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Case Report

Leiomyoma of Achilles tendon sheath with sural neuropathy: a rare cause of lateral foot pain

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Abstract

Leiomyomas are well-known benign tumors of uterine smooth muscles. However, leiomyomas are rarely reported in the extremities, particularly in the foot and ankle. We present a case of a 52-year-old woman who presented to our outpatient clinic with complaints of nodular swelling in the posterior aspect of her left ankle with pain and tingling numbness in the lateral aspect of her foot. The excisional biopsy of the mass revealed leiomyoma, a smooth muscle origin tumor.

Level of evidence IV; Therapeutic study; Case report.

Keywords: Tumor; Leiomyoma; Sural nerve.

Introduction

Foot pain is known to significantly impact quality of life. It affects one in five individuals, with its incidence increasing with age, female sex, and obesity. Lateral foot pain can stem from various underlying causes, each requiring careful consideration for accurate diagnosis and effective treatment. Out of the long list of causes of lateral foot pain, common ones may include lateral ankle sprains, peroneal tendinitis, stress fracture, cuboid syndrome, or tarsal coalition[1]. Neuropathic pain associated with tingling, numbness, and paresthesia in the lateral aspect of the foot may originate from spinal causes with nerve root compression, diabetic neuropathy, or local causes like entrapment of the nerve or pressure on the nerve.

Leiomyomas are one of the most encountered smooth muscle tumors, mainly originating in the uterine smooth muscles. However, they can be seen in the smooth muscles present anywhere in the body, like the esophagus or intestinal smooth muscles[2]. Although rare and benign, Leiomyomas involving the foot and ankle can grow and cause pressure on adjacent structures, causing various symptoms.

We present a case involving a female patient with leiomyoma of Achilles tendon sheath with compression of the sural nerve, resulting in neuropathic symptoms in the lateral aspect of the foot.

Case description

A 54-year-old female presented to our outpatient clinic with a peanut-sized swelling in the posterior aspect of the left ankle for eight months (Figure 1). She also complained of pain and tingling sensations in the lateral aspect of the foot and ankle. A thorough clinical examination revealed a 1 x 1 cm mass over the posterolateral aspect of the ankle, approximately 4 cm proximal and posterior to the lateral malleolus, which was firm, non-compressible, and moderately tender. It was fixed to underlying structures, and skin over the mass appeared normal. Sensations over the lateral aspect of the midfoot and hindfoot were decreased compared to the opposite side. Unilateral involvement of the foot with no history of any chronic illness ruled out any systemic cause of neuropathy.

A lateral radiograph of the ankle showed a soft tissue shadow and confirmed its no connection with the underlying bone. Ultrasonography showed a hypoechoic shadow in the area adjacent to the tibialis anterior tendon (Figure 2).

With the sural nerve neuropathic symptoms, clinical suspicion of peripheral nerve sheath tumors like schwannoma was raised, and the patient was planned for an excisional biopsy of the tumor. A 2–3 cm incision was performed centering over the mass on the posterolateral aspect of the

Study performed at the Kalinga Institute of Medical Sciences, Bhubaneswar, Odisha, India.

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ankle. Intraoperatively, the tumor was found to be originating from the Achilles tendon sheath, and it was compressing the adjacent sural nerve and saphenous vein (Figure 3). The greyish-white mass was excised in toto and sent for histopathology (Figure 4). The sural nerve was examined for any lesion due to the pressure, and the wound was closed in layers.

Histopathological examination showed spindle cells with no mitotic figures or necrosis suggestive of leiomyoma. Immunohistochemistry showed diffuse positivity for vimentin (Figure 5).

Due to such an unusual and rare location of leiomyoma, suspicion of multiple cutaneous and uterine leiomyomatosis (MCUL) or Reed's syndrome was raised. The patient had a gynecological consultation to rule out the same.

Follow-up at two weeks showed good wound healing and improvement in the neuropathic foot pain. Subsequent follow-ups at three and six months did not show any sign of recurrence of the tumor.

Discussion

Soft tissue tumors occurring in the foot and ankle may include a variety of benign and malignant lesions that originate from adipose tissue, fibrous tissue of tendon sheaths, skeletal or smooth muscles, vascular tissues, or primitive mesenchyme or hamartomatous tissue[3].

