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Case of the Month

May 2025

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Presented by:

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Title:

Surgical Management of Osteochondral Lesion of Talus: A 23-Year Follow-Up Case Study

Learning Points:

- Osteochondral lesions of the talus are frequently associated with trauma to the ankle, such as sprains or fractures. When symptomatic, these lesions may manifest as deep ankle pain and functional impairment.
- The choice of treatment depends on multiple factors, including chronicity and lesion size, severity of symptoms, and patient-specific characteristics and demographics.
- Various surgical options are available, aimed at repairing and restoring the affected area. With appropriate surgical intervention, patients can achieve excellent long-term outcomes.
- Bone grafting after curettage and bone drilling is a viable option for osteochondral lesions of the talus. Moreover, medial malleolar osteotomy is required for sizable osteochondral lesion at the mid dome of the medial talus.

Upcoming Case of the Month

June 2025

Presented by:

Dr. Yudha Manggala
Orthopaedic and Traumatology Surgery,
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Title:

Achilles tendon rupture: A proper treatment

Want to present a case? Write to...

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Surgical Management of Osteochondral Lesion of Talus: A 23-Year Follow-Up Case Study

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Case Presentation:

A 48-year-old female school worker presented to us with a 4-month history of right ankle pain. She had a history of right ankle sprain 10 years ago while skating. Otherwise, she had an unremarkable past medical history with no history of steroid use. According to the patient, the pain was on and off, associated with occasional ankle swelling, and exacerbated with prolonged walking and carrying heavy objects. She would walk with a limping gait when the pain kicked in. However, no rest nor nocturnal pain was reported. She sought advices from general practitioner, with oral analgesics given, and traditional Chinese medicine i.e. bone setter. Yet, the pain was not well controlled. Her walking tolerance was about 30 minutes on level ground with a stick.

(Fig. 1)

(Fig. 2)

X-rays of the right ankle on initial presentation in 2002

Physical examination showed right ankle swelling and tenderness mainly over the medial side. There was decreased ankle range of movement.

X-rays ***(Fig. 1-2)*** of the right ankle showed a Stage 3 medial talar dome osteochondral lesion according to the Berndt and Harty Radiographic Classification.

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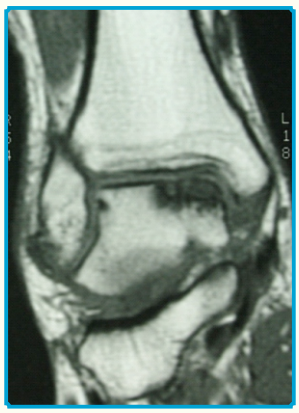
Subsequent MRI ***(Fig. 3-5)*** showed an unstable osteochondral lesion, which corresponds with the X-ray finding, measuring about 1.5cm x 2cm x 0.5cm (W x AP x Depth) over the medial aspect of the talar dome, with irregular overlying talar cartilage. Also a large part of the lesion medially is undermined with fluid signal, indicating instability of the fragment.



(Fig. 3)

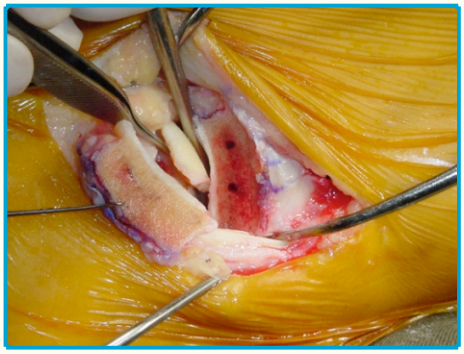
(Fig. 4)

(Fig. 5)

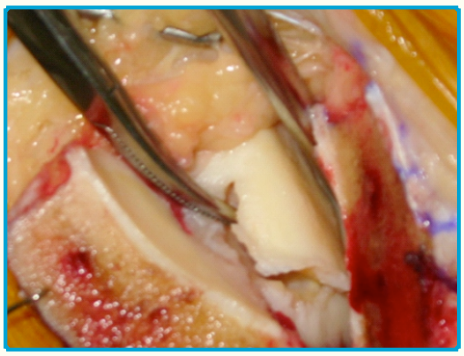
Blood tests showed normal white blood cells count, erythrocyte sedimentation rate and urate level. Rheumatoid factor was also negative.

