Case Reports and Technical Note

Lumbosacral Lipoma in the Adult

Case Report

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Although the most common cause of low back pain and lower extremity neurological deficit in the adult male is lumbar disc disease, other diagnostic possibilities must be borne in mind. Pediatric neurosurgeons are quite familiar with the occurrence of a subcutaneous lumbosacral lipoma connected to an intradural lipoma by a stalk which is said to be part of a rachischitic malformation;[1,3,4,10,11,13,14] the lesion is much less common in adults.

Case Report

A 34-year-old man came to the Long Beach Veterans Administration Hospital on August 21, 1967, with complaints of bilateral leg weakness of 4 to 5 years’ duration and severe lateral pain in the left foot. Recently, the pain had increased in severity and had begun to involve the right foot. Sensation in the rectum and bladder had been reduced for 2 weeks. Sexual performance had been normal. The weakness had suddenly become more marked 3 days before admission.

Examination. The head, neck, chest, and abdomen were normal. There was atrophy of the calf muscles of both legs, and the left foot was 1 cm shorter than the right. The patient had an unstable, staggering gait and complained of severe pain when he walked. There was marked weakness of the extensor hallucis longus and tibialis anticus muscles of the left foot and moderate weakness of these muscle groups on the right. The left foot was inwardly rotated. The knee jerks were normal. The right ankle jerk was normal but the left ankle jerk was absent. There were no Babinski signs. Sensory examination suggested hypalgesia bilaterally below the inguinal ligaments. Rectal sphincter tone was decreased, and the bulbocavernous reflex was hypoactive. Overlying the low lumbar and upper sacral area was a subcutaneous lipoma with a small dimple. This region was mildly tender.

Urinalysis, and blood studies including those for syphilis were negative. X-rays of the lumbosacral spine demonstrated spina bifida occulta at L-4 and L-5, and widened interpedicular distances at L-5 and S-1 (Fig. 1). A lumbar myelogram was attempted but

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no spinal fluid could be obtained at the L3–4 or L4–5 levels. Subsequently, a cisternal myelogram was done and the contrast medium flowed freely in the subarachnoid space. With the patient in the prone position, no diagnostic abnormalities were seen; when the patient was placed in the supine position an intradural filling defect from L-2 to L-4 was visualized (Fig. 2).

Operation. On August 28, under general anesthesia a laminectomy was performed from L-1 through L-4. When the subcutaneous lipoma had been dissected free, a contiguous vascular stalk extended through a defect in the lumbodorsal fascia between L-3 and L-4, and thence through the dura (Fig. 3). The dura was opened and the stalk followed until it entered the conus medullaris at the L-3 region (Fig. 4). The nerve roots of the cauda equina ascended to their foraminal exits. The stalk of the lipoma was transected as it entered the neural tissue of the conus (Fig. 5). No attempt was made to dissect the fatty tissue from within the spinal

![FIG. 2. Left: Supine cisternal myelogram with the patient's head elevated. At the L-3 level a cap of contrast medium lies over an intradural filling defect. Right: Supine cisternal myelogram with the head lowered. An intradural filling defect can be seen beginning at the L4-5 interspace, larger on the right than the left side. This defect was not apparent when the patient was placed in the prone position.](image)

![FIG. 3. Operative photograph demonstrating the subcutaneous lipoma and the stalk that passes through a defect in the lumbodorsal fascia. Forceps have been placed beneath the stalk for clarity.](image)
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Fig. 4. Operative photograph showing the lipoma, stalk, and conus medullaris. The dura has been opened, and a cottonoid has been placed beneath the stalk where it passes through the dura. Although it is not clearly shown here, the roots of the cauda equina travel rostrally prior to their exit from the dural sac.

cord as there was considerable arachnoiditis and tissue planes could not be developed. The wound was closed in the routine fashion.

Postoperative Course. One month postoperatively the patient was free of pain but still had an absent Achilles reflex on the left side. There was some return of strength to the leg muscles and sensation had improved bilaterally. He could now walk without assistance. He still had episodes of rectal incontinence but had adequate bladder control and did not require a catheter.

Discussion

The lumbosacral lipoma is a well-established diagnostic entity in the pediatric age group. Ingraham, et al.,6,7 reported the association of subcutaneous lumbosacral lipoma and varying types of meningocele, meningomyelocele and intradural lipomas. It was their feeling that these all represented variations of the rachischitic spectrum. Dubowitz, et al.,5 and Lassman and James10 have discussed certain clinical and pathological aspects of this condition, and Lassman included a 42-year-old patient in his series.

