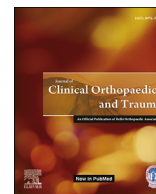




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Case report

Unusual multiloculated serpiginous ganglion of the foot

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ABSTRACT

Ganglions are cystic lesion more commonly seen around the wrist joint. Gangliomas of plantar aspect of the foot are rare. We have presented a case of an unusual serpiginous ganglioma of the plantar aspect of the foot. Less literature is available regarding plantar foot gangliomas. The treatment is challenging because of occurrence of the lesion at weight bearing zone. Available options for treatment includes conservative with splint, intralesional injection, arthroscopic excision and open excision.

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1. Background

A ganglion is a benign cystic swelling filled with gelatinous material.^{1,2} Most of the ganglia are asymptomatic. However, they may be symptomatic and painful depending on their location and whether they are causing mass effect on any nearby structure. Ganglia are more common on the dorsum of the wrist² - as well in the volar and radial aspect related to flexor carpi radialis tendon. In the foot, ganglions are located on the dorsum of the foot. Ganglions tend to arise from a joint capsule or a tendon sheath. Plantar ganglions are quite rare and often are painful as they are on weight-bearing aspect of the limbs. Approximately 20% of ganglion cysts are located on the volar part of the wrist arising from the radio-carpal joint or scaphotrapezoid joint.²

The remaining 10% of ganglion cysts can arise from multiple areas of the body, including the volar retinaculum of the wrist, distal interphalangeal joint, ankle joint, and foot.

2. Case report

We here present a usual case of a 75-year-old lady who is fit, well and independent referred by community podiatrist with increasing non-traumatic pain and difficulty to weight bear due to pain over the left foot for last 7–8 months. On examination, we found tender extensive nodular swelling involving the plantar aspect of her left foot. The lesion was on the plantar region of the foot, extended from midfoot to the hindfoot. The lesion appeared subcutaneous, appeared like unusual multiple bulbous extensions with distinctive branching pattern and the overlying skin was stretched. The swelling was cystic and translucent on clinical examination. Blood tests were normal. The X-ray did not reveal any bony erosion adjacent to the swelling.

Ultrasound scan (Figs. 1 and 2) revealed multiple large hypo-echoic serpiginous lesion, on the plantar aspect of the left foot, predominantly in the midfoot and extending on the lateral aspect with surrounding indurated fat of the heel and the sole. No hyperaemic changes demonstrated and these were deemed to

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contain fluid cystic malignancy could not be excluded and hence MRI scan was arranged (Figs. 1 and 2).

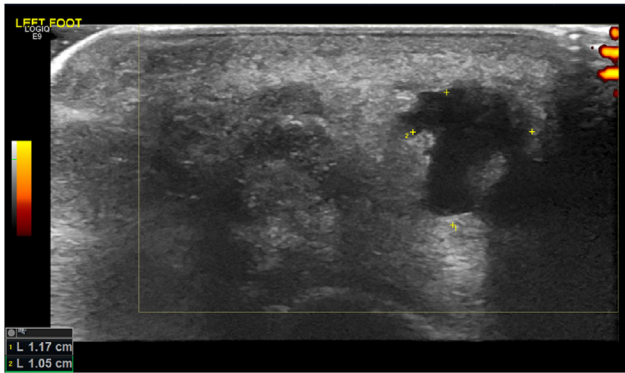


Fig. 1. Ultrasound picture.

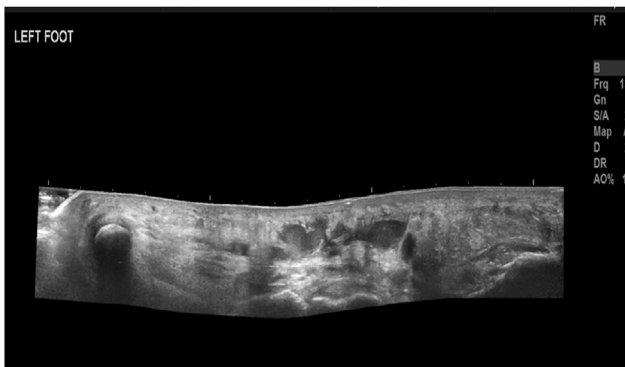


Fig. 2. Ultrasound picture.

