

Non Traumatic Stable Osteocondritis (Grade1) Lesion of Talus: A Case Report and Physiotherapy Management

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1. Introduction

Osteochondritis dissecans (OCD) is an acquired idiopathic lesion of subchondral bone that can produce delamination and sequestration with or without articular cartilage involvement and instability.

The cause of OCD is still debated: the most recognized etiology is the occurrence of repetitive micro-traumas associated with vascular impairment, causing progressive ankle pain and dysfunction in skeletally immature and young adult patients. Ankle OCD is classically located in the medial part of the talus, while lateral and posterior involvement is less frequent.

Diagnosis of OCD, based on MRI findings, is quite straightforward; MRI examination can also be very useful for dating the defect and obtaining information about the associated bone bruise. OCD lesions are typically graded radiographically as stages 1 through 4, with stage 1 characterized by articular surface damage only, stage 2 with cartilage injury and underlying bone fracture or edema, stage 3 with a detached (but not displaced) bony fragment under the articular surface, and stage 4 with a displaced subchondral bony fragment(4).

Treatment of OCD includes conservative and surgical options depending on staging.

Here I am reporting a case of 44-year-old female runner who presented with osteochondral lesion of medial talar dome grade 1, stable which was treated conservatively with low level laser therapy and low impacted active assisted exercises program in sitting and lying.

2. Objective

Study done to see effectiveness of low level laser therapy and active assisted exercise program in osteochondral lesion of Talus (grade 1, stable)

3. Case Study

44 years old female, recreational runner walked in physiotherapy out patient unit walking non weight bearing (left) with walker from ortho opd with complaints of pain and swelling in left ankle and pain in weight bearing activity with history of pain and swelling in left ankle from one week after running. Pain and swelling increase gradually

and worst during weight bearing activity. Without any significant history of trauma. Patient advised for rest NWB walking with walker and NSAIDs from orthopedic department and referred to physiotherapy for further treatment.

Physical Examination

General Appearance: well-appearing, moderate build

Gait: NWB with walker

Skin: normal, intact

Examination of the Left Ankle:

- Inspection - mild, diffuse left ankle swelling overlying anterior and lateral ankle; ecchymosis
- Range of Motion/Strength – Limited in plantar flexion, dorsiflexion, inversion and eversion secondary to pain
- Palpation – Tender to palpation over distal lateral and medial malleoli, distal fibular physis and talar dome.
- Special Tests - syndesmotic squeeze test positive; unable to walk in full weight bearing secondary to pain
- Pain assessment- 9/10 (VAS) in weight bearing left ankle .
No pain in rest

Imaging- MRI done for left ankle which shows



T2/PDFS hyperintense/ cystic lesion ~11mm in maximum dimension with adjacent bony edema in subchondral location of medial aspect of talar dome. Overlying articular cartilage appears hyperintense on PDFS. Features likely represent osteochondral lesion - Stable type 1.

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4. Intervention

Patient treated conservatively as patient has OCD grade 1 stable so Immobilization with placement of a air cast boot for left ankle a total of 6weeks, non-weight-bearing on walker and patient receive low level laser therapy(LLLT) 4 times a week for six weeks with diode infrared laser(wavelength of 808nm,continuous,100mv output in skin contact 5J/point) at 4 points. After two weeks active gentle ankle toe exercises in pain free range initiated. 4 week onwards isometric exercises of dorsiflexors and plantar flexors initiated.

5. Outcome

Six weeks after her initial evaluation, the patient reported significant improvement in her pain 2/10(VAS). She was put in a walking boot, and began advancing her weight-bearing over the subsequent week with a goal of pain-free ambulation. At roughly 8weeks from initial diagnosis, the patient was pain-free with ambulation out of the boot, and was started exercises for strength, ROM, and proprioception. After 12 weeks patient ROM was complete pain free with muscle strength of 4/5 left ankle. Walking(short distance) was pain free.



Repeat MRI at that fourth month follow-up visit showed

T2 / PDFS hyperintense subchondral lesion ~ 7 mm in maximum dimension in the medial aspect of talar dome - Features suggestive of osteochondral lesion (Stable type 1). Lesion significantly less cystic in appearance compared to previous study

6. Discussion

Osteochondritis dissecans (OCD) is a group of conditions affecting an articular surface that involves separation of a segment of cartilage and subchondral bone(1). It was first identified in the knee by Konig in 1883, and was later seen to occur in other bones such as the capitulum of the elbow and the talus of the ankle(2). The etiology of OCD is not clearly understood, though trauma, local ischemia,

ossification defects, and genetic predisposition have been implicated. Arguments in the literature surrounding the presence of inflammation in OCD have led many to discount the term “osteochondritis,” instead substituting the terms “osteochondral lesions” to more appropriately classify this condition(3). OCD lesions are commonly classified as juvenile or adult forms of OCD, distinguished by the presence of open growth plates

Talar OCDs make up 4% of the total OCD lesions in the pediatric population(3). There is a 2:1 male to female predominance amongst patients with talar OCD. These lesions are usually anterolateral or posteromedial in location, with the anterolateral ones more likely to result from acute trauma. Lateral lesions tend to be more shallow and more likely to heal conservatively than the often deeper, more medial lesions(5). Medial talar lesions are more common than lateral ones, with a prevalence of roughly 60% and 40% respectively (6, 7).

Stable talar OCD lesions are typically treated conservatively, with some form of immobilization (partial weight-bearing vs. non-weight bearing in cast vs. walking boot) for 4-6 weeks followed by progressive weight-bearing over the subsequent 2-4 months. Case studies of stable talar OCD lesions in skeletally immature patients report success in as many as 90% of conservatively treated patients over 6-7 months(2, 8). Most patients with healed lesions after conservative management will not have any long-term sequelae of their condition, surgical procedures are utilized in failed conservative management (i.e. no healing of the lesion on follow-up radiographs within 6-12 months of diagnosis, persistent pain beyond 6-12 months of immobilization and subsequent therapy, and/or the development of an unstable OCD lesion) including excision with curettage, microfracture, bone grafting, osteochondral transplantation, and fixation(7).

Physiotherapy provide great relief in symptoms by various modalities and methods during conservative treatment, Modalities like laser help to promote healing.Laser is optical energy, laser penetrates the affected area and spread into the tissue , photo chemistry effect were generated including oxidation of mitochondria and facilitation of formation of ATP(9). This then increase metabolism and facilitation blood circulation following the expansion of blood vessels eventually unnecessary liquids that had accumulated in the area were reabsorbed and exudation were quickly removed. So laser promote healing and help to improve circulation to area and promote healing(10). Exercises help to achieve maximum recovery, improve strength, improve balance and proprioception.

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