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CASE REPORT

An intradural, subpial lipoma

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ABSTRACT

Introduction – patients: Intradural lipomas are rare congenital tumors. A case of intradural lipoma in the absence of any congenital spinal anomalies is reported. Patient presented with spinal cord compression syndrome.
Methods – results – conclusions: Treatment of this disorder is still controversial.

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Intradural; lipoma; prognosis; congenital; neurosurgery

Introduction

Intradural lipomas are rare congenital tumors representing less than 1% of primary spinal tumors [1].

Patients usually present with spinal cord compression syndrome [2] and most patients had spina bifida at birth.

The optimal treatment and follow-up schedule are still controversial. Better agreement on the best treatment strategy is necessary, as this lesion carries an increased risk of paralysis and paraparesis [3].

Case report

A 68-year-old woman presented with severe back pain irradiating to the submammary fold.

Other neurologic symptoms such as paralysis, loss of sensation or paresthesia were not presented. Further history was negative, except for a trauma 10 years before, when her complaints started.

There was no recent weight change. A previous pregnancy was uneventful.

Because of the radiating pain, a magnetic resonance imaging (MRI)-scan of the thoracic region was performed showing an elliptically shaped tumor lying on the right side of the thoracic myelum, with maximal dimensions of 5.1 and 0.8 cm The lesion was hyperintense on T1 and T2 (Figures 1 and 2). There were no congenital spinal anomalies, e.g. spina bifida.

Diagnosis of an intradural, subpial lesion suggestive of lipoma was made.

Based on the history, complaints, MRI and the risk of performing surgery, further conservative treatment was given.

A yearly MRI-scan and clinical evaluation are scheduled.

In case of worsening complaints or neurological signs, surgical intervention will be considered.

Discussion

Spinal lipomas can be classified in (1) intramedullary, (2) intradural extramedullary, (3) extradural, (4) radicular and (5) of the filum terminale and cauda equina [1].

Intradural spinal lipomas are related to lipomyelomeningoceles which prevent the dorsal fusion of the dura and the osseous posterior elements of the spine [2]. Intradural lipomas are for this reason believed to be congenital; almost all the patients have a history of spina bifida. This was not the case in our patient [2].

Intradural lipomas represent only 1% of all the spinal tumors. They can occur anywhere in the spine, predominantly in the thoracic and cervical spine unlike lipomyelomeningoceles which occur rather in the lumbosacral region.

Intraspinal lipomas are most frequently found in the dorsal portion of the spinal cord [2].

The onset of symptoms is independent of the time when the lipoma arises [3].

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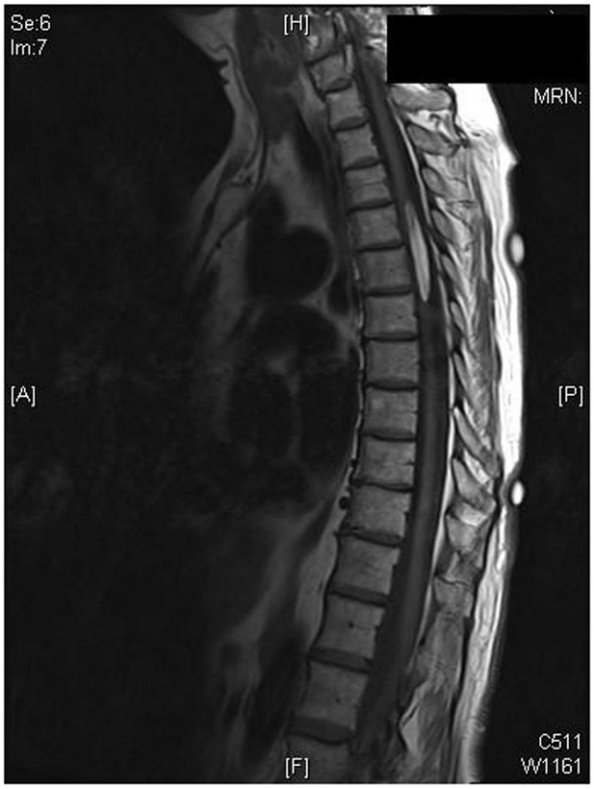

Figure 1. MRI T1-weighted image of the intradural thoracic lipoma. A hyperintense lesion is seen from Th4 to Th6.