Leiomyomas are benign smooth muscle tumors most commonly found in the uterine smooth muscles. Although

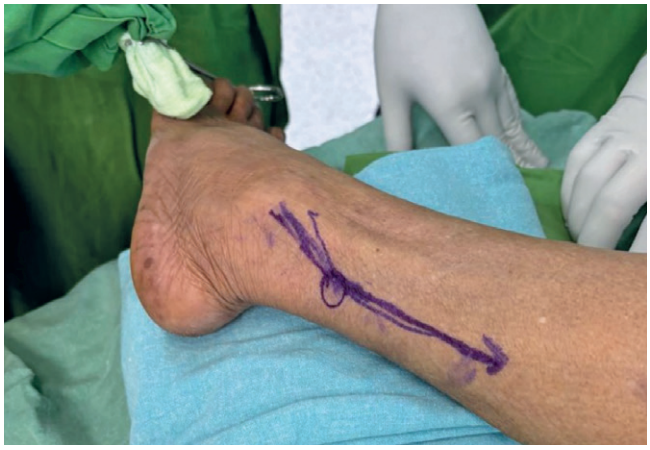

Figure 1. Peanut-shaped swelling over the posterior aspect of the fibula.

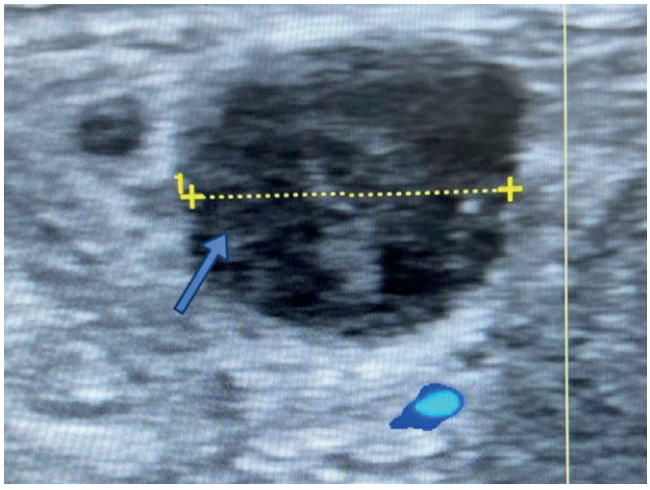

Figure 2. Ultrasonography showing hypoechoic shadow adjacent to the tibialis anterior tendon.

