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Osteochondritis dissecans—Does platelet rich plasma really help

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ABSTRACT

Osteochondritis dissecans is a common disorder of knee and can be treated by various methods, depending on age of patient and stability of chondral fragment. In Osteochondritis dissecans ICRS type III lesion i.e. articular cartilage discontinuity but no dislocation, variable rate of union as well as high rate of non-union was observed in previous studies when treated with arthroscopic or open reduction and fixation. In previous study it has been also shown that platelet rich plasma help in fracture healing. In this study we are trying to extend the benefit of platelet rich plasma to Osteochondritis dissecans lesion. We took six patients with OCD, ICRS scale of OCD type III lesion. All Patients were operated Arthroscopiclly. Chondral flap of OCD lesion were fixed with stainless steel cannulated cancellous screw. To enhance union we used platelet rich plasma injections. .We access the union of chondral fragment to parent bone and knee function. Chondral fragment united to parent bone in all patients. To access knee function we used Tagner- Lysholm knee scoring system, in this study preoperatively score was 52.8 where as postoperatively it was 91.8. This study showed PRP is helpful in healing of chondral flap as all the chondral flap of osteochondral lesion united in this study.

1. Introduction

Osteochondritis dissecans is a common disorder of knee, which results in knee pain and functional impairment of children, adolescent or adult individuals. It,s etiology is not clearly understood, but it is thought that, it is a result of ischemia of a localised area of subchondral bone precipitated by infraction, trauma or other cause. As subchondral bone become avascular it results in articular cartilage lesion in form of undisplaced lesion, partially or completely displaced lesion.

Osteochondritis dissecans can be treated, depending on age of patient and stability of chondral fragment. If the lesion is stable and physis is open conservative treatment is done, whereas if lesion is stable and physis is closed multiple drilling is preferred. If lesion is unstable and non salvageable, osteochondral autograft transplant (OATS), Autologus chondrocyte implantation (ACI) or osteochondral allografting can be done depending on size of lesion and demand of patient. If the lesion is unstable and salvageable arthroscopic or open reduction and fixation is done. For the fixation bioabsorable nails, pins can be used or nonbioabsoarble screws may be used. Increased non-union rates, up to 33 %, have also been reported with bioabsorable devices[1]. Weckstrom et al.[2] found significantly better radiographic and functional outcomes in patients arthroscopically treated with bioabsorable nails (73 % healing), as compared with bioabsorable pins (35 % healing). In previous study it has been also shown that platelet rich plasma help in fracture healing. We are trying to extend the benefit of platelet rich plasma to Osteochondritis dissecans lesion in this study. Considering variable rate of union and high rate of non-union in fixation of osteochondral fragment, we did the study in patients with osteochondritis dissecans with unstable but salvageable fragment (Type III) lesion of ICRS (International cartilage repair society) scale[3] for OCD (Osteochondritis dissecans) lesion, in which chondral fragment was fixed arthroscopilly with cannulated cancellous screw and PRP (platelet rich plasma) was injected to knee to enhance the union. The union of chondral fragment and knee function was assessed (Figs. 1–8).

2. Material and methods

The patients who presented to our institute from January 2014 to January 2017 with osteochondritis dissecans and met the inclusion criteria were included in the study. Inclusion criteria was patients with age 15–40 years, with osteochondritis dissecans

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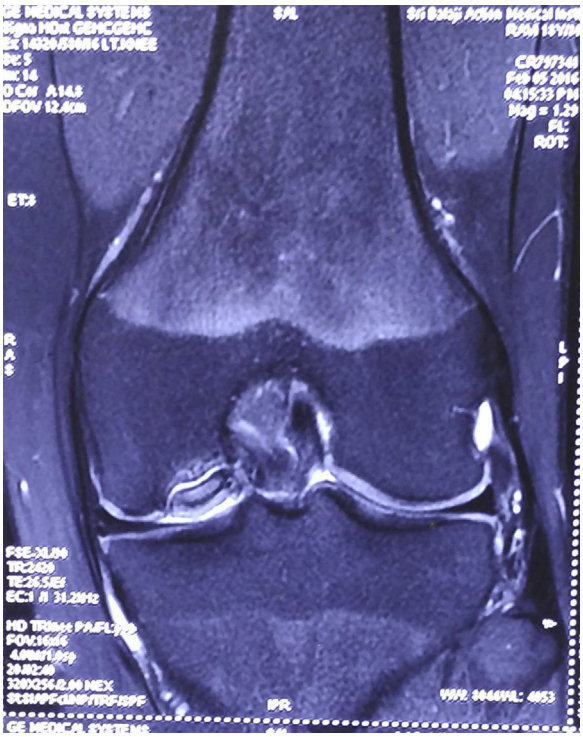

Fig. 1. Coronal section of MRI showing Osteochondritis dissecans lesion preoperatively.

lesion on medial or lateral femoral condyle, ICRS scale of OCD type III lesion i.e. lesion with articular cartilage discontinuity but no dislocation (dead in-situ). Those with multiple lesions, ICRS scale of OCD type I, II or IV, multiple loose fragment in joint or some other cartilage involving disease were excluded from study. In all patients preoperative MRI done to evaluate the lesion.

