

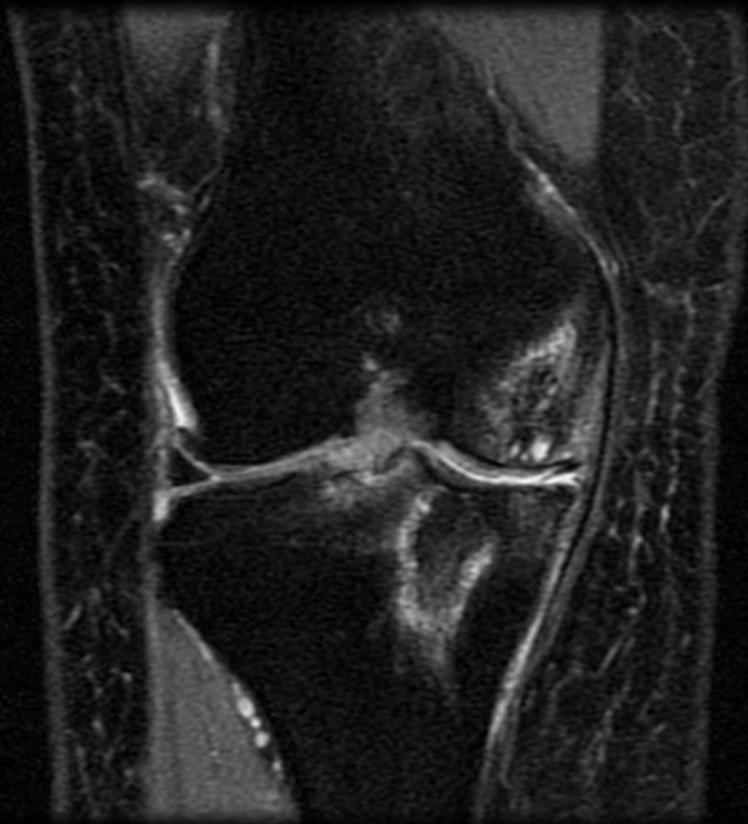


# 64 year old female, history given: Study Candidate

William Millard

7/29/2016

# Right Knee MRI July 2016



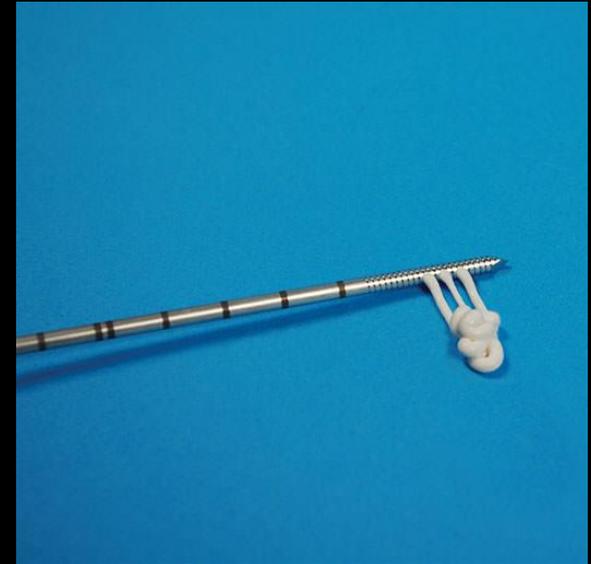
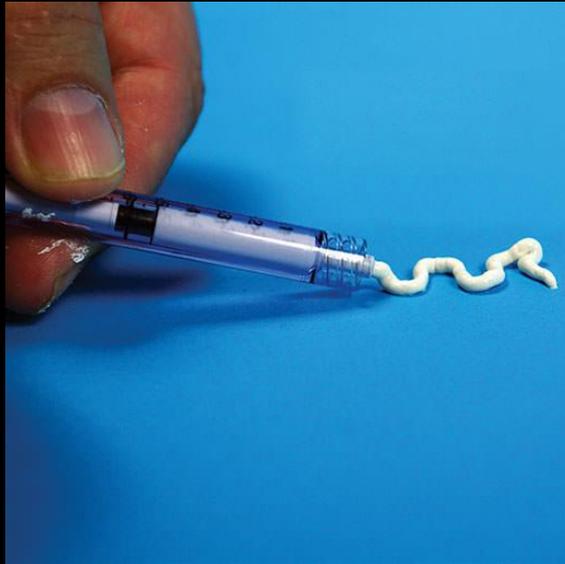
# Right Knee MRI July 2016



