

A Metal Resurfacing Implant in the Treatment of Osteochondral Defects of the Talus after Failed Previous Surgery: A Prospective Follow-Up

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Summary:

Using a metal resurfacing implant after failed previous surgical treatment of OCDs provided good results in lesions up to 20mm in diameter as measured by the NRS-scale, AOFAS, FAOS and SF-36.

Abstract:

Introduction

In about 70% of ankle sprains an osteochondral ankle defects (OCDs) of the ankle may occur. Most often the medial talar dome is affected. Primary treatment mainly consists of arthroscopic debridement and microfracture in defects up to 15mm. Secondary treatment can consist of bone grafting techniques. To avoid donor site morbidity and to adequately treat patients with a secondary OCD of the medial talar dome a resurfacing implant was developed. The long term follow-up is not fully known yet. The aim of this study was to evaluate the clinical effectiveness of the metal implant in treatment of OCDs in patients with a follow-up period up of 1-8 years.

Methods

We prospectively studied all patients with an OCD of the medial talar dome, with the largest diameter being between 12 mm and 20 mm as measured on CT scans who received the HemiCAP resurfacing prosthesis. Only patients with persistent complaints for more than a year after previous surgical treatment and a minimum follow-up of 1 year were included in this update. Exclusion criteria included an age < 18 years, ankle osteoarthritis grade III, other ankle pathology, and diabetes mellitus. The primary outcome measure pain as measured by the Numeric Rating Scale for pain (NRS) at rest and during walking, running, and stair climbing. The Foot Ankle Outcome Score (FAOS), American Orthopaedic Foot and Ankle Society (AOFAS) ankle-hindfoot score and Short-Form 36 (SF-36) were used as secondary outcome measures. Approval for this study was received by the local ethics committee. All score changes were assessed using the ANOVA for repeated measurements including the Bonferroni correction for posthoc pairwise comparisons. All skewed data was presented with a median and range, and normally distributed data with a mean and standard deviation.

Results

This study included 38 patients with a mean age of 38.6 years (SD±13.2), 64.7% females, a median follow-up of 5 years (range 2-8), and a mean BMI of 26.51 kg/m² (SD±3.8). There was statistically significant reduction of on the NRS pain scale during walking (from 3.13 to 1.67 points), running (from 8.83 to 3.33) and stair climbing (from 6.13 to 2.33) in all four assessed situations ($p < 0.0018$; repeated measures ANOVA). The FAOS pain (from 52.34 to 77.67), ADL (from 61.84 to 83.00) and quality of life (from 17.90 to 52.00) subscales improved significantly on three out of five subscales ($p < 0.0010$; repeated measures ANOVA). The AOFAS score improved from a median of 6358.97.3 (±1113.07.0) preoperatively to 79.273.00 (±18.338.18) at final follow-up ($p < 0.0010$). The SF-36 physical component scale improved from a mean of 35.234.76 (±8.38.89) pre-operatively to 46.248.67 (±16.515.19) at final follow-up.

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($p=0.0014$; repeated measures ANOVA); the mental component scale did not change significantly. Postoperative radiographs showed cyst formation ($n=2$; 5%); subchondral periprosthetic radiolucency ($n=2$; 5%) and joint space narrowing ($n=2$; 5%). On radiographs, degenerative changes were observed in two patients, and periprosthetic lucency was found in two patients.

Conclusion

This study shows that a metal implant is a promising treatment for osteochondral defects of the medial talar dome after failed previous surgery both on the short- mid- and long -term. To come to conclusions on duration of treatment effect and effect joint degeneration, longer follow-up is needed.