Midterm CT And MRI Appearance Of Osteobiologic Plugs In The Knee

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Disclosures

• Preston Wolin, MD
  – I am a consultant for JRF, my fellowship receives financial support from Smith and Nephew and Arthrex. I have stock options in Xtant Medical.

• Noam Reshef, MD
  – I have no financial conflicts to disclose

• Kate Compall
  – I have no financial conflicts to disclose.
Introduction

• There are a number of options for treating chondral/osteochondral defects. These include: microfracture, osteoarticular autograft, osteochondral allograft, autologous chondrocyte implantation, and scaffold matrices.

• The TruFit (Smith & Nephew) Osteobiologic (OBI) plug is a PLGA-PGA/Calcium Sulfate bilayered scaffold implant designed to produce osteochondral regeneration.
Objective

The objective of our study was to evaluate both the bony integration and cartilage morphology of TruFit Plugs placed to fill primary osteochondral defects in the knee.
The Tru Fit Osteobiologic Plug

TruFit CB, Smith & Nephew, USA
Methods

• 17 patients underwent OBI plug implantation for primary chondral defects of the knee.
• 13 plugs in 7 patients were available for radiographic review
• The mean follow up was 36.4 months (range 20-57 months).
Methods

• Each patient underwent CT for evaluation of bony integration
  – A percentage of Hounsfield units (HU) of native cancellous bone (HU implant/HU native bone) was calculated.

• MRI was used to evaluate the amount and quality of articular cartilage
CT Results

• CT results showed percentage of bony integration to be mean 37.7% (range 0-100, SD ±30.1).

• HU implant/HU native bone was mean 32.2%, range 11.8-64.9.
4 yr fu CT showing persistent bony defect of medial femoral condyle
MRI Results

- Articular Cartilage fill: 38.5% filled 0-25% of the defect, 15.3% filled 25-50%, 23.1% filled 50-75%, and 23.1% filled 75-100%.

- T2 fat saturated signals were isointense in 26.9%, hyperintense in 34.6%, intermediate in 23.1%, hypointense in 23.1%, and cancellous bone in 7.7%.
Four Year Follow-up MRI showing overlying cartilage of intermediate signal intensity
Conclusions

• Bony integration of the TruFit Plug was poor.
• Amount of articular cartilage fill was significantly incomplete.
• The quality of resulting cartilage was inconsistent.
References