# Digging Deeper

- Operative Report February 2016 described a subchondroplasty procedure utilizing Accufill calcium phosphate substrate.
- Procedure performed on the medial femoral condyle and medial tibial plateau.

# Subchondroplasty Accufill Calcium Phosphate



# Use

## Indications

- Chondral defects
- Osteochondral defects
- Osteochondritis dissecans
- Osteoarthritis
- Insufficiency fractures
- Stress fractures
- Subchondral defects
- Avascular necrosis
- Spontaneous osteonecrosis of the knee

## Contraindications

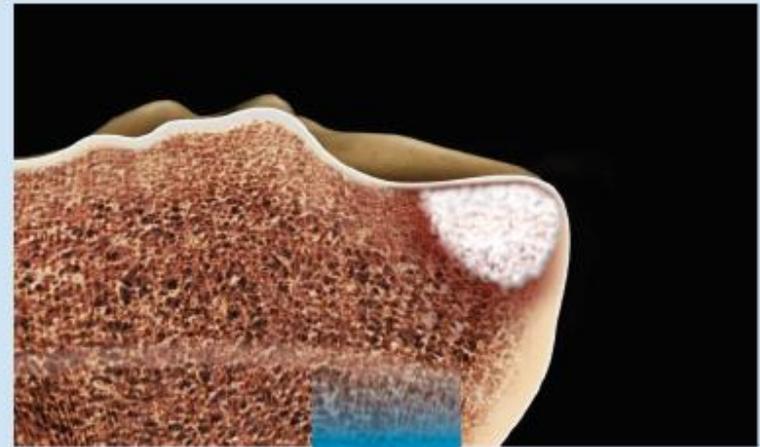
- Acute tibial plateau fractures
- Acute distal femur fractures
- Undiagnosed bone lesions
- Infection
- Malignancy

# Manufacturers Description

“During The SCP<sup>®</sup> Procedure, AccuFill<sup>®</sup> BSM, an injectable, flowable, engineered calcium phosphate bone substitute is used to fill a subchondral bone defect. AccuFill<sup>®</sup> BSM crystallizes and hardens in an endothermic reaction at 37° C to form a nanocrystalline, macroporous scaffold in the bone. Over time, through cell-mediated remodeling, AccuFill<sup>®</sup> BSM is resorbed and replaced with new bone.”

## AFTER THE PROCEDURE:

AccuFill<sup>®</sup> is remodeled with new bone growth



# Procedure



Contents lists available at ScienceDirect

## Clinical Imaging

journal homepage: <http://www.clinicalimaging.org>



### Case Report

## MRI findings of subchondroplasty of the knee: a two-case report



Mika T. Nevalainen <sup>a,\*</sup>, Peter F. Sharkey <sup>b</sup>, Steven B. Cohen <sup>b</sup>, Johannes B. Roedl <sup>a</sup>,  
Adam C. Zoga <sup>a</sup>, William B. Morrison <sup>a</sup>

<sup>a</sup> Division of Musculoskeletal Imaging and Intervention, Department of Radiology, Thomas Jefferson University Hospital, Sidney Kimmel Medical College at Thomas Jefferson University, 132 South 10th Street, Philadelphia, PA 19107, USA

<sup>b</sup> Rothman Institute, Department of Orthopedic Surgery, Thomas Jefferson University Hospital, Sidney Kimmel Medical College at Thomas Jefferson University, 925 Chestnut Street, Philadelphia, PA 19107, USA

