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Case Report

Angioleiomyoma of the Foot – A Case Report

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Abstract

Angioleiomyoma is a benign tumor arising from the vascular smooth muscle of the tunica media of the subcutaneous blood vessels, predominantly occurring in the extremities. We report a case of a 36-year-old man presenting with a symptomatic angioleiomyoma located on the dorsal aspect of the left foot. The histopathological diagnosis was confirmed following surgical excision. Surgical resection resulted in complete recovery, with total and permanent resolution of symptoms and no recurrence.

Keywords: Foot, Angioleimyoma, Benigns Soft Tissue Tumors.

INTRODUCTION

Angioleiomyoma, also known as a vascular leiomyoma, is a benign, painful tumor that typically occurs in the lower extremities, but can arise all over the body. It is a rare tumor characterized by slow progression and a favorable prognosis. MRI is the radiological examination of choice, providing a reliable diagnostic approach, but confirmation requires histopathological examination. The standard treatment involves complete surgical excision of the mass, and in some cases, ligation of the feeder vessel may be necessary.

MATERIAL AND METHODS

A 36-year-old male, with no significant medical or traumatic history, was referred to us for a small swelling on the dorsal aspect of the left foot at the level of the subtalar joint. The swelling had been present evolving for one year, accompanied by episodes of localized pain in the left ankle and foot, which occurred during walking and standing. The pain was rarely nocturnal. His general condition was preserved. Dermatological examination revealed an oval, nodular lesion measuring 10 × 8 mm, with a smooth surface, firm consistency, and was tender to palpation. The lesion was mobile relative to both the superficial and deep planes, with depigmentation of the overlying skin and slightly irregular borders **(fig. 1)**. The range of motion of the ankle was normal.

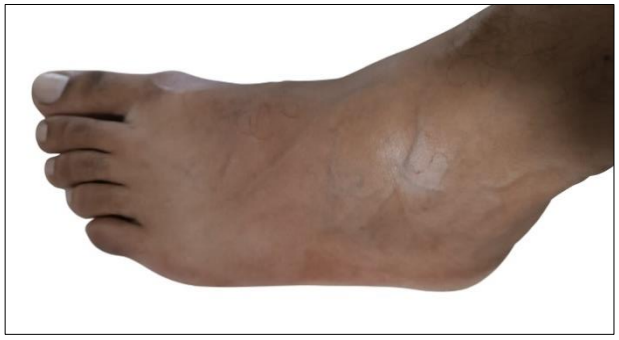

Figure 1: The clinical presentation includes a small swelling with associated depigmentation of the overlying skin

The biological workup was normal. Radiological investigations revealed a complex cystic formation on ultrasound, with a thickened, vegetative wall and hypervascularity on Doppler. A complementary CT scan did not reveal any calcifications. Magnetic resonance imaging (MRI) demonstrated a lobulated lesion with T1 hypointensity and T2 hyperintensity containing T2 hypointense areas. The lesion measured 47 x 33 mm (H x AP) and appeared to communicate with the subtalar joint, showing mild enhancement after gadolinium injection **(fig. 2 and 3)**.

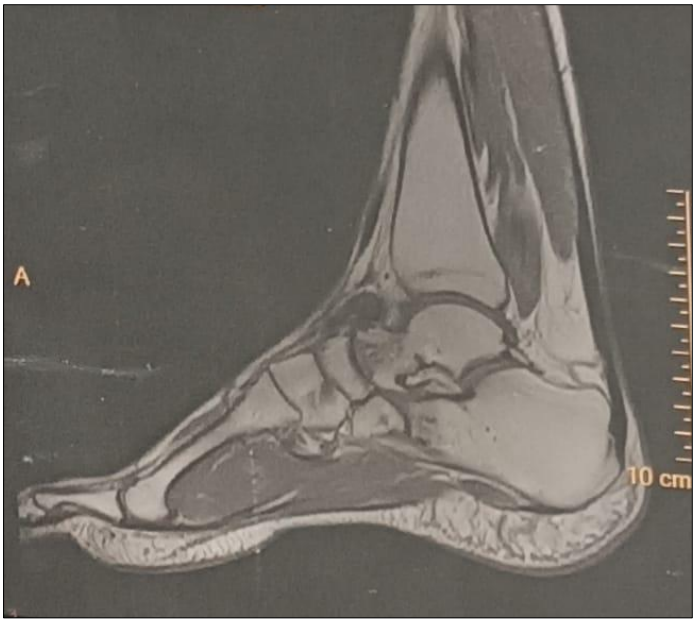

Figure 2: T1 MRI of the soft tissue lesion over the dorsal aspect of the foot, showing a hypointense lesion that communicates with the subtalar joint