As she did not respond with the conservative treatment, the patient underwent an operation for the right ankle osteochondral lesion. First part of the operation was performed with an ankle diagnostic arthroscopy with anterolateral and anteromedial portals. The arthroscopic findings were as following: Unstable osteochondral fragment measuring 1.5 x 2.2 cm involving the middle and posterior part of the medial talus; Sclerotic talar bed with loose fibrous tissue; Deformed area with depression of articular surface and fracture of the posterior aspect of articular surface; OCL fragment with normal cartilage with thickness measuring around 7mm.

The next part of the operation was then performed to tackle the osteochondral lesion. Posteromedial approach with a transverse medial malleolar osteotomy was fashioned.



(Fig. 6)



(Fig. 7)

(Fig. 6-7) Then, the sclerotic bone surface was being burred, followed by curettage and bone drilling.

Case of the Month

May 2025

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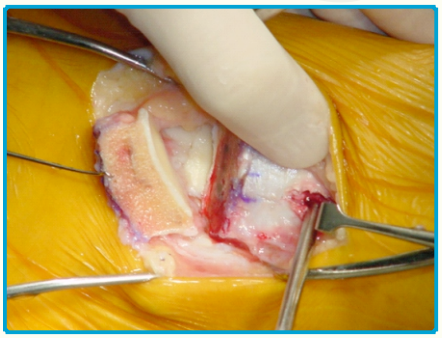
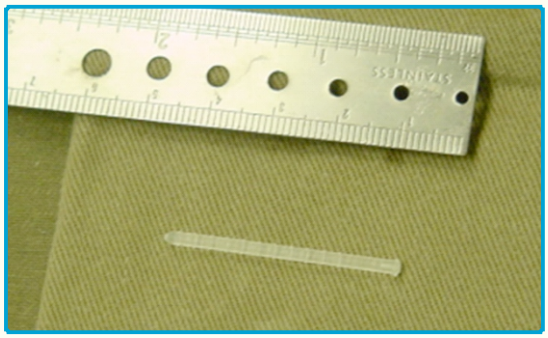
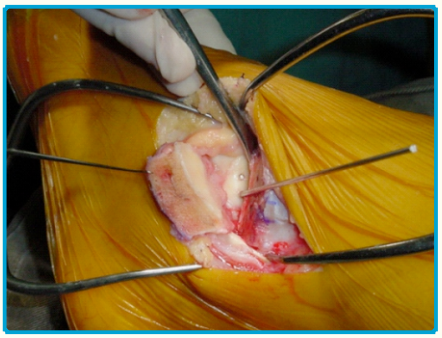
Bone graft was obtained from the medial side of the distal tibia and inserted to the talar bed ***(Fig. 8)***. Then the lesion was fixed with two 2mm bioabsorbable pins (Polypin Sulzermedica) ***(Fig. 9 -10)***. Lastly, the osteotomy site was reduced and fixed with two 4 mm partially threaded cancellous lag screws ***(Fig. 11-12)***.



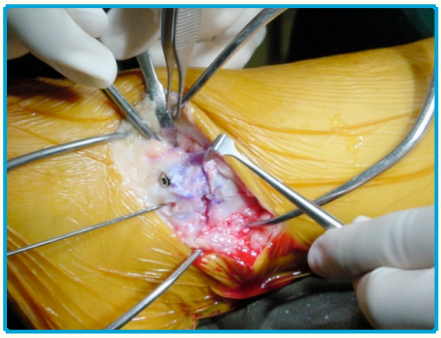
(Fig. 8)



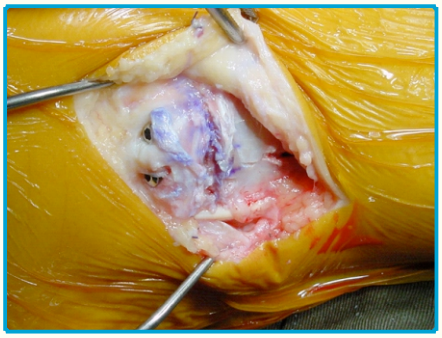
(Fig. 9)



(Fig. 10)



(Fig. 11)



(Fig. 12)

Postoperatively, she was fitted with a short leg dynacast and non-weight- bearing walking for 5 weeks. Then, the cast was being removed, and she was put on non-weight- bearing walking for 4 weeks more. X rays at post-op 5/52 showed satisfactory alignment and some healing of the osteotomy. ***(Fig. 13-14)***

(Fig. 13)

(Fig. 14)