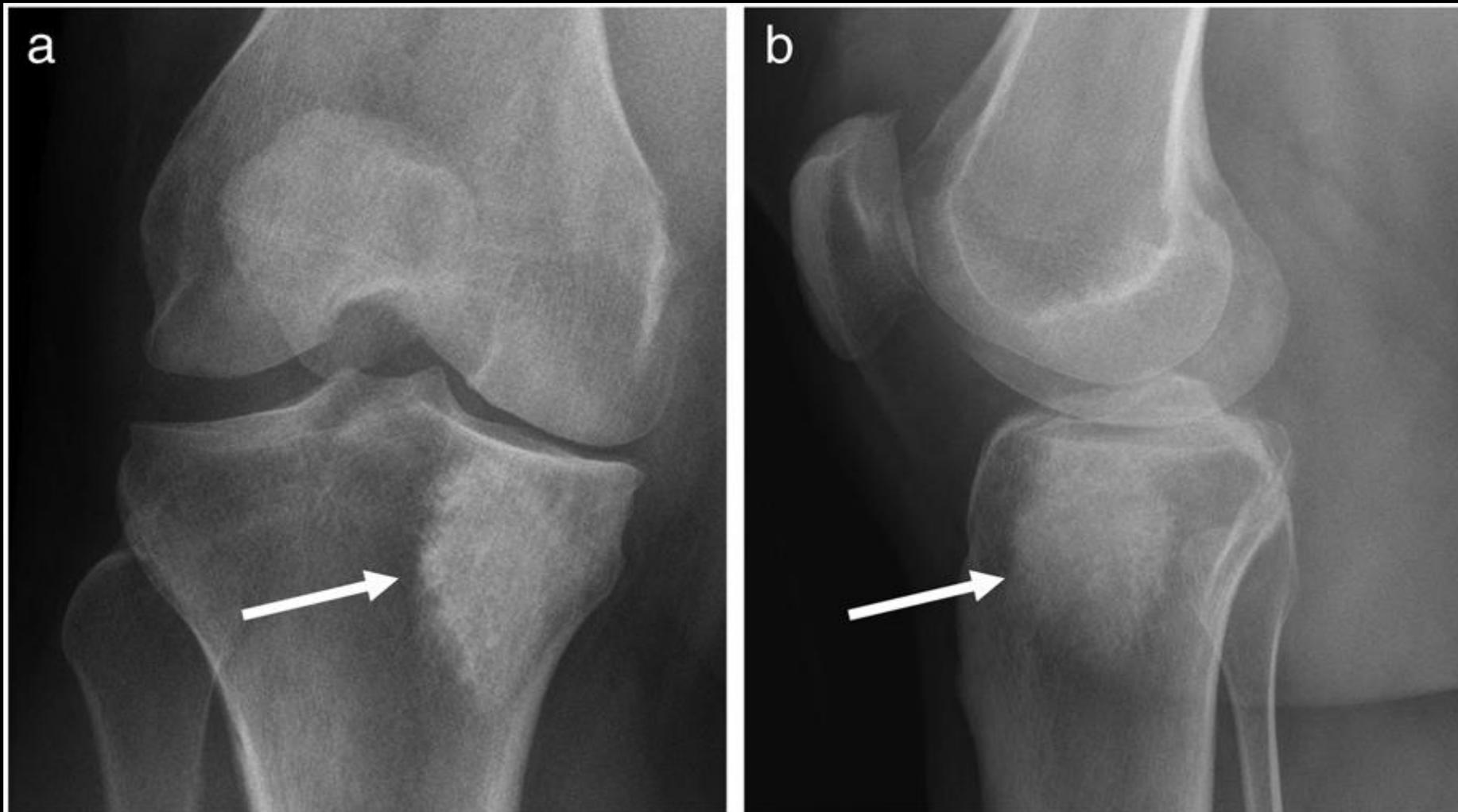
“To our knowledge, the MRI findings of knee subchondroplasty have never been described in the radiological literature. The purpose of this study is to describe the characteristic findings of knee subchondroplasty seen on MRI.”

