

Safety and Effectiveness of Talus Subchondroplasty® and Bone Marrow Aspirate Concentrate for Treatment of Osteochondral Defects of the Talus

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Introduction/Purpose: Subchondroplasty® is a relatively new technique used to treat multiple conditions associated with bone marrow edema. Asymptomatic talus osteochondral defects (OCD) typically present with no bone marrow edema on MRI. Therefore the aim of this retrospective study is to assess the safety and effectiveness of an arthroscopic-percutaneous procedure for the treatment of painful OCDs using subchondral highly porous injectable calcium phosphate – to address the marrow edema - and intra-articular bone marrow aspirate concentrate (BMAC) – to address joint inflammation.

Methods: From September 2016 to November 2016 9 consecutive patients with an isolated symptomatic osteochondral defect were included in the study. The Foot and Ankle Orthopaedic Score (FAOS) and the visual analogue scale (VAS) for pain were administered preoperatively and at the 1 year postoperative mark. At 52 weeks patients were asked if they would have the procedure again.

The procedure was performed by debriding only unstable cartilage and joint synovitic tissue. No microfracture was performed to prevent spilling of calcium paste into the joint. At the end of the procedure 8cc of BMAC were injected into the joint. Patients were allowed to weight bear as tolerated in a sneaker postoperatively. Return to sports was also indicated as tolerated.

Results: Mean OCD size as measured on preoperative MRI was 1.3 x 1.4 cm (range, 1 x 0.8cm to 2 x 2.3cm). Mean 1.7cc (range, 1.5 to 2 cc) of calcium paste were injected in the subchondral bone at the level of the OCD, under arthroscopic visualization to debride any calcium paste leakage. All outcome measures demonstrated marked improvement from baseline to final follow-up: The mean weight bearing VAS pain score improved from mean 7.8 (range 6 to 9) to 0.5 (range, 0 to 1); the mean total FAOS improved from mean 67.1 (range, 55 to 79) to mean 90.6 (range, 87 to 95). At the 1-year postoperative visit all patients declared that they would have the procedure again.

Conclusion: Despite the short follow up and the limited number of patients, subchondroplasty and BMAC injection offered good pain relief in all patients. The procedure is not technically challenging, it allows for immediate postoperative weight bearing, and does not compromise future treatments in case of recurrence of symptoms. Further high-quality studies are needed to confirm these results and to assess the long-term outcomes of the procedure.

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