

AUTOLOGOUS OSTEOCHONDRAL GRAFTING FOR OSTEOCHONDRITIS DESSICANS A CASE REPORT

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Abstract

Osteochondral defects are common injuries among the young population. Athletes are more prone to these injuries given the amount the stress and strain they put on their lower limbs. The viscoelastic nature of cartilage, which allows load bearing, is disrupted. Early recognition and treatment is needed to prevent Early Osteoarthritis. We are presenting one such case, where a 25 year old male patient with Grade 4 OCD was treated with Autologous osteochondral graft taken from the Non weight bearing part of the femur.

Keywords: OCD, Osteochondritis dessicans, Loose bodies in knee, Sports injuries, Osteochondral graft

Introduction

Owing to its viscoelastic nature, articular cartilage allows variable load bearing during functional and athletic activities. The injuries involving the chondral and osteochondral surfaces are common in the younger age group and athletic population (Burks RT,1990). Due to the stress created during strenuous activities, the knee is at risk for a wide range of osteochondral defects. Failure in early recognition and prompt treatment leads to long-term complications (Federico DJ, Lynch JK, Jokl P, 1990)

Case Report

A 25year old male presented to our opd with complaints of right knee pain and occasional locking of the knee. There was no specific history of trauma involving the knee. He was actively participating in sports and pain

was more during strenuous activities. Tenderness was present along the lateral joint line and Range of movements was painful. Wilson Test was positive. MRI of the knee (Figure 1) was done and it showed subchondral irregularities along the lateral femoral cartilage.

Diagnostic arthroscopy of the knee joint was done. A Stage 4 Osteochondral defect was diagnosed with a loose body measuring 2*1.5cms (Figure2,3). Autologous Osteochondral Transplantation was done with the graft taken from the non weight-bearing region of the medial femoral condyle. (Figure 5,6) Following surgery, the limb was immobilized for 3 weeks followed by partial weight bearing as tolerated. 1 year follow-up showed good functional outcome and the patient returned to previous level of sports activities without any complaints of pain.

Figure 1 - MRI showing OCD



Figure 2 - Loose body with OCD lesion

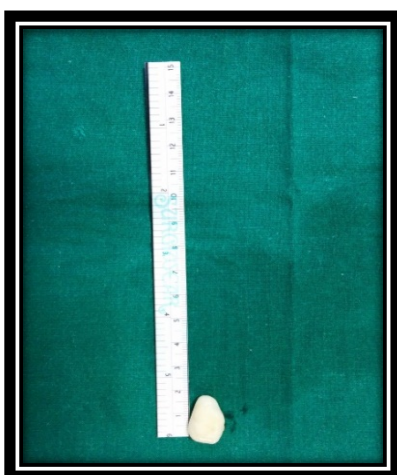


Figure 3 – Loose body measuring 2 x 1.5 cms



Figure 4 - OCD site prepared

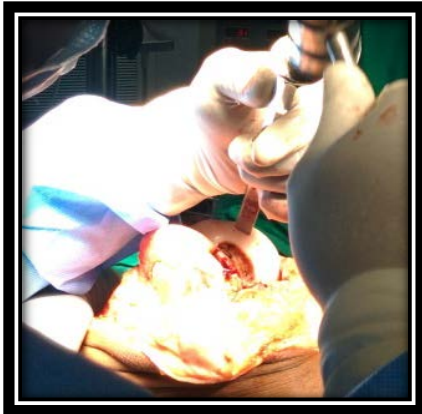


Figure 5 - Autograft harvesting



Figure 6 - End result

Discussion

The etiology of Osteochondritis dissecans is often multifactorial (Clanton TO, DeLee JC, 1982). Knee joint is most commonly affected followed by capitulum around the elbow and talar dome in the ankle. Two distinct forms of OCD are present with the juvenile form affecting before closure of physis and the adult form is seen after closure of physis (Green WT, Banks HH, 1953).

There are various classifications for OCD.

Clanton and DeLee described 4 grades of OCD (Clanton TO, DeLee JC, 1982).

- Grade 1 (depressed osteochondral fracture),
- Grade 2 (osteochondral fragment attached by an osseous bridge),
- Grade 3 (detached, nondisplaced fragment), and
- Grade 4 (displaced fragment [loose body]).

In patients where OCD is suspected, MRI should be done as early as possible because the plain radiographs are more often than not, normal (Potter HG, Linklater JM, Allen AA, 1998).

Nelson was one of the first to correlate MRI and arthroscopy findings of OCD of knee (Nelson DW, DiPaola J, Colville M, Schmidgall J, 1990). It is known that lesions in the articular cartilage are healed by fibrocartilage, which is less elastic and leads to early degeneration.

The treatment algorithm for OCD is given in the next page (Scopp JM, Mandelbaum BR, 2005).

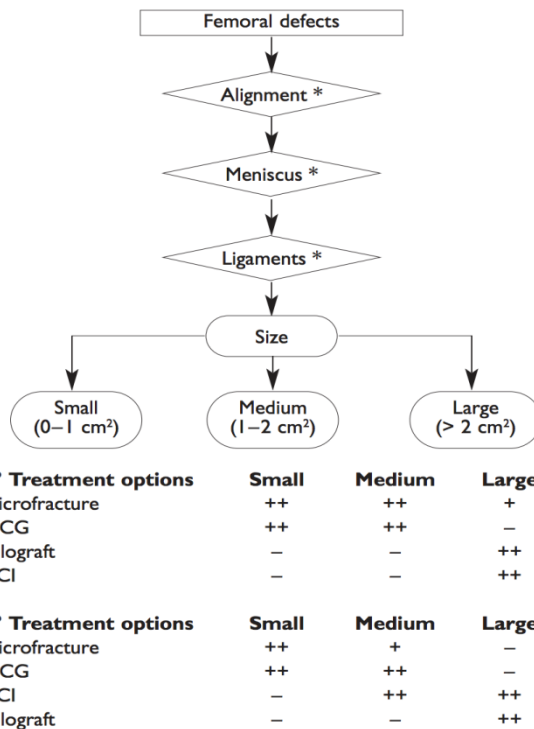


Figure 7 - Treatment algorithm for OCD

The basic purpose of a surgery is to maintain the congruity of articular surface and provide rigid fixation of unstable fragments and to start weight bearing as early as possible after surgery (Schenck RC Jr, Goodnight JM, 1996).

In our patient, the size of the defect was large, >2cms. Osteochondral autograft, allografts, Autologous chondrocyte implantation are the most commonly used treatment modalities. We used a osteochondral autograft from the non weight bearing part of the knee. Hangody et al., the developers of the AUTOLOGOUS OSTEOCHONDRAL GRAFTING technique, reported on a five-year follow-up study of 155 patients, of which 85 remained asymptomatic for the whole period (Hangody L, Fules P, 2003). In another study done by Marcacci et al, they reported that the hyaline plugs are incorporated into the autograft leading to stable osseous integration (Marcacci M, Kon E, Delcogliano M, Filardo G, Busacca M, Zafagnini S, 2007).

Now a days Autologous chondrocyte implantation and osteochondral allografting techniques are being developed. Due to unavailability of allograft or lab with facility of cartilage cultivation, we choose to do Autologous osteochondral implantation.

Conclusion

Autologous Osteochondral graft or Mosaicoplasty is a viable option in set-ups where Chondrocyte cultivation labs or Allograft grafting is not feasible. Early and prompt treatment of Articular surface defects is essential to prevent early osteoarthritis.

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