old woman presented with history of intermittent headache of 15 years' duration. She noticed an increasing severity and frequency of the headache over the last two months. Her headache was treated by analgesics. Her past medical history revealed that she was hypothyroid and was maintained

on L-thyroxine. On clinical examination, she had no neurological abnormality or cranial nerve palsy.

MR examination revealed a small (9 mm x 6 mm) lobulated lesion in the interpeduncular fossa more on the right side. The lesion appeared homogeneously-hyperintense on T1-weighted (Fig. 1a) and proton density images, and hypointense on T2-weighted images (Fig. 1b). The adjacent right crus of the midbrain appeared flattened. No vessel or nerve was demonstrated to course through the lesion. No other intracranial lesion was detected. A T1-weighted chemical shift based fat suppression sequence was obtained in the sagittal plane (Fig 2a, b). The sequence demonstrated suppression of the signal from the lesion confirming the fatty nature of the lesion. The lipoma was considered as an incidental finding and therefore surgical intervention was not considered. Patient was conservatively managed with analgesics and has been on follow up for the last two years.

DISCUSSION

Intracranial lipomas are usually found in the midline, and are associated with midline malformations of the central nervous system (CNS)^(1-3,5). ICLs are most commonly found in the corpus callosum. Other sites are the quadrigeminal cistern, ambient cistern, cerebellopontine angle, chiasmatic cistern, medulla, pons, choroid plexus, brain convexities, Sylvain fissure and interpeduncular fossa⁽¹⁻⁵⁾.

Intracranial lipomas are considered as congenital malformations as they are frequently associated with maldevelopment of the CNS^(1-3,5). Many theories have been described to explain the presence of lipomas in the central nervous system. The theory of abnormal persistence and maldifferentiation of the meninx primitiva during the development of the subarachnoid cisterns into adipose tissue and maturation into a lipoma instead of regressing into a subarachnoid space is widely accepted⁽⁵⁾. This theory explains the cisternal location of lipomas and the intralesional location of blood vessels and cranial nerves^(2,5). The incidence of ICL is not related to age or sex⁽²⁻⁵⁾. These

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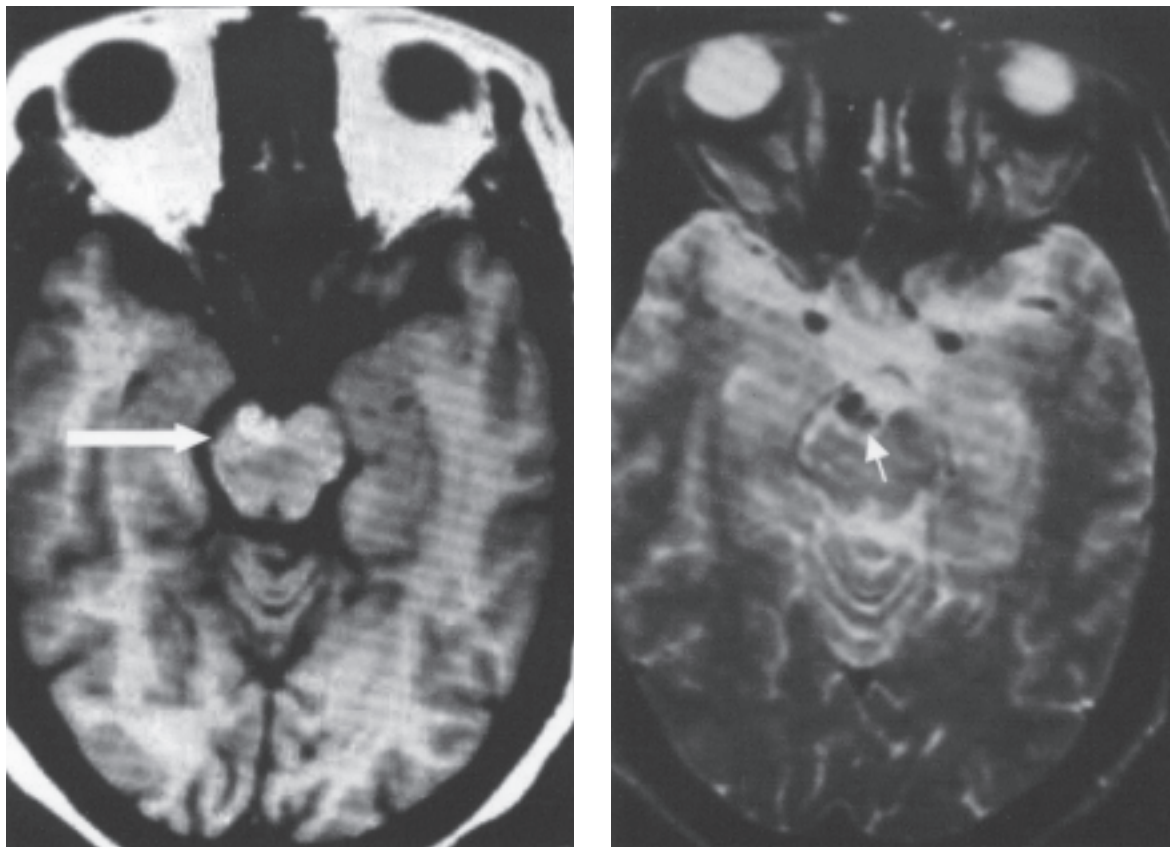


Fig 1 (a) T1-weighted axial image taken at the level of midbrain shows a hyperintense lobulated area in the interpeduncular fossa. Note the flattened right crus of the midbrain (large arrow). (b) The lesion is hypointense (small arrow) on the T2-weighted axial image.



Fig. 2 Sagittal T1-weighted images taken (a) without and (b) after fat suppression show a lobulated hyperintense lesion, which becomes hypointense (arrow) on the fat suppression image.

lesions grow very slowly and rarely cause symptoms. Epilepsy is the most common symptom associated with ICLs. Rarely, they cause hydrocephalus due to obstruction of cerebrospinal fluid pathways or by mass effect. In such cases, debulking of the lesion relieves the symptoms⁽³⁾.

About 202 cases of intracranial lipomas have been reported in literature with only four cases of interpeduncular lipoma^(2,4-7). MR demonstration has been reported in only one case⁽²⁾. Three of these cases were incidentally detected on imaging and the fourth case was a large ossified mass causing neurological

symptoms, which was successfully completely excised with no neurological complications⁽⁶⁾. The MR appearances of this lesion using fat suppression sequences have not been previously reported in literature. On MR imaging lipoma have short T1 and T2 relaxation times, and therefore appear hyperintense on T1-weighted images and hypointense on T2-weighted images. On fast spin echo sequences, fat may appear isointense or hyperintense on T2-weighted images⁽⁸⁾. ICLs do not show any enhancement following contrast administration. Other lesions that may appear similar are subacute haematoma,

haemorrhagic metastases, and melanoma metastases, dermoid and epidermoid. Blood flow in vessels may also appear hyperintense on T1-weighted images. These can be easily differentiated with the help of fat suppression sequences. The hyperintense signal of fat in T1-weighted images can be suppressed by short tau inversion recovery (STIR) and chemical shift MR imaging sequences⁽⁸⁾. Both MR sequences suppress signal from fat containing tissues and lesions, and thereby confirm the nature of these lesions.

Majority of the ICLs are small and rarely cause life-threatening symptoms. As they are benign lesions, surgical excision is rarely indicated. Clinical correlation with the site of the lesion and symptoms is necessary. MR demonstration of the nature of lesion helps in deciding the management of the case.

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