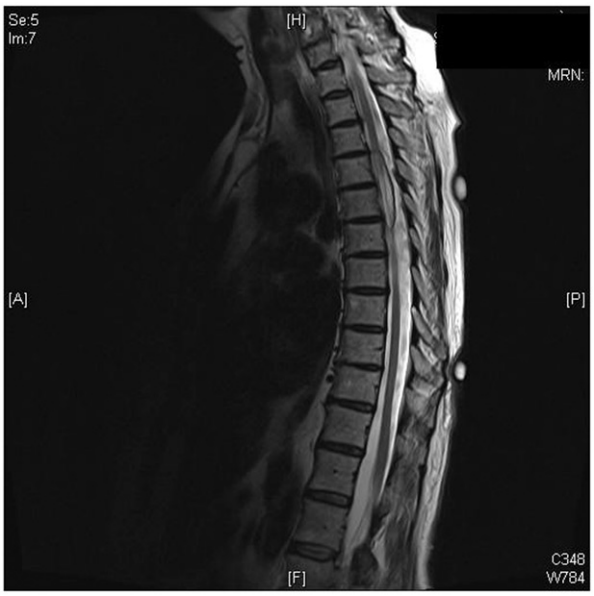

Figure 2. MRI T2-weighted image of the intradural thoracic lipoma. A hyperintense lesion is seen from Th4 to Th6.

Three peaks of age exist during which symptoms arise, i.e. (1) the first five years of life, (2) the second and the third decade and (3) the fifth decade [3].

In our case symptoms started 10 years after a traumatic event. This has also been described as possible cause in other patients and frequently occurs in the second and third peak of age. Pregnancy and physical effort are also reported as initiating factors.

The eliciting effects on symptoms of pregnancy and weight are probably related to alternation in body fat: lipomas adapt their size according to body fat composition [4]. Our patient did not report any weight change.

Another explanation for the deterioration of symptoms seen during pregnancy has been related to an increase in spinal canal pressure due to an abnormal venous return in the spinal cord [5].

Patients with intradural lipomas often have neurological complaints, i.e. spasticity, defective deep sensations and cutaneous sensory loss [3]. The complaints often progress slightly due to the very slow development of these lesions [3]. Moreover, the spinal cord and its nerve roots tolerate slight and continuous compression by the tumor [3]. These accounts for the differences in the clinical picture, i.e. some patients do have many complaints, while others almost have no symptoms. The slow progressive neurological picture was also found in our case.

Making the difference between a cervicothoracic and lumbosacral lesion is possible by a specific history, i.e. bowel and bladder dysfunction are a late complication of cervicothoracic lipomas but, on the contrary, an early presentation of lumbosacral lipomas [5].

For diagnosis MRI is necessary, because röntgenographic findings are minimal [5], except for a widened spinal canal by alisteresis [3] or by erosion of the pedicles. This was not the fact in our case. MRI typically shows a hyperintense lesion on both T1 and T2-weighted images [5]. T1 does not permit the distinction between old hematomas and lipomas [6].

The chemical shift artifacts on T2 weighted images and signal suppression on fat-suppressed images confirms the presence of fat in the lesion [5].

The management of intradural lipomas is still controversial [1].

Which kind of surgery [1]?

For the selective and partial removal of a lipoma, opening of the arachnoid and of the leptomeningeal covering of the lipoma is necessary. This is associated with a significant risk of leptomeningeal inflammatory reactions and postoperative scar formation between pia mater, arachnoid and dura mater.

Unthethering of the spinal cord and decompression do not require a partial removal of the lipoma. Therefore, decompression alone as surgical treatment is sufficient to achieve significant

neurological improvement. This is also supported by the fact that lipomas are hamartomas and change their size according to alternations of body fat. However, when the spinal cord cannot be decompressed or unthethered sufficiently and/or the spinal lipoma has increased in size, selective and partial removal is necessary.

Only few authors recommend complete surgical removal of the lipoma. As there is no clear cleavage plane between the tumor and spinal cord [3], complete resection is associated with significant postoperative morbidity [1].

Prophylactic surgery is not warranted for patients with cervical or thoracic lipomas: resection is only indicated in patients with progressive neurological symptoms. Otherwise a conservative treatment is advocated.

The management in our case was also conservative, i.e. a yearly MRI and clinical follow-up by the surgeon. When a progressive neurological picture arises, surgical decompression or selective partial resection will be considered.

Conclusions

Intradural spinal lipomas are benign tumors that grow very slowly and may change their size according to alterations in body fat.

A progressive neurological picture is the most common clinical presentation.

MRI is the first choice imaging modality and is necessary for diagnosis.

Surgical treatment is only warranted in patients with progressive neurological symptoms. Decompression alone is the surgical strategy that carries the least postoperative morbidity.

Attempts to completely remove the lipoma have an increased risk of postoperative morbidity. Because of this surgical risk, conservative treatment for a prolonged period is advocated, if this proves to be feasible.

Disclosure statement

No financial and other disclosures are provided by the author.

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