TREATMENT OF A LARGE OSTEOCHONDRAL LESION (POTHOLE) IN THE TALAR DOME

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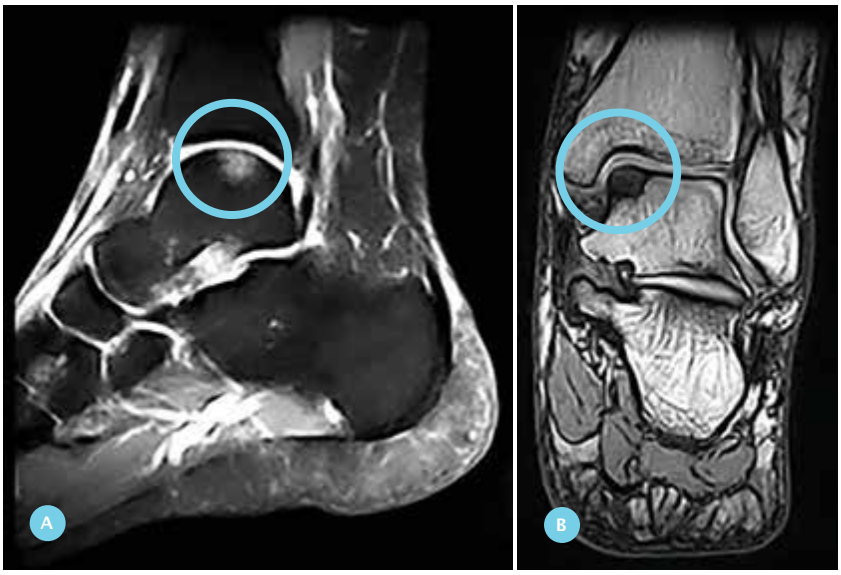
ABSTRACT

Large osteochondral lesions (OCL) can be difficult to treat, and can create a significant functional deficit to the patient. Most patients present with increasing pain with activity, and in this case, inability to do the recreational and humanitarian activities she was used to.

Prior treatment included physical therapy, bracing and an arthroscopic debridement and micro-fracture in 2008. Due to ongoing symptoms, it was decided to use ProChondrix® Fresh Osteochondral Allograft (AlloSource®, Centennial, CO) to repair the defect in 2015.

Introduction

The patient presented with a history of a medial talar dome osteochondral lesion (OCL) for over five years prior to her first microfracture surgery in 2008. The MRI of the medial talar dome lesion prior to her first surgery in 2008 is shown in **Figures 1 A** and **B** below. She is an extremely active person in personal and professional life. She enjoys the outdoors in all seasons: hiking all over the world in the summer, and snowshoeing and cross-country skiing in the winter.



Figures 1. A, B. MRI of the medial talar dome lesion prior to first surgery in 2008.

Over a period of five years she became increasingly limited by ankle pain. She was diagnosed with a large medial talar dome osteochondral lesion, measuring 10 x 12 mm. After failure of physical therapy and NSAIDs, she had an arthroscopic debridement and microfracture.

She did reasonably well while immobilized the first six weeks, but never improved to the point where she was better than before the surgery. With her lifestyle, that was obviously not an option. She wanted something done to fill the "pothole".

Case Presentation

When we started to discuss her treatment options, her first question/analogy was that "we can fix a pothole in a highway, why not the pothole in my ankle?" This brought up similar analogies. If you keep driving over a pothole, the hole gets deeper and this creates more damage to your tires and vehicle every time you hit the hole.

So, what are the options?

1. Take a different highway – not an option with your ankle!
2. Fill the pothole. Which sounds perfectly simple in an asphalt road, but not in a human ankle.

    a. "Fill from the bottom" – Microfracture with bone marrow filling the defect and transforming into fibro-cartilage.

    b. "Fill from the top" – If a microfracture does not work, another option should be considered.

    There are multiple options promoted in the literature.[1,2] In knee literature, MACI (autologous cultured chondrocytes on porcine collagen membrane) might be the most used.

    An old-fashioned OATS (osteochondral allograft transplantation) procedure could also be done with graft taken from the knee. There are unfortunately several complications reported with OATS.[3]

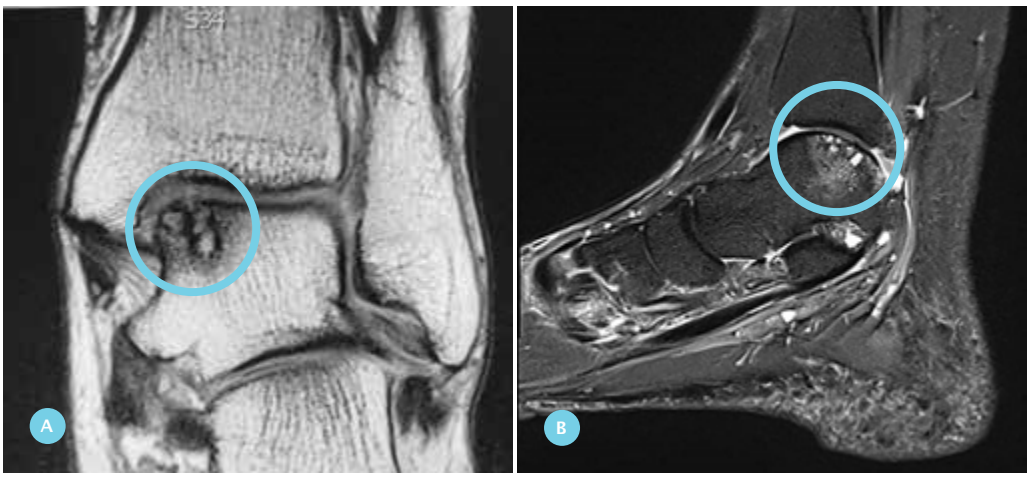
    Another alternative is to use a fresh allograft talus and harvest cartilage and bone from there. It is expensive, and dependent on the availability of an appropriate donor.

