

REGENERATION OF CHONDROCYTE FOR MAJOR CARTILAGE DEFECT USING AUTOLOGOUS CHONDROCYTE IMPLANTATION

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INTRODUCTION:

Symptomatic unstable major chondral defect of the knee are difficult to treat. The optimal surgical technique is still controversial. Autologous chondrocyte implantation (ACI) can be a better option of treatment with good functional outcome

METHODS:

We presented 3 cases of autologous chondrocyte implantation (ACI) using Chondron™ with long and medium term functional outcome using Knee Society Score (KSS). We performed 2 stages surgery with arthroscopic cell harvesting and proceeded with open implantation of the cultured cells after 6 weeks.

RESULTS:

Our first patient was 24-year-old lady presented with recurrence locking and effusion for 2 months following twisted injury over the left knee. There were 5X4 cm chondral defect over the lateral condyle. The patient has pain free full range of motion knee with functional outcome KSS 96% after 10 years of ACI.

Second patient was a 20-year-old gentleman presented with spontaneous with recurrence effusion and locking. Initial arthroscopic revealed large solitary chondromatosis with chondral erosion of 4X4 cm on the medial femoral condyle. The effusion and pain persist despite of abrasion arthroplasty. The patient has full range knee motion with KSS of 95% 5 years after ACI.

The third patient was a 19-year-old boy presented with 2 months history recurrence effusion following twisting injury over the left knee. There were 3X3 cm chondral defect over lateral condyle as shown in figure 1 and 2. The KSS was 97 % after 3 years treatment with ACI.

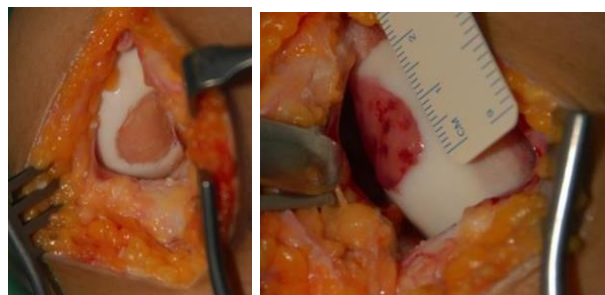


Fig 1: Resected chondral defect

Fig 2: Post implantation

DISCUSSIONS:

Surgical options to treat articular cartilage lesions of the adult knee depend on few determinants factor. The primary element is the size of the lesion as in the consensus statement (1). All the lesions in our patients were more than 4cm² which should be managed appropriately by ACI. The result demonstrated a good long term functional outcome up to 10 years post surgery. However, there is insufficient evidence at present to conclude that ACI is cost-effective compared with microfracture or mosaicplasty. Bentley et al found that mosaicplasty appeared to deteriorate with time but there was no clinical or arthroscopic deterioration after two years (2).

CONCLUSION:

ACI gives an encouraging result in our patients which can be the most appropriate surgical preference for symptomatic unstable chondral defect in adult.

REFERENCES:

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2. Bentley, G et al. 2003. A prospective, randomised comparison of autologous chondrocyte implantation versus mosaicplasty for osteochondral defects in the knee. *Bone & Joint Journal*, 85(2), pp.223-230.