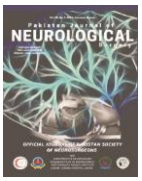

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Case Report

Lipoma at Conus Medullaris without Spinal Dysraphism causing Neurological Deficit: A Rare Occurrence

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ABSTRACT

It's uncommon to have an intradural lipoma without spinal dysraphism. The majority are asymptomatic, however, neurological impairments might occur. For the past six months, a 35-year-old man had been experiencing growing weakening in both lower limbs. The L1 intradural space-occupying lesion was detected during a clinical examination and radiological workup. The patient underwent surgery to address a worsening neurological impairment. The patient had fully recovered neurologically after a six-month follow-up. If the neurological damage is progressive, intradural lipomas should be surgically removed. The surgical treatment produces positive results.

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INTRODUCTION

The presence of an intradural lipoma in the lumbar spine is unusual. Their spinal dysraphism is well-known. Only 1% of all occurrences of lipomas are not linked with spinal dysraphism.[1,2] Young and middle-aged persons are more likely to develop intradural lipomas. Even though most lipomas not connected with dysraphism do not cause any noticeable symptoms, they are nonetheless expected to have the same significant mass effect as any other tumor.

There is a lack of information documenting neurological damage caused by lipomas due to the rarity of lipomas without dysraphism. Here we report on a patient who had surgery to remove a lumbar intradural lipoma that was causing neurological damage.

CASE REPORT

A 35-year-old man presents with complaints of weakness in both lower limbs, a condition he has been experiencing for the previous six months. A problem was beginning to emerge. The bowels and bladder were not affected. When examining

the bilateral L3, L4, L5, and S1 regions, we found evidence of three of the five power levels. Hypoesthesia was present in the L2, L3, L4, and L5 S1 dermatome on both sides. The perianal examination revealed nothing abnormal. On T1 and T2-weighted images, an intradural mass was seen on the dorsal portion of the L1-2 or conus region, and it was hyperintense (Figures 1-5). Based on an MRI, a tentative diagnosis of lipoma was made. Surgical treatment was planned due to the increasing nature of the neurological impairment.