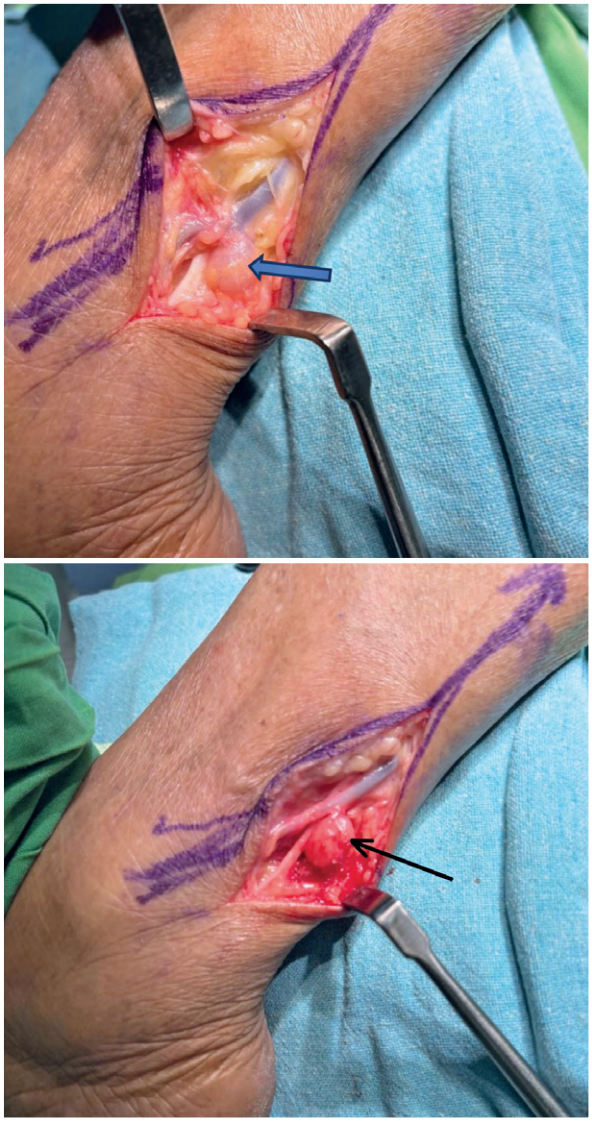

Figure 3. Tumor originating from the Achilles tendon sheath compressing on the sural nerve.

such tumors are reported in the gastrointestinal system, their occurrence in lower extremities is quite rare.

Cutaneous leiomyomas are 3%–5% of all leiomyomas. Depending on the origin of the cell type, they can be 1) Pilar leiomyoma—from arrector pili muscles, 2) Angioleiomyoma—from smooth muscle cells of tunica media of blood vessels, and 3) Genital leiomyoma—from smooth muscles of scrotum and labium[4].

The usual onset age of pilar leiomyoma is adolescence or early adult life, with more female sex preponderance[5]. They usually present as nodular tender masses, though the cause of pain is not clear and is believed to result from contraction of underlying smooth muscle or due to pressure on adjacent structures. Aggravating pain factors can be touch, exposure to cold, or emotional disturbance.

Angioleiomyoma originates from smooth muscles of tunica media of blood vessels and can be solid, venous, or cavernous. The solid form usually occurs in females in their 4th to 6th decade of life and is more commonly found in the lower extremities. Cavernous forms have more male preponderance and higher incidence in the head, neck, and upper extremities. Angioleiomyomas usually present with small solitary lesions with pain or tenderness with occasional exacerbation of pain during menses and pregnancy.

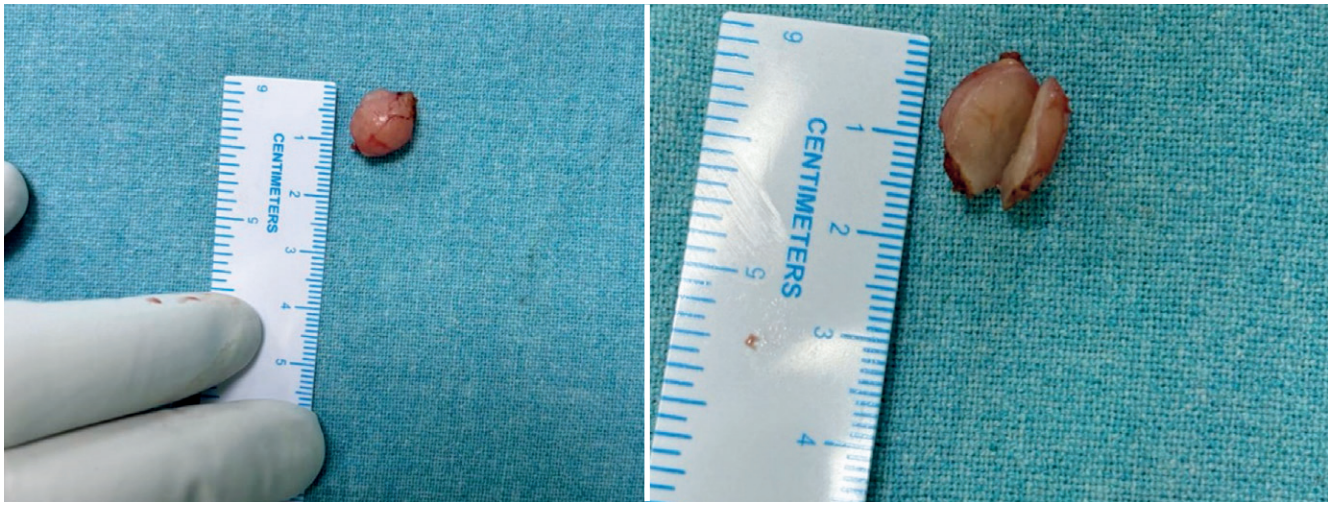

Figure 4. Greyish-white mass excised.