MRI scan with contrast (Figs. 3-5) revealed serpiginous lesion with branching pattern and the largest dimension measuring $50 \times 33 \times 12$ mm in the plantar aspect of the midfoot extending to the hindfoot. No communication to any vessels seen. Moderate thickening of the plantar fascia origin in keeping with chronic plantar fasciitis. No mural nodularity, thickening or contrast enhancement demonstrated. Moderate to severe naviculocuneiform degeneration seen and ganglion was deemed to be originating from it and intercuneiform joints (Figs. 3-5).



Fig. 3. MRI pictures.



Fig. 4. MRI pictures.

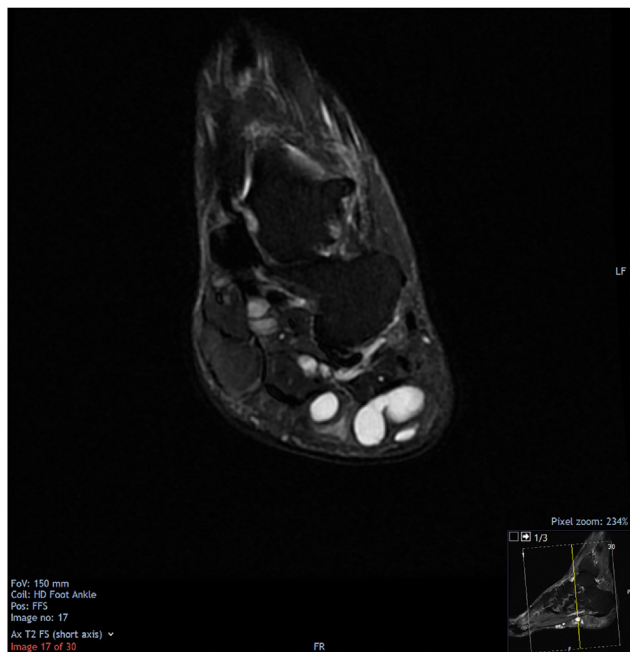


Fig. 5. MRI pictures.

3. Discussion

Soft tissue lesions of the foot are not uncommon and about 2/3rd of these lesions are benign.³ Ganglions are cystic lesion, and in the foot, they are more commonly seen on the dorsal aspect⁴ but the plantar ganglia of the foot with unusual branching pattern as seen in our case are exceedingly rare. Around 80% of the ganglion cyst arises from a tendon sheath or adjacent joint capsule.⁵ Most often ganglions are multiloculated with septa made from connective tissue separating the lobes or cavities; sometimes simple cysts are also seen.⁶ The development of these cysts begins with swollen collagen fibres and fibrocytes; this is followed by degeneration and liquefaction of these elements. This ends with the proliferation of the connective tissue which results in a border that is dense in texture.⁶ The aetiology of a ganglion is uncertain. Trauma and mucoid degeneration are some of the suggested theories. The clinical diagnosis of a ganglion can be made by thorough clinical examination and imaging modalities such as US and MRI. Patients may have asymptomatic cysts for months or years and then can present with newly developed pain or limitation of activity. The ganglion can lead to compression of surrounding structures such as nerve and lead to neuropraxia. The differential diagnosis for a

ganglionic lesion of the foot includes fibromas, lipomas, plantar xanthoma, foreign body reaction and leiomyoma. For ganglions, simple splint immobilization and nonsteroidal anti-inflammatory drugs are a well-established treatment option. Ultrasound-guided aspiration and injection appear to be safe and effective for symptomatic lower-extremity ganglion cysts.⁷ Surgical excision of ganglion varies from 1% to 42% for open excision in various series.⁸ Arthroscopic excision of ganglions of the dorsum of the foot is known treatment.⁹

There is no literature available on serpiginous plantar ganglion cyst and its treatment options. We have treated this patient conservatively with ankle-foot orthosis, and the patient is doing well and is under close follow up in our foot and ankle clinic with an open appointment.

4. Conclusion

Plantar serpiginous gangliomas are rare and less literature is available for this kind of lesion. Given the uncommon presentation and unusual site with an uncommon sonographic presentation, our case is useful at it mimicked cystic neoplasm. Given the size and weight-bearing aspect of the foot, a definite diagnosis was mandatory with a workable management plan. Conservative treatment depending on patient symptoms would be an option of treatment but excision might be needed if the patient symptoms do not respond. However, it may be a challenging surgery given the extent with branching pattern in the sole.

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