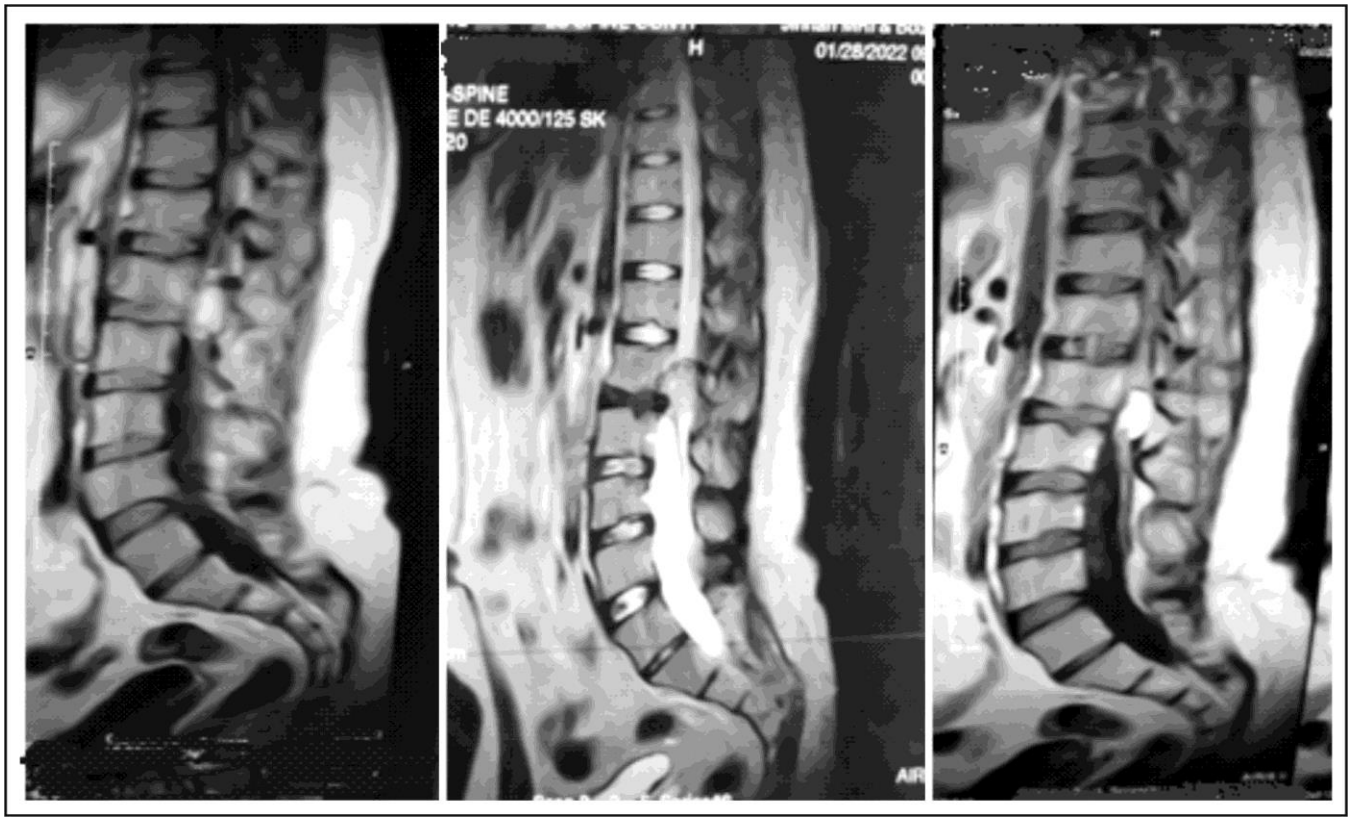

Figure 1: T1 Axial Saggital.

Figure 2: T2 Saggital.

Figure 3: T1 Saggital Contrast.

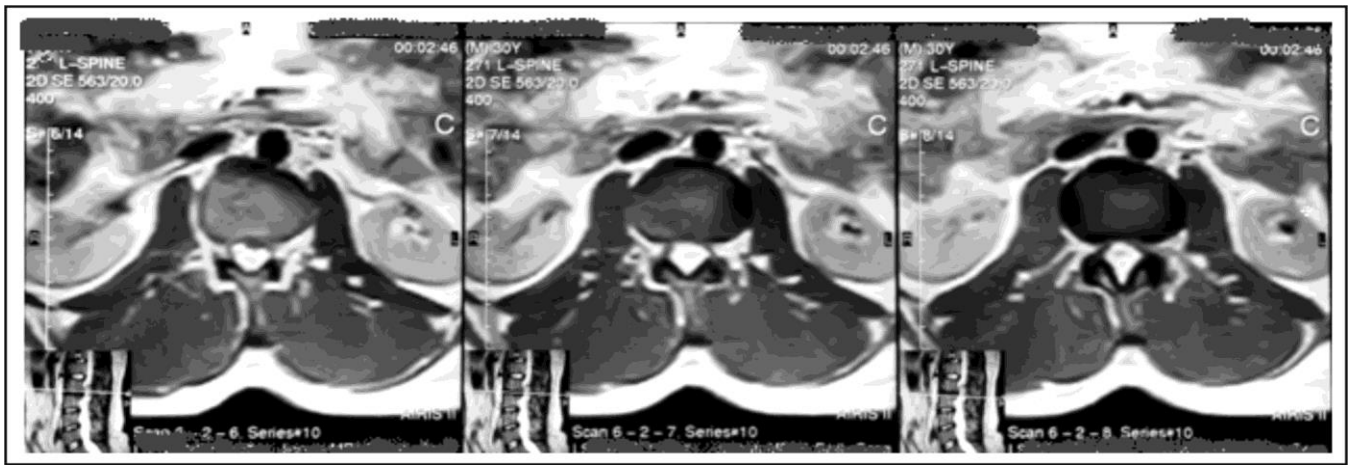

Figure 4: T1 Axial Contrast.

