

Early results of Complete Cartilage Regeneration (CCR)

technique for Talar Osteo-Chondral defects (OCD)

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Introduction

Optimal treatment for symptomatic talus Osteo-chondral defects (OCD's) has not been established. Recent advances have focussed on biological repair such as Autologous Chondrocyte Implantation (ACI). Funding for this treatment is limited and it involves a two stage procedure. A single stage procedure utilising stem cell therapy is an attractive financially viable option. The purpose of this study was to evaluate the safety and efficacy of stem cell therapy in the treatment of ankle OCD's.

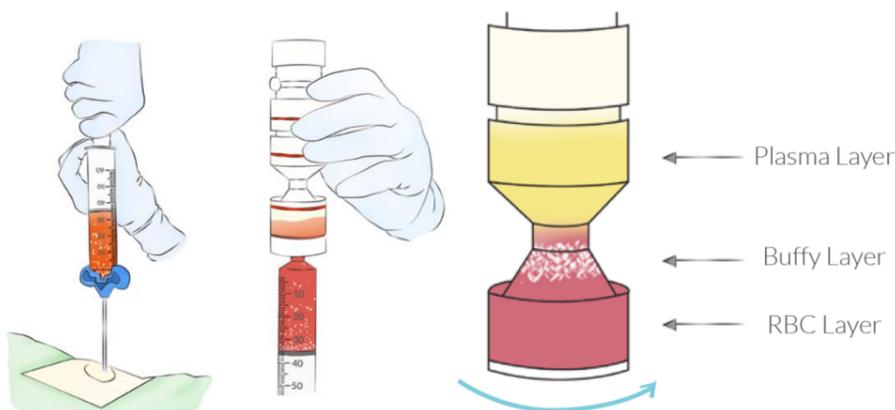
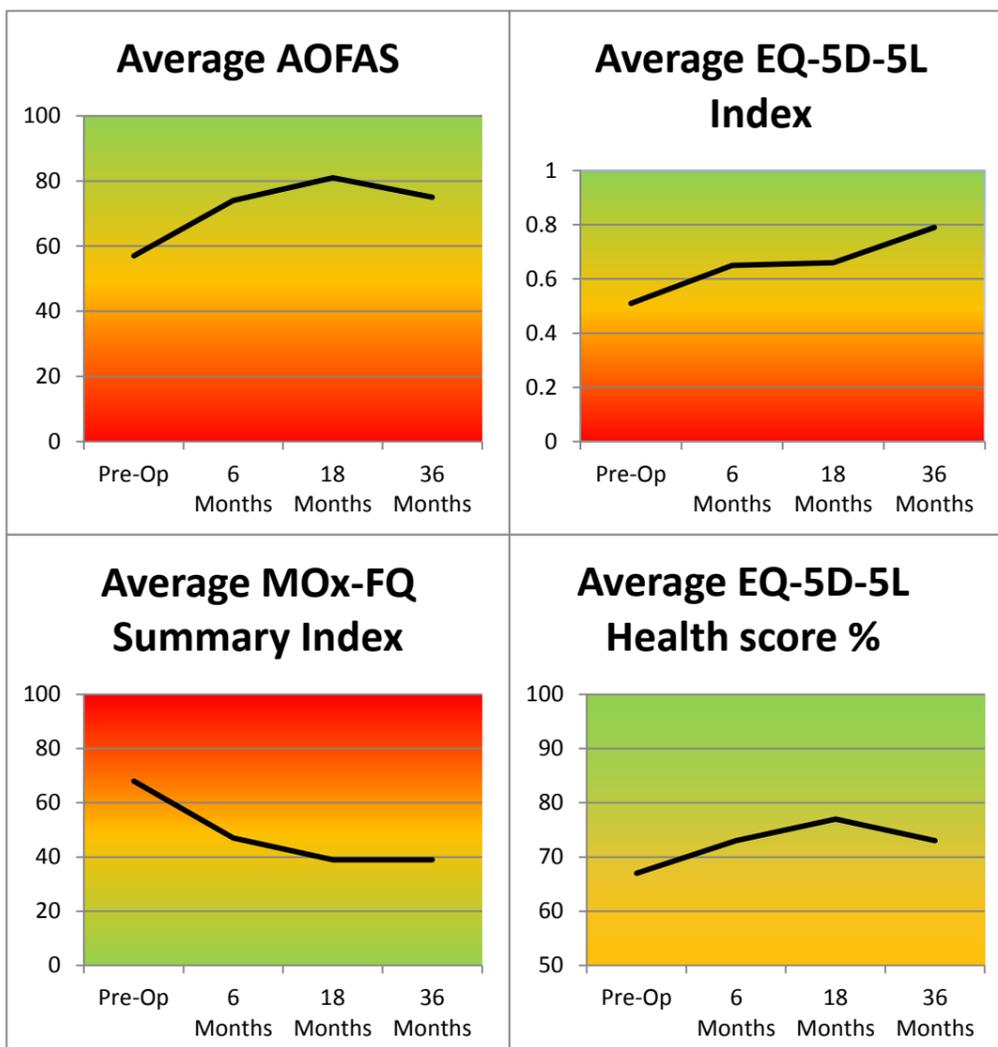
The study was approved by the new procedures committee. Between January 2015 and February 2018 52 patients with persisting disabling symptoms underwent Complete Cartilage Regeneration (CCR, Unity Medica) using stem cell therapy for the treatment of their ankle OCD's.