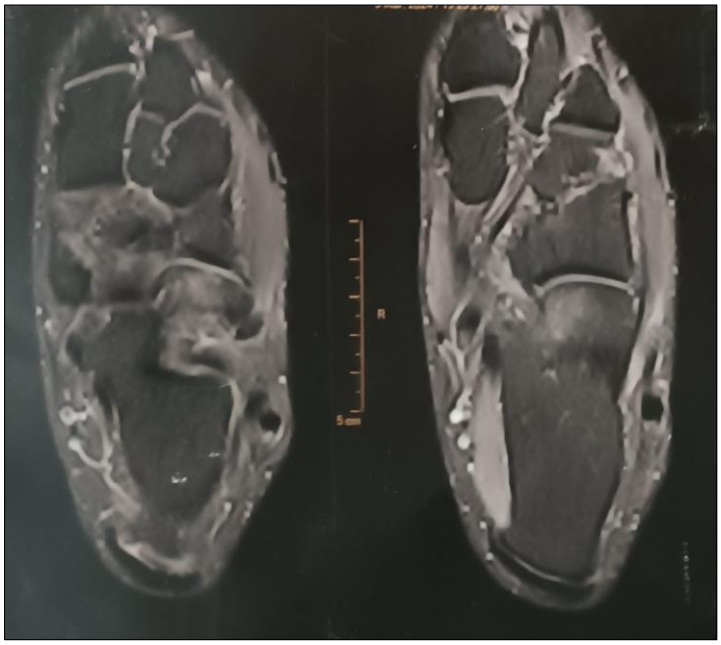

Figure 3: T2 axial MRI of the soft tissue lesion on the dorsal foot showing a heterogeneous lesion and slightly hyperintense

Diagnoses of pigmented villonodular synovitis, a neurinoma, or a glomus tumor were suspected. A surgical biopsy-excision was performed under regional anesthesia. Intraoperatively, a round, reddish-brown tumor was identified, originating from the vein above the fascia **(fig. 4 and 5).**

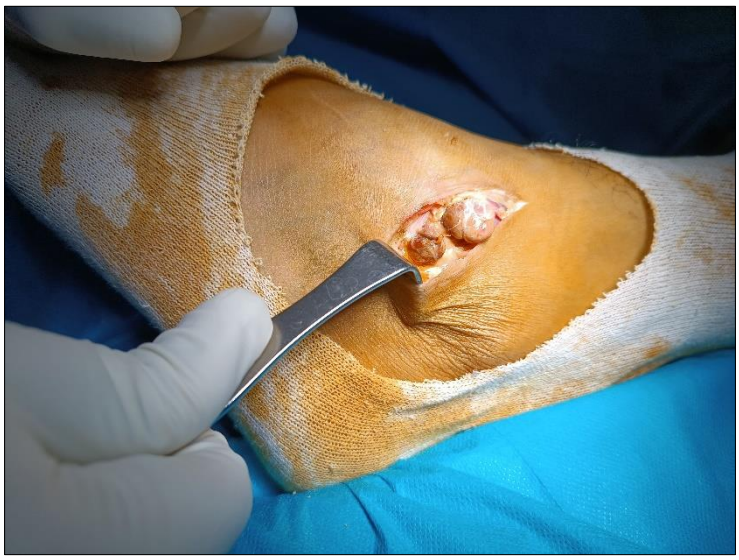

Figure 4: The angioleiomyoma during excision

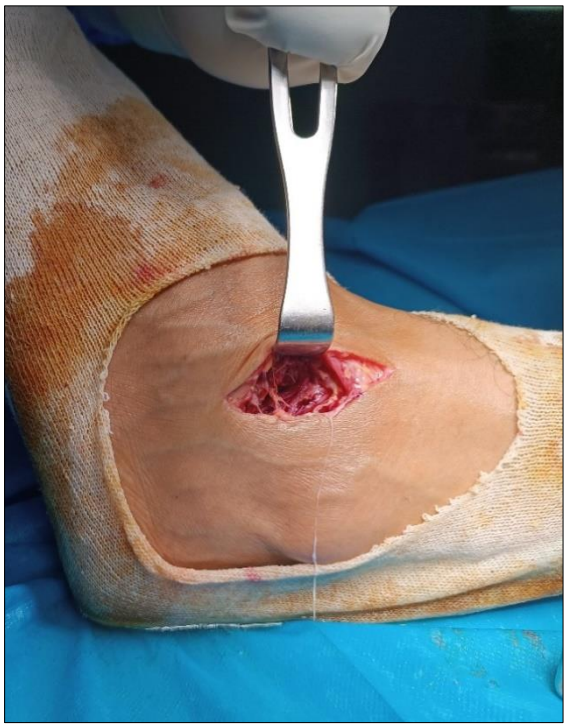

Figure 5: The residual cavity after excision of the lesion

Histological examination of the excised specimen revealed a well-demarcated benign tumor composed of bundles of smooth muscle cells with regular nuclei, interspersed with vascular structures of varying calibers lined by non-atypical endothelial cells. The resection margins were clear with no evidence of malignancy. Thus, the diagnosis of angioleiomyoma was established. After a two-year follow-up, the patient's outcome was marked by complete recovery, with total and permanent resolution of symptoms and no recurrence.