There are, however, very few reports of this malformation in adults. Brickner2 stated that he had seen several cases in both children and adults, and Walker15 described one 25-year-old man who may have had a lumbosacral lipoma in continuity with an intradural tumor.

The diagnosis of subcutaneous lumbosacral lipoma connected to an intradural mass is not difficult to establish. All of the reported patients had spina bifida at L-4 and L-5. The stalk passed between the spinous processes of L-3 and L-4 and not through the region of the bifid spines. Since the stalk penetrates the dorsal surface of the dura a small intradural mass will lie dorsal to the conus or the roots of the cauda equina. Myelography must include views with the patient in the supine as well as the prone position if the diagnosis is to be established. Lassman reported that all of the children in his series

Fig. 5. Operative specimen. The subcutaneous lipoma is on the left with the stalk and intradural tumor to the right. A cuff of dura can be seen in the midportion of the stalk.
dural portion of the stalk again becomes a lipomatous mass. In others it merges into fibrous bands or seems to run directly into the conus medullaris. Our patient had an intradural lipoma that seemed to originate from within the conus. The stalk of the subcutaneous lipoma passes through a defect in the lumbodorsal fascia which usually is in the midline. The stalk itself may consist of lipoma as well as vascular and connective tissue elements as seen in our case. When one examines the lipomatous masses, either intradural or subcutaneous, the histology is indistinguishable from that of lipoma elsewhere or normal adipose tissue. Frequently, there are regions in the stalk or in the intradural portion of the tumor that are angiomatous (Fig. 6). There was no lumen in the stalk of our specimen.

It is apparent in virtually all of the reported cases that the conus has not migrated from its fetal position and usually lies at the lumbosacral articulation instead of at the L1-2 level. The rostral course of the intradural portions of the cauda equina further emphasizes this aspect of the malformation. This lesion is clearly not an acquired tumor; the high incidence in early childhood as well as the anatomical findings underscore its congenital origin. Neurosurgeons should be aware of the possibility of the subcutaneous lipoma in continuity with an intradural mass and associated anomalies of the conus medullaris as a potential cause of lumbosacral radiculopathy and myelopathy regardless of the age of the patient.

Summary

We have reported a 35-year-old man with a lumbosacral lipoma, underlying spina bifida occulta, and an intradural lipoma connected to the subcutaneous lipoma by a vascular stalk. The rarity of this condition in adults has been emphasized and various aspects of the diagnosis, therapeutic, and embryology of this condition have been discussed. Although one should perform a decompressive laminectomy and open the dura so as to sever any connections between the stalk and the conus medullaris and cauda equina, it is not necessary to remove all of the intradural tumor since these fatty tumors do not grow at a significant rate.

had been studied by cisternal myelography, and we agree that any patient who has a spina bifida occulta, lumbosacral subcutaneous lipoma, and neurological deficit should be studied via the cisternal route since the conus and intradural tumor may completely fill the lumbar theca.

The size of the subcutaneous tumor varies, and it may in itself be a cosmetic or even painful deformity. However, therapy directed only at the subcutaneous lipoma is inappropriate; a fact adequately emphasized by others. No cases of recurrence of the intradural lipoma have been reported. There is little justification for an attempt to remove the remnants of tumor from within the conus. The goal of surgical therapy should be the lysis of adhesions and transsection of the stalk so that the conus medullaris and cauda equina are restored to normal unrestricted motion. This maneuver completely relieved the disabling pain in our patient; partial return of function was also apparent.

In some of the cases reported the intradural portion of the stalk again becomes a lipomatous mass. In others it merges into fibrous bands or seems to run directly into the conus medullaris. Our patient had an intradural lipoma that seemed to originate from within the conus. The stalk of the subcutaneous lipoma passes through a defect in the lumbodorsal fascia which usually is in the midline. The stalk itself may consist of lipoma as well as vascular and connective tissue elements as seen in our case. When one examines the lipomatous masses, either intradural or subcutaneous, the histology is indistinguishable from that of lipoma elsewhere or normal adipose tissue. Frequently, there are regions in the stalk or in the intradural portion of the tumor that are angiomatous (Fig. 6). There was no lumen in the stalk of our specimen.

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