Results

52 patients have undergone CCR treatment at RJAH between October 2016 and May 2018. Average age 38 (21-73). 28 Males, 24 Females. 30 Right, 22 Left Ankles. Most patients had failed previous surgery. Pre and post-operative patient reported outcome scores are being collected. The data presented is the average scores collected at the various time intervals. After reviewing the case notes there were no complications locally or systemically with the CCR technique.

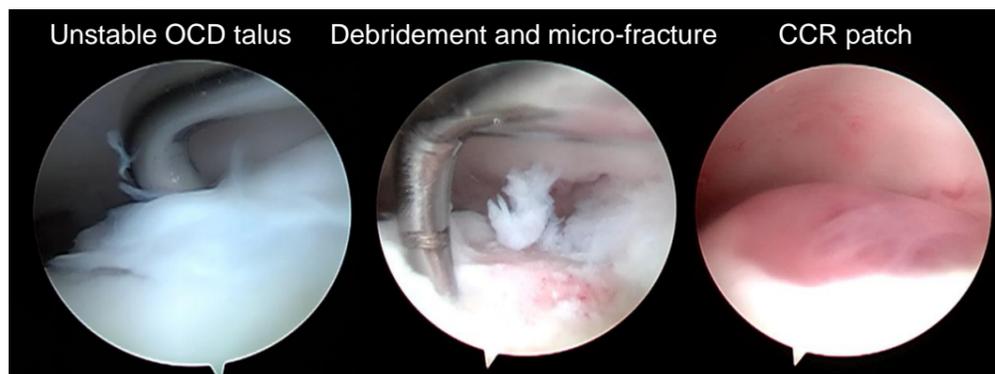
Conclusion

The CCR technique is a safe and effective treatment for patients who have talar osteo-chondral defects. Based on this data the CCR technique improves patient's pain and function for at least 2 years post procedure.



Surgical Technique

The patient is positioned supine with a sand bag under the buttock, a gutter support under the thigh keeps the knee to flexed. A pneumatic tourniquet is applied. After standard draping a GUHL ankle distractor is placed. Standard anterior arthroscopic portals are made. A diagnostic ankle arthroscopy is performed, to confirm the size and location of the OCD, matches that seen on the pre-operative MRI. The OCD is debrided to a rim of stable cartilage and microfracture performed or until there is bleeding cancellous bone. Cyst were debrided open or closed and bone-grafted.



A stab incision over the anterior superior iliac crest is made and a bone trocar is used to gain entry into the bone marrow. Three 10ml and one 5ml syringes are used to draw off a minimum of 35mls of bone marrow aspirate. The bone marrow aspirate is then spun down using the Unity Medica CCR chamber. This gives a Bone Marrow Aspirate Concentrate (BMAC). A dual syringe is prepared. One syringe with the BMAC and Thrombin. The second syringe with Hyaluronic acid and Fibrinogen.

The joint is then drained of fluid and the bone surface dried with sterile microscopy swabs. Once dry the dual syringe is introduced into the ankle via the plastic cannula. The syringe mixture is injected into and onto the OCD in stages. Allowing each layer to mix and become adherent to the previous layer. Once the OCD is completely filled the patch is moulded to shape by removing the GUHL distractor and ranging the ankle passively. The ankle is the arthroscopically examined to ensure the patch has remained adherent and any adhesions are broken down. The postoperative regime is the same as that of a standard micro-fracture technique.