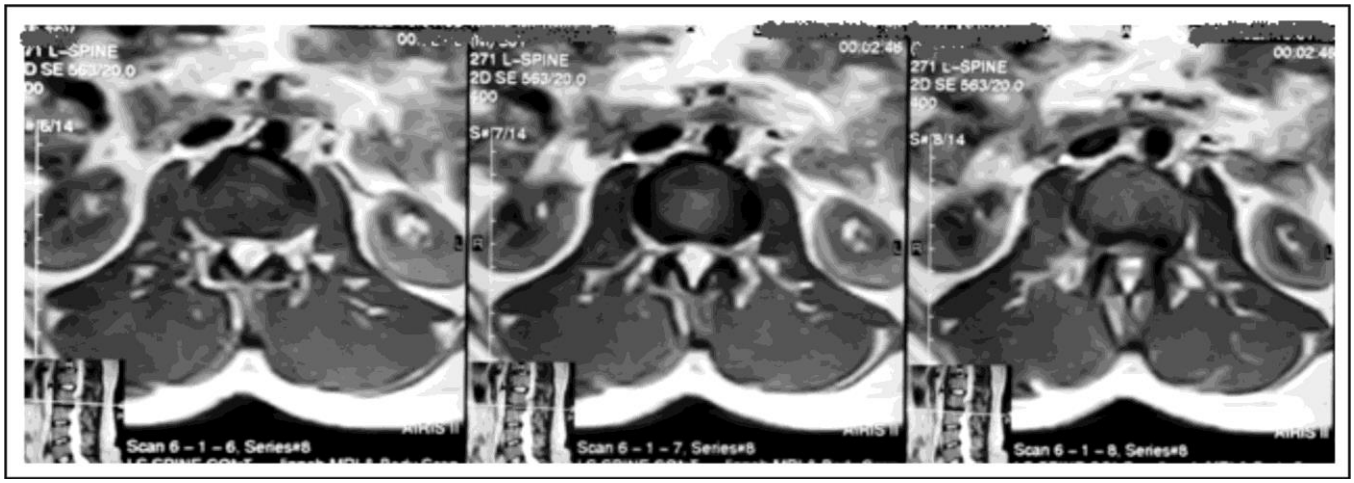

Figure 5: T2 Axial.

Figure 1 – 5: The magnetic resonance image reveals a well-defined cystic ovoid lesion at the L1 –L2 spinal level which is hyperintense on T1, hyperintense on T2, and shows homogenous contrast enhancement. The lesion is lying in the intradural extramedullary compartment, conus medullaris cannot be seen separately. (The scans included with consent)

Both facet joints at the same spinal level were spared during a single-stage laminectomy. After cutting the dura, the surgeon discovered a lipoma in the subpial region, tightly adhering to the cauda equina nerves. The procedure was a subtotal resection. The patient's neurological status remained unaltered postoperatively. On day 5 postoperatively, the patient was released and placed on a normal follow-up schedule.

The diagnosis of lipoma was verified by a biopsy of the removed tissue. The patient's neurology improved during further follow-up. (Figures 10, 11). The patient's neurological deficiency has resolved entirely at the 6-month follow-up.

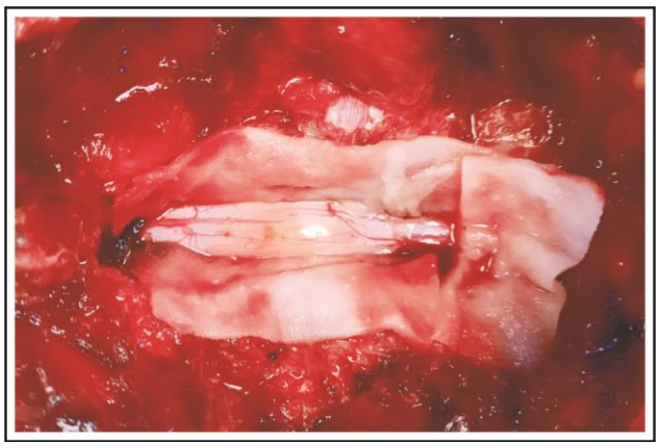

Figure 6: After Laminectomy L1-L2.

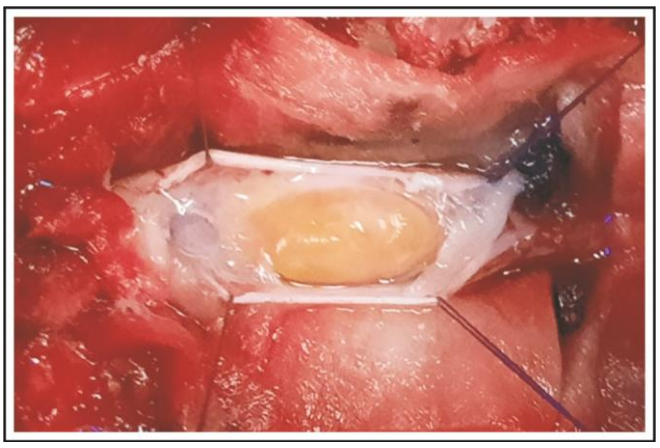

Figure 7: After Duratomy.