    There are also several biologic alternatives, including ProChondrix® Fresh Osteochondral Allograft (AlloSource®, Centennial, CO).

The patient presented with an effusion of her ankle (**Figs. 2-3**), with longstanding pain. Normal activities of daily living didn't cause too much pain, but most recreational and work related physical activities increased the swelling and pain.

Standard X-rays confirmed a medial talar dome defect, while a MRI showed significant marrow edema and no cartilage cover over the defect.

Figure 2. AP X-ray shows the medial talar dome defect prior to the second surgery.



Figures 3. A, B. MRI confirms a large lesion in the medial talar dome.

In light of the failed previous treatment, the discussion circled around how to fill the "pothole" from the top. After considering all options, it was decided to do a debridement and use a ProChondrix allograft. On December 30, 2015, an arthroscopic debridement was done on the defect (**Fig. 4**), followed by a mini-open approach to secure the graft in place (**Fig. 5**).

Figures 4. A, B. Intraoperative image **A.** shows removal of a large loose fragment, **B.** shows the large defect in the medial dome after debridement and preparation for graft.

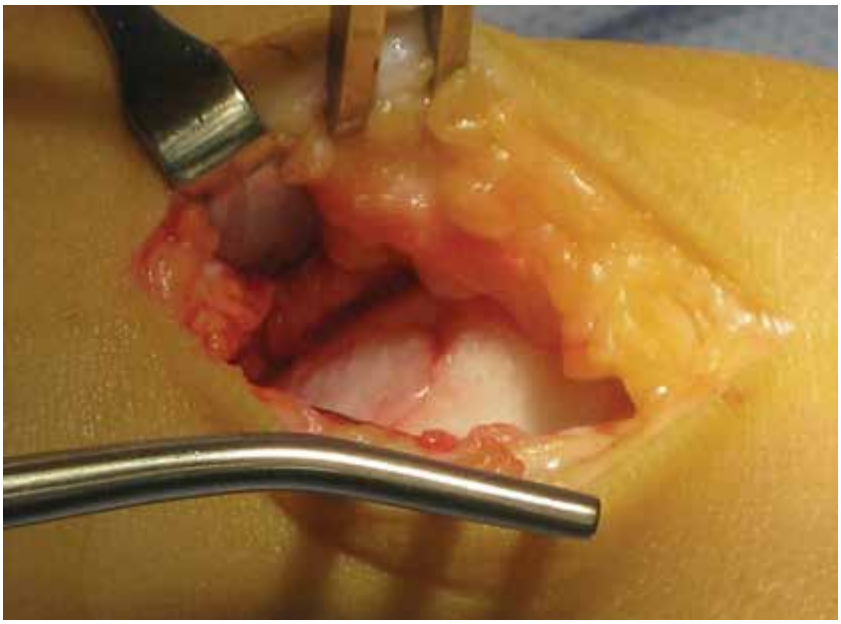


Figure 5. Intraoperative image after placement of the graft.

Postoperatively, she was placed in a short leg cast for two weeks, followed by a CAM boot for four weeks. During this time she was told to be no more than 20 percent weight bearing. At six weeks she started physical therapy that included ROM and low impact activities. More aggressive activities including proprioception and agility started at three months. At no point during the recovery did she need analgesics.

Figure 6. X-ray at six weeks shows improvement of the medial talar lesion.

Discussion

Follow-up X-rays were done at six weeks (**Fig. 6**) that still showed the shadow of the defect, but getting smaller. We followed her on a quarterly basis, and at 18 months post-surgery, her X-rays show complete resolution of the talar dome lesion (**Fig. 7**). It took her about four months to fully recover, but since then has traveled to Africa on a month-long mission trip in a remote area where she worked and walked every day.

She also returned to her aggressive snowshoeing endeavors this past winter which included several multi-day hikes.

All of this was done with no pain or agitation of her ankle. In fact, she claims it is the first time in about eight years that she can do work and recreational activities at all levels without thinking about her ankle.

Figures 7. A, B, C. A. X-ray at 18 months shows complete resolution of the talar dome lesion. **B, C.** Maximum plantar and dorsiflexion X-rays show excellent range of motion.

Conclusions

ProChondrix, in this case, proved to be a very simple, but highly effective treatment option. It allowed her to return to all her work and recreational activities with no limitations at all.

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