RESULTS AND DISCUSSION

Leiomyomas are composed of proliferating smooth muscle cells. They account for 70 to 80% of benign mesenchymal tumors (Laffosse *et al*., 2007). Angioleiomyoma, or vascular leiomyoma, is one of the three different forms, with the other forms being piloleiomyoma (arising from arrector pili muscles) and genital leiomyoma (arising from the smooth muscles of the scrotum, vulva or nipple). Angioleiomyoma is uncommon and benign. It accounts for 5% of all benign neoplasms of soft tissue (Rhatigan *et al*., 1976). Its etiology is largely unknown, but factors such as trauma, infection, hormones, and arteriovenous malformations

have been known to be present in various cases (Dominguez-Cherit *et al*., 2003). The peak incidence occurs between the fourth and sixth decades of life, with a female predominance (Hachisuga *et al*., 1984). Angioleiomyoma typically presents as a solitary, painful subcutaneous lesion, most commonly located on the extremities, particularly the lower limbs. The pain is often paroxysmal in nature and can vary in character: pressure pain, sharpness, or a pinching type, and may occur following light contact or changes in temperature. This pain has been hypothesized to be a result of local tissue anoxia or due to compression of the local neural structures (Hachisuga *et al*., 1984) (Stout *et al*., 1937) (Hanft *et al*., 1997). Cases of mechanical compression of the radial and sciatic nerves have been reported (Herren *et al*., 1995) (Duke *et al*., 2000). Stout published the first review of this rare lesion in 1937 (Stout *et al*., 1937). Morimoto was the first to classify this tumor into three histological subtypes: solid (or capillary), cavernous, and venous (Morimoto, 1973). This classification was later adopted by the World Health Organization (WHO, 2002). Differential diagnoses of angioleiomyomas may include glomus tumors, neuroma-bursa complexes, ganglions, eccrine spiradenomas, and angiolipomas (Bhogesha *et al*., 2016) (Raval A *et al*., 2014) (Ohtsuka *et al*., 2014). All of these are treated via surgical excision and do not appear to recur. On ultrasound examination, angioleiomyoma shows well-defined margins and a homogeneous structure, suggesting the benign nature of the lesion (Rhatigan *et al*., 1976). MRI features of angioleiomyoma are well documented (Rhatigan *et al*., 1976) (McMillan *et al*., 1985). T2-weighted MRI show mixed areas that are hyperintense and isointense to skeletal muscle. Hyperintense areas on T2- weighted MRI show strong enhancement after intravenous contrast injection, while isointense areas on T2-weighted MRI do not show enhancement. Hyperintense areas on T2-weighted MRI correspond to the smooth muscle bundle cells, and isointense areas correlate to the tough fibrous tissue or intravascular thrombi. MRI cannot differentiate between different histological subtypes of angioleiomyoma. Histopathological examination is considered the gold standard for definitively diagnosing angioleiomyomas (Ho *et al*., 2021). Their shape consists of spindle-shaped cells arranged in bundles with elongated cigar-shaped nuclei, surrounding vascular channels surrounded by endothelial cells. They generally exhibit well-circumscribed fascicles of smooth muscle surrounded with vascular lumina (Lee *et al*., 2011) (Shafi *et al*., 2010). Simple excision biopsy is often curative, although recurrences have occasionally been reported. Hachisuga *et al*., in their excellent clinicopathologic reappraisal, noted two recurrences, one and seven years after the surgery (Hachisuga *et al*., 1984). Neviaser reported a case of recurrence and malignant transformation occurring seven years after the initial surgery, which necessitating extensive local excision (Geddy *et al*., 1994).

CONCLUSION

Angioleiomyoma is a relatively uncommon benign subcutaneous soft tissue tumor that most often occurs in the extremities and commonly presents between the fourth and sixth decades. The clinical presentation and radiographic examination are nonspecific. Histopathological analysis is considered the gold standard for diagnosis. Simple excision is recommended when the tumor is associated with pain or complications related to the protruding mass.

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