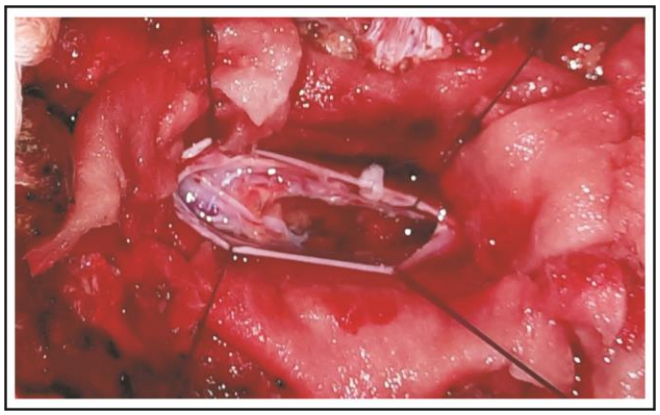

Figure 8: After Resection of the tumor.

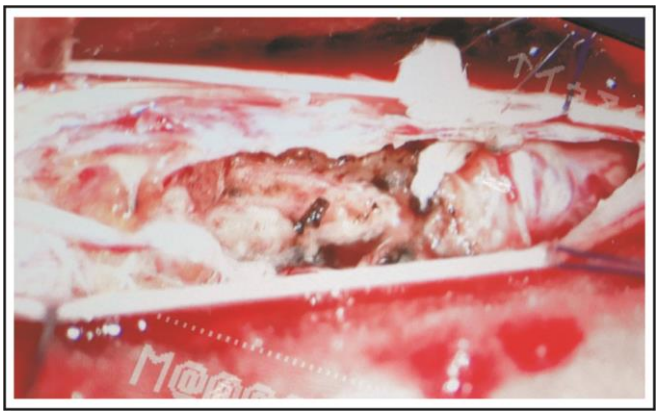

Figure 9: Under high Magnification after resection.

