CASE REPORT

Cervicothoracic Intradural Lipoma: Features on Magnetic Resonance Imaging

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ABSTRACT

Intraspinal intradural lipomas are rare congenital tumours. This case report describes a patient with an intramedullary cervicothoracic lipoma, demonstrated on magnetic resonance imaging and treated by subtotal resection and laminectomy. The clinical and pathological features of the case are discussed.

Key Words: Lipoma, Magnetic resonance imaging, Spine

INTRODUCTION

Intraspinal lipomas are rare congenital tumours, with up to 99% of cases associated with spina bifida.1 The onset of symptoms is often gradual. Patients usually present several years after the onset of symptoms or following acute deterioration. Early diagnosis through MRI or CT scanning is vital as the prognosis of the condition is improved with early surgical intervention.

CASE REPORT

A 59-year-old woman presented for investigation with symptoms of a progressive decrease in power of both lower limbs and incontinence of urine. The patient had a history of right lower limb paraesthesia during pregnancy 30 years previously, which improved spontaneously. Physical examination revealed a decrease in power (grade 4 over 5) in both lower limbs, as well as a decrease in sensation from the level of T6 downwards.

MRI of the cervical and thoracic spine showed an intraspinal intradural lesion arising from the dorsal aspect of the cord, extending from C7 to T6. The lesion was hyperintense on both long and short repetition time/time to echo (TR/TE) sequence studies (Figures 1a and 1b). The cord was significantly compressed and displaced anteriorly (Figure 2). An intramedullary component of the lesion was noted. The lipomatous nature of the lesion was confirmed by total signal suppression on the fat suppression sequence (Figure 3). There was no associated spinal dysraphism. The patient underwent laminectomy and subtotal excision of the lipoma. Histological examination of the specimen indicated the lesion was uniform mature fatty tissue, with some fibrous tissue. Review of the patient one year post-surgery showed no significant improvement of symptoms.

DISCUSSION

Intraspinal lipomas are rare embryonic malformations. Up to 99% of these tumours are associated with spinal dysraphism.1 An intraspinal lipoma can be 1 of 3 main types:

• a lipomyelomeningocele
• a filum terminale fibrolipoma
• an intradural lipoma.

Of these 3 types, intradural lipoma is the rarest and accounts for only 4% of all spinal lipomas. Lipomas can be intradural, subpial, or juxtamedullary in location.2 Most intradural lipomas are located in the cervical and thoracic spine, usually in the dorsal aspect of the cord.3 The spinal cord is commonly opened posteriorly, and the lipoma is situated between the unapposed lips of the placode.2 Histologically, these lesions are an admixture of highly vascularised fatty
tissue, separated by delicate connective tissue and interspersed neural tissue.\(^4\)

Spinal lipomas are more common in females,\(^3\) although intramedullary lipomas affect both sexes equally.\(^4,5\) Patients with intramedullary spinal cord tumours may present at any age. More than half of the patients have some symptoms during the first three decades of life but symptoms may be present for a lengthy period prior to presentation. The deterioration of symptoms seen during pregnancy has been related to abnormal venous return in the spinal cord, and an increase in spinal canal pressure,\(^6\) or to endocrine abnormalities.\(^5\) Pain, sensory disturbance, and weakness in the lower extremities are the most frequent presenting complaints. Bowel and bladder dysfunction tends to be a later complication of cervicothoracic lipomas but is an early presentation of lumbosacral lipomas. Progression of neurological deficits can develop rapidly over weeks to months, or insidiously over many years.

The diagnosis of an intradural lipoma depends on the demonstration of adipose tissue in the spinal cord lesion. Spinal dysraphism or a dural defect need not be present.\(^1\) CT scanning usually shows a hypodense lesion with a negative Hounsfield number. MRI is the imaging modality of choice,\(^7\) and typically shows a hyperintense lesion on both T1 and T2 weighted images. Chemical shift artifacts on T2 weighted images and signal suppression on fat-suppressed images confirm the presence of fat in the lesion. Surgical decompression and dural enlargement are considered the treatment of choice for patients with intradural lipomas, but complete resection is impossible for patients with intramedullary involvement.\(^8\) Early surgery is associated with a better outcome,\(^1,5\) but the prognosis is generally poor if there is significant neurological deficit prior to surgery.\(^9\)

The patient described in this report had a 30-year history of neurological symptoms prior to diagnosis. The lack of neurological improvement noted postoperatively in this case emphasises the need for early diagnosis and surgery for this condition. Greater awareness of this condition among health professionals and the community at risk thus appears warranted.
REFERENCES


Figure 2. Axial spin-echo T1 weighted (575/12/2) magnetic resonance image showing displacement of the spinal cord anteriorly (white arrows) and compression by the lesion, with intramedullary involvement (black arrow).

Figure 3. Sagittal fat-suppressed T1 turbo spin-echo (425/12/4) magnetic resonance image showing total signal suppression of the lesion, confirming its lipomatous nature.