# 42-year-old man



4 months postprocedure

# 42-year-old man



6 months after

# 58-year-old man



preprocedure

9 months

14 months

# Returning to Our Case

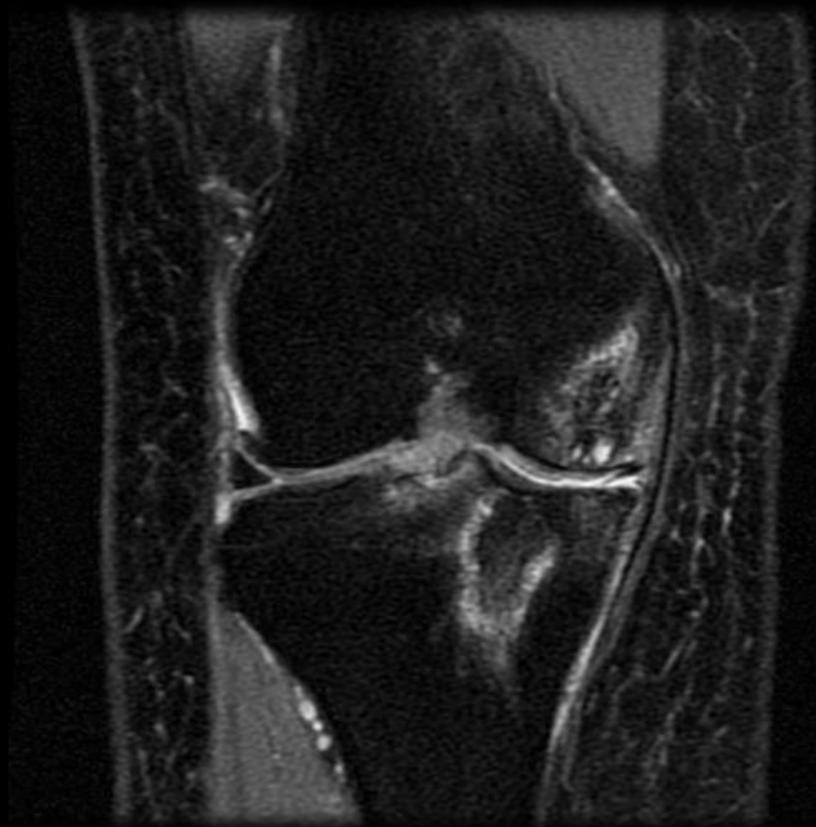
# Right Knee MRI January 2016



# Right Knee MRI July 2016



# Right Knee MRI July 2016



# References

1. Nevalainen, Mika T., Peter F. Sharkey, Steven B. Cohen, Johannes B. Roedl, Adam C. Zoga, and William B. Morrison. "MRI Findings of Subchondroplasty of the Knee: A Two-case Report." *Clinical Imaging* 40.2 (2016): 241-43. Web.
2. Zimmer Biomet <http://subchondroplasty.com>
3. Cole BJ, Harris JD, eds. *Biologic Knee Reconstruction: A Surgeon's Guide* (pp 83-89). "Subchondral Bone Treatment"

# AccuFill® BSM Performance

Criteria	Feature	Benefit
Formulation	Proprietary next generation apatite. Mimics chemical structure of human bone.	Facilitates cell-mediated remodeling.
Handling	Truly injectable. Remains cohesive. Flowable inside cancellous bone. 15 minutes of working time.	No need to remove subchondral bone. No phase separation from injection pressure. Interdigitates easily for complete defect fill. Long window for implantation; intraoperative flexibility.
Setting	Endothermally sets in 10 minutes at 37°C.	Sets hard after closure, no thermal necrosis.
Structure	Osteoconductive. Nanocrystalline structure. 65% total porosity; 1-300 µm pore size. 10 MPa compressive strength.	Nanocrystalline structure and high surface area facilitate remodeling and bony ingrowth. Physical properties comparable to cancellous bone.
Remodeling	Cell-mediated remodeling. Remodeled vs. dissolved.	Remodels with new bone growth.



AccuFill® BSM is manufactured by Etek, a subsidiary of Zimmer Biomet and leader in bioresorbable bone substitute materials. The company is headquartered in MIT