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Case of the Month

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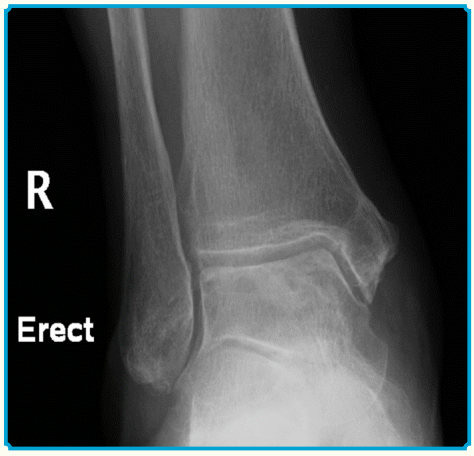
At post-op 3 months, she reported no ankle pain and was able to walk unaided. Upon physical examination, no tenderness over the ankle region upon palpation, and the range of movement was improved, with dorsiflexion and plantarflexion 30 and 40 degrees respectively. X rays at post-op 6/12 revealed healing of the osteochondral lesion and well union of the medial malleolus osteotomy site. ***(Fig. 15)***

(Fig. 15)

At post-op 23 years, she reported no ankle pain and was still working as a school worker. Upon physical examination, there was no tenderness upon palpation, and the ranges of movements were 10 degrees with dorsiflexion and 30 degrees with plantarflexion. X-rays of the right ankle ***(Fig. 16-18)*** at post-op 23 years revealed congruent ankle joint with normal joint space. Only mild degenerative change was noted.



(Fig. 16)

(Fig. 17)

(Fig. 18)

Discussion:

Osteochondral lesions of the talus (OLT) are focal injuries to the talar dome, mainly involving the cartilage and subchondral bone. They could occur after ankle fractures and sprains, or even associated with chronic ankle instability leading to repeated microtrauma. Regarding the anatomical location of OLT, medial side lesions have dominance over lateral side ones, and it depends on the mechanism of injury. Patients usually experience deep ankle pain especially during weight bearing, swelling, limited range of movements, and sometimes locking sensation. Hence, they could have a great impact on patients' quality of life and ability to participate in sports. OLTs become increasingly recognized as ever-improving cartilage- sensitive imaging modalities become more mature.

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Case of the Month

May 2025

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Depending on patients' age, activity demand, lesion size and stability of lesion, treatment modalities mainly divide into non- operative and operative management. The first line of treatment is still conservative management with protected weight bearing and immobilization. However, in up to 55% of patients, conservative management will fail and surgical treatment is warranted. [1]

In the above case, as the medial talus osteochondral lesion is large in size with an unstable osteochondral fragment (>=10mm in diameter), we adopt a four-step open technique: lift, drift, fill, fix (LDFF). This approach aims to provide both biological healing and biomechanical fixation for union of the fragment, providing stability and compression.

The LDFF is first approached through a medial distal tibial osteotomy in order to inspect the ankle joint and direct visualization of the osteochondral fragment. The cartilage is partially incised at the borders, in order to ***lift*** up the fragment. Then, debridement would be done to the subchondral bone and bone ***drilling*** is done to stimulate bone marrow. For the bone void, it would be ***filled*** with autologous cancellous bone graft from either iliac crest or distal tibia. After that, the fragment is ***fixed*** with screws, preferably two, to allow additional rotational stability. Finally, the medial distal tibial osteotomy site is reduced and fixed. Postoperatively, the patient would be put into cast for around 5 weeks with non-weight bearing then 5 more weeks with weight-bearing as tolerated.

Studies have shown promising results using the LDFF approach. According to a prospective study by Rikken, involving 14 patients and 15 ankles, it showed significant improvement of numeric rating scale (NRS) for pain during rest and walking. All osteotomies showed union at follow-up CT scans. 14 out of 15 ankles revealed union of the osteochondral fragment. Otherwise, no other postoperative complications were noted [1]. Hence, the LDFF approach can be adopted in suitable cases of OLT.

Reference:

1. *Rikken, Q.G.H., Favier, B.J.C., Dahmen, J. et al. Open lift–drill–fill–fix for medial osteochondral lesions of the talus: surgical technique. Oper Orthop Traumatol 36, 132–144 (2024). https://doi.org/10.1007/s00064-023-00833-7*

2. *Powers RT, Dowd TC, Giza E. Surgical Treatment for Osteochondral Lesions of the Talus. Arthroscopy. 2021 Dec;37(12):3393-3396. doi: 10.1016/j.arthro.2021.10.002. PMID: 34863377.*

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