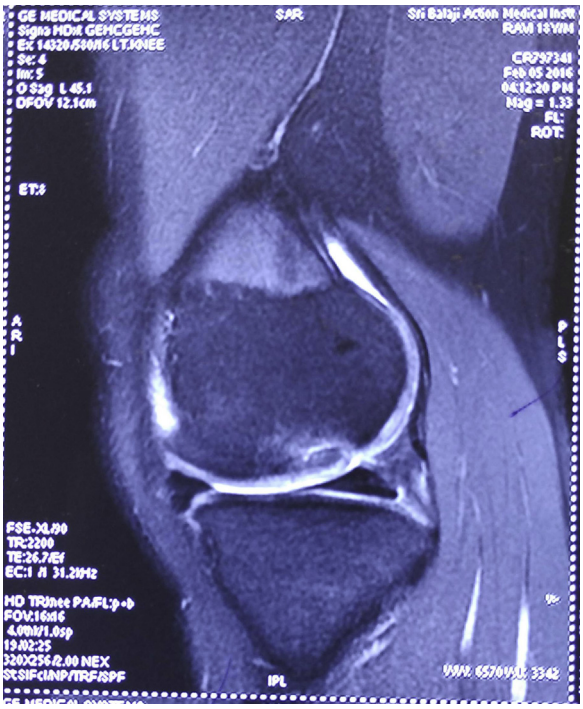

Fig. 2. Sagittal section of MRI showing Osteochondritis dissecans lesion preoperatively.

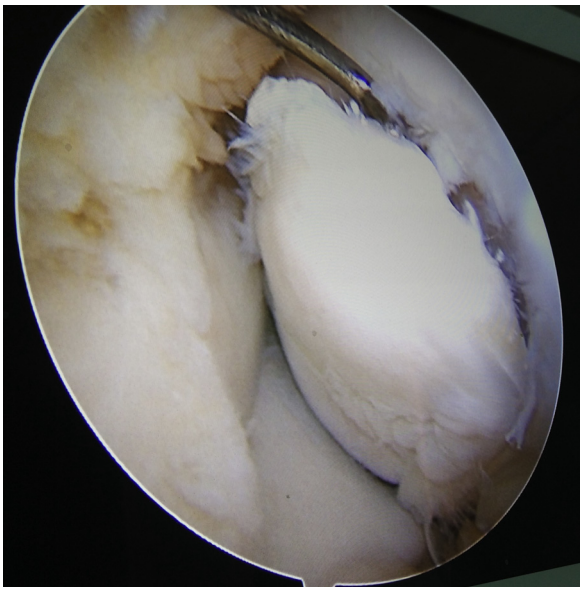

Fig. 3. Showing intraoperative picture of. Osteochondritis dissecans lesion.

Patients were operated Arthroscopiclly. In all patients diagnostic arthroscopy done, lesion defined, flap were displaced one side, debridement done with help of shaver, multiple drill hole done till subchondral area reached. Flap was reposited to the defect, fixed with 2–3 guide-wire, after drilling one or two, stainless steel cannulated cancellous screw placed over guide wire to fix the chondral flap. Utmost care was taken to countersink the screw in flap to prevent future complications.

Postoperatively, patients were kept on range of motion brace. Stitches were removed at 12th postoperative day. After stitch removal, 8–10 ml platelet rich plasma prepared from blood bank and injected in operated knee joint, Three times at interval of three weeks. For preparation of platelet rich plasma 100 ml of venous blood was centrifuged twice. In first spin whole blood was

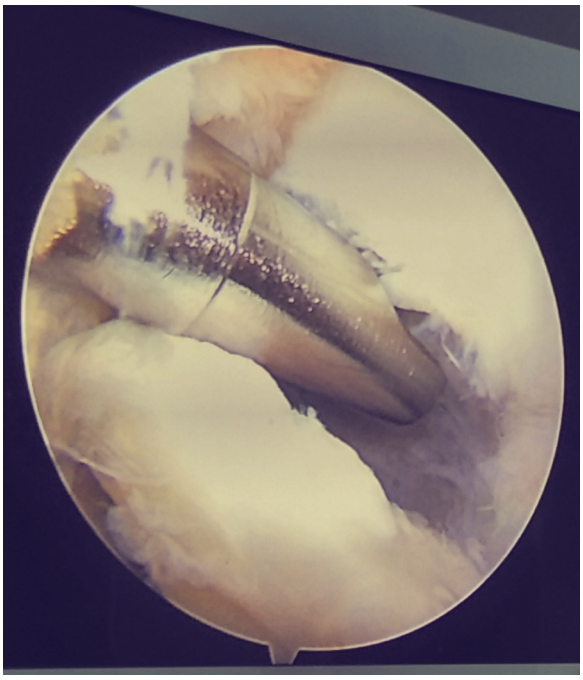

Fig. 4. Intraoperative picture showing debridement of Osteochondritis dissecans lesion.

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