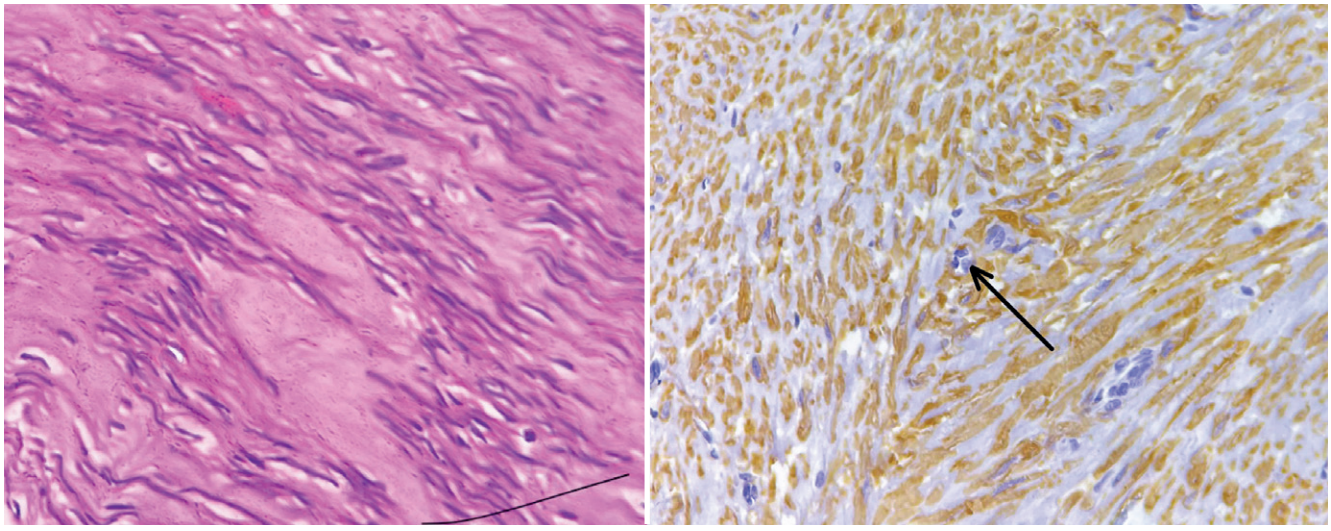

Figure 5. Histopathological examination shows spindle-shaped cells arranged in a fascicular pattern. Immunohistochemistry shows vimentin positivity.

Cutaneous leiomyomas, particularly when in multiple, should raise the suspicion of MCUL or hereditary leiomyomatosis and renal cell cancer (HLRCC) or Reed's syndrome[6].

Patients should be carefully evaluated for any other site of symptomatic or asymptomatic leiomyoma, and thorough family history should be considered to eliminate any form of malignancy. Any clinical suspicion of HLRCC should be followed by genetic testing if diagnostic criteria for HLRCC are met[7]. We should not neglect asymptomatic angioleiomyomas as the consequence of delay or mistreatment increases morbidity and the potential risk of malignant transformation[8].

In our case, we found a leiomyoma that originated from the Achilles tendon sheath, which is quite an unusual location for the tumor. A solitary tender nodule with neuropathic pain on the lateral aspect of the foot raised high suspicion for peripheral nerve sheath tumors like schwannoma. However, the intraoperative findings of sural nerve compression by adjacent tumors from the tibialis anterior sheath correlated with our clinical findings.

Local recurrence or malignant change is extremely rare after excision. Only marginal excision usually suffices for the treatment of cutaneous leiomyoma.

Despite the low incidence of leiomyoma in the foot and ankle, it must be considered as one of the differential diagnoses in patients presenting with resistant foot pain that can not be attributed to any other mechanical or neurological causes. A careful evaluation with ultrasonography or magnetic resonance imaging can reveal even small tumors and appropriate excisions can be planned. Surgical excision of the tumor is often curative, with recurrence or malignancy being extremely rare.

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