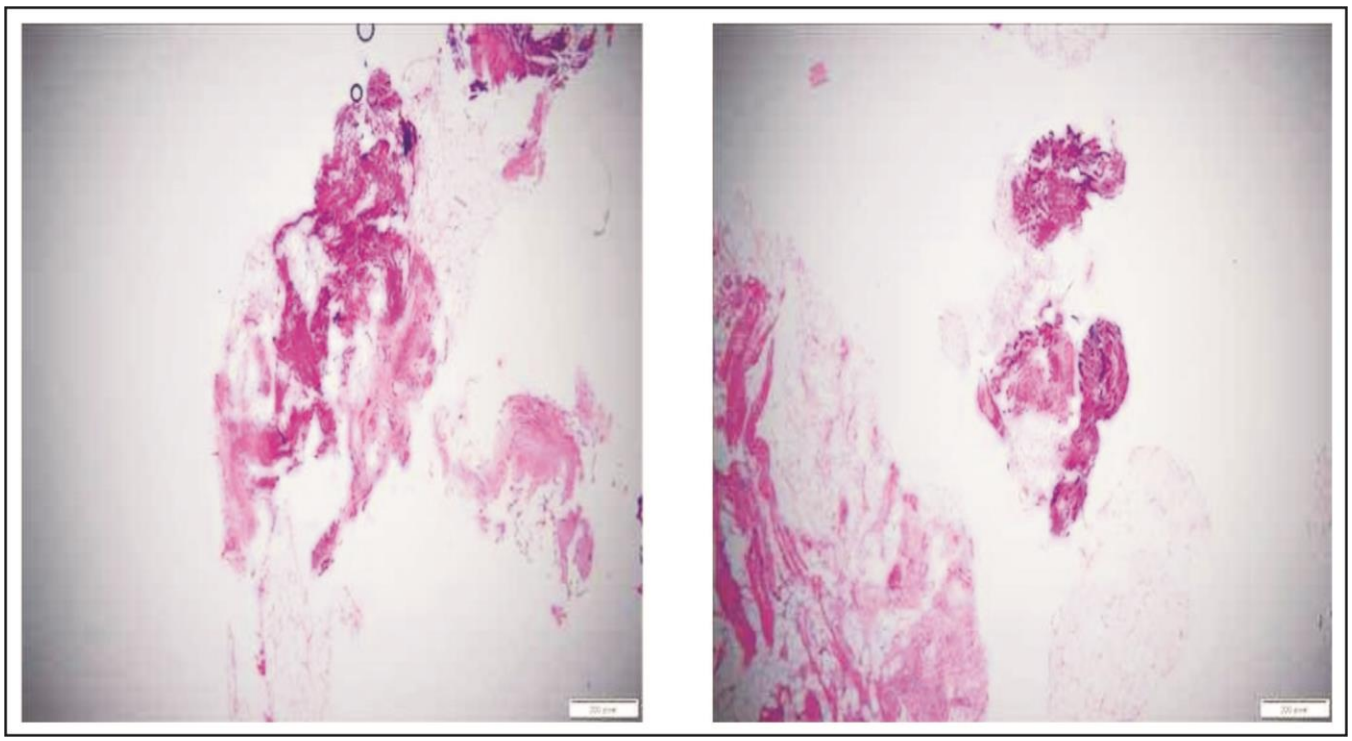

Figure 10: Histological sections. (Pictures included with consent)

Figure 10: Histopathological Examination of section reveals multiple fragments of fibroadipose tissue showing mature adipocytes with eccentrically placed nuclei and vacuolated cytoplasm. Intervening areas showing fibrous septae are seen. No evidence of granulomatous or neoplastic process is seen.

DISCUSSION

The presence of a lipoma in the lumbosacral spine in the absence of spinal dysraphism is quite unusual. The conus region is the most prevalent location for lipoma in the lumbosacral spine.[3] Several theories have been proposed to explain lipomas, such as adipose tissue metaplasia in the pia membrane, a blunder during development, and the multiplication of fat cells.[4] The majority of

developing lipomas are asymptomatic, but when they bump up against nerve roots or the meninges, it may cause significant neurological damage.[4] If nerve roots and meninges are adhering to one another, surgical nerve root decompression may not be effective, further exacerbating neurological disability. The conus, and more specifically the orbital area, was the site of the lipoma in our patient.

MRI scans indicated the existence of an intradural mass in the L1-L2 region, and this mass was close to the nerve roots. The bulk showed up as hyper-intense on both the T1- and T2-weighted images. The patient's developing neurological symptoms may be the result of adhesions to the patient's nerve roots, which provide a hard condition for the operating surgeon. As a result, good surgical planning and high magnification are required because the neurological preservation safety margin is narrow roots.[6]

Partially removing such bulk has yielded positive According to the research, if symptoms last longer than two years, the chances of neurological recovery are minimal.[7] After 2.5 years of follow-up, our patient, who had been having neurological symptoms for the preceding six months, had fully healed.

Even if the amount of resection does not match the degree of surgical success, every effort should be taken to respect as much as is safely possible.[8] When stability is compromised, the laminectomy must be performed with a broad incision to securely reach the mass, and instruments must be used. According to research, total excision is not feasible since these tumors encase the nerve.[9,10]

CONCLUSION

Rarely can intradural lipoma cause any symptoms, and this is because they usually only develop in people who also have spinal dysraphism. When neurological involvement is evident, surgical resection is required. Complete excision of the mass should not be attempted due to the presence of adhesions that might cause harm to the nerve roots; instead, a broad laminectomy should be done to get maximum exposure.

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Additional Information

Disclosures: Authors report no conflict of interest.
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Human Subjects: Consent was obtained by all patients/participants in this study.
Conflicts of Interest:
In compliance with the ICMJE uniform disclosure form, all authors declare the following:
Financial Relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work.
Other Relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

AUTHORS CONTRIBUTIONS

Sr.#	Author's Full Name	Intellectual Contribution to Paper in Terms of:
1.	Shahzaib Tasdique	1. Study design and methodology.
2.	Zainab Sarwar	2. Paper writing.
3.	Obaid ur Rehman	3. Data collection and calculations.
4.	Samra Majeed	4. Analysis of data and interpretation of results.
5.	Waqas Mehdi	5. Literature review and referencing.
6.	Azam Niaz	6. Editing and quality insurer.