

Distal Fibula Osteochondroma with Peroneal Tendon Subluxation – A Case Report

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Learning Point of the Article:

This case highlights the rare possibility of non-traumatic peroneal tendon subluxation caused by distal fibular osteochondroma. Both can be addressed by a single surgical approach with an excellent outcome.

Abstract

Introduction: The most prevalent benign bone tumor is osteochondroma. It typically manifests around the knee, most frequently in the distal femur, proximal tibia, and proximal fibula. Clinical characteristics vary depending on the site and pressure effects on neighboring structures. The existence of both non-traumatic peroneal tendon subluxation and distal fibula osteochondroma is uncommon. By contributing to the limited literature on distal fibula osteochondroma resulting in peroneal tendon subluxation, this case offers valuable insights into the condition's clinical manifestation, diagnosis, and treatment. Apart from this case, only one case has been described in the literature.

Case Report: We present a case report of an unusual presentation of distal fibula osteochondroma associated with peroneal tendon subluxation in a 37-year-old male patient with no history of trauma. He presented with pain over the lateral gutter and painful instability of the peroneal tendons in his left ankle. He underwent osteochondroma excision with peroneal groove deepening. Complete resolution of pain and instability was noted in the 1-year follow-up.

Conclusion: The necessity of using osteochondroma as a differential diagnosis for ankle swellings and peroneal tendon subluxation without trauma is highlighted by this case. Distal fibula osteochondroma is rarely the etiology of these conditions. The successful management and follow-up of this patient illustrate the potential for favorable outcomes with appropriate treatment. This case report provides valuable information to the literature, enhancing our understanding of the clinical presentation and management of rare distal fibula osteochondroma causing peroneal tendon subluxation.

Keywords: Osteochondroma, peroneal tendon subluxation or dislocation, exostosis, benign bone tumor, ankle swelling.

Introduction

Osteochondroma is a non-cancerous growth of cartilage and bone. It is the most common kind of benign bone tumor. An abnormal subperiosteal germ of the fertile cartilage gives rise to this skeletal hamartoma, which mostly grows throughout the skeletal growth period and matures in accordance with normal

endochondral ossification [1]. Depending on the structure involved, osteochondromas can be an accidental discovery or manifest as a palpable lump or symptoms brought on by compression of the nearby structures [2]. We present a case of osteochondroma of the left distal fibula with peroneal tendons subluxation.

Author's Photo Gallery



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Figure 1: Clinical photograph showing peroneal subluxation anteriorly.

Case Report

A 37-year-old male presented at our clinic with a history of pain over the lateral side of the left ankle for 3 months. He had no history of trauma. Physical examination revealed a mild prominence arising from the posterolateral aspect of the distal fibula, and there was demonstrable peroneal tendon instability on ankle movements (Fig 1).

Ankle anteroposterior and lateral radiographs showed multiple small calcified lesions near the lateral malleolus (Fig 2). Magnetic resonance imaging revealed peroneal tendon subluxation anteriorly and a bony lesion present in the distal fibula and the lateral aspect of the calcaneum. We proceeded with surgery to explore the bony mass and peroneal tendons. Surgery was performed in the theater. The patient was given intravenous antibiotics, and surgery was carried out under a thigh tourniquet at 300 mmHg. A lateral incision was made over the distal fibula, we found subluxed peroneal tendons with absent superior peroneal retinaculum (SPR) and peroneal groove (Fig. 3). We also uncovered an osteochondroma of size $2.5 \times 2.5 \times 2$ cm at the distal end of fibula and another bony exostosis of size $1.5 \times 1.5 \times 1.5$ from lateral aspect of calcaneum (Fig. 3). We thoroughly excised the lesion and created the peroneal groove using punch and mallet and tendons were stabilized in the groove. Reassessed stability and found the ankle joint and peroneal tendons were stable without any subluxation.

Postoperatively, a below-knee plaster was applied, and the patient's leg was put in a non-weight-bearing cast for 6 weeks. Full weight bearing permitted at 10 weeks. Histology confirmed osteochondroma with no malignant change. American Orthopedic Foot and Ankle Score (AOFAS) hind-foot score was collected clinically before operation, which was scored at (~65), including pain 20, function 35; however, alignment was

10. The post-operation showed significantly improved morbidity, including pain (30) and functional activities (50); there was no change to the alignment (10), which sets a higher score of 80. The wound healed well, and there was no recurrence of exostosis and peroneal tendon subluxation after 1 year of follow-up (Fig. 4).

Discussion

Osteochondroma, also known as exostosis, is the most common benign bone tumor, comprising approximately 10% to 15% of all bone tumors. These tumors primarily present in the growing skeleton, often before the age of 20 years, and are frequently located at the distal femur, proximal tibia, and proximal fibula [2, 3]. However, the occurrence of osteochondromas in the distal fibula is relatively rare, making this case report particularly noteworthy.

Osteochondromas can be asymptomatic or present with symptoms depending on the location and their relationship with surrounding structures. In many cases, patients may remain unaware of the osteochondroma until incidental imaging reveals the lesion, especially if it does not impinge on critical structures. When symptoms are present, they are often related to the mechanical effects of the tumor, such as local pain,



Figure 2: X-ray showing distal fibula lesion. Magnetic resonance imaging shows the osteochondroma (red arrow) and peroneal subluxation (black arrow).



Figure 3: Intraoperative photograph showing the peroneal tendon subluxation and osteochondroma.

swelling, or restriction of movement due to compression or impingement on adjacent tendons, nerves, or joints [4]. In this case, the patient exhibited pain and instability around the lateral aspect of the left ankle due to peroneal tendon subluxation, a complication rarely associated with osteochondromas.

The relationship between osteochondromas and peroneal tendon subluxation is uncommon. Peroneal tendon dislocation was first described by Monteggia in 1803 and is typically attributed to trauma, such as sudden dorsiflexion and eversion of the foot, often seen in sports injuries [5]. However, in the case presented here, no trauma was reported, which is consistent with the rare occurrence of atraumatic peroneal tendon subluxation caused by an osteochondroma. This suggests that the growth of the osteochondroma may have created mechanical instability in the

peroneal tendons, exacerbating their tendency to subluxate, especially due to the lack of the SPR and an underdeveloped peroneal groove.

In a study by Saglik et al., only six of 382 patients with osteochondromas had tumors located on the fibula (1.6%), and all of these lesions arose in the proximal fibula [6]. This highlights the rarity of osteochondromas arising from the distal fibula. Furthermore, Perisano et al. observed in their review of distal fibular tumors that these lesions were exceedingly rare and most patients had excellent outcomes after surgical excision, which is consistent with the positive outcome observed in our patient [7].

The clinical importance of this case lies in the recognition that distal fibula osteochondromas can cause atypical presentations, such as peroneal tendon subluxation, even in the absence of trauma. Peroneal tendon subluxation, which is a well-known cause of lateral ankle pain, typically arises from a traumatic event where the tendons slip out of place in the peroneal groove. However, when an osteochondroma causes anatomical changes or impingement around the lateral malleolus, it can contribute to such instability, as was seen in our patient.

Regarding the management, the treatment approach for peroneal tendon dislocation due to an osteochondroma generally involves a combination of osteochondroma excision and stabilization of the peroneal tendons.

Several surgical techniques, including peroneal groove deepening, SPR reconstruction, and tendon rerouting, are employed depending on the extent of the tendon instability [8, 9]. In our case, we performed a groove-deepening procedure



Figure 4: 1-year follow-up radiograph.

and re-stabilized the tendons, resulting in successful resolution of symptoms and prevention of further dislocation. This outcome is consistent with the literature, where surgical excision of the osteochondroma and peroneal tendon stabilization leads to good functional recovery [10, 11].

It is also important to note the potential for malignant transformation in osteochondromas, although this is extremely rare. Malignant change is more commonly associated with hereditary multiple exostoses rather than solitary osteochondromas [12]. However, in the present case, histology confirmed that the osteochondroma was benign with no signs of malignancy.

Conclusion

Distal fibula osteochondroma and atraumatic peroneal tendon subluxation are both rare. This case management elaborates on the re-stabilized tendons through groove-dependent procedure benefits, with the resolution of symptoms and prevention of

dislocation of the peroneal tendon. Surgical management consists of osteochondroma resection with peroneal tendon stabilization procedures. Timely intervention results in excellent outcomes using the AOFAS hind-foot score.

Clinical Message

This case report emphasizes the rare occurrence of distal fibula osteochondroma causing peroneal tendon subluxation. This report gives awareness that atraumatic peroneal subluxation with or without swelling around the ankle should be evaluated for bony growths. The surgical step well defines where the groove was created to stabilize the peroneal tendon through it, which gives mechanical stability in the peroneal tendons. This report provides valuable insights into the clinical presentation, imaging characteristics, and management strategies for distal fibula osteochondroma causing peroneal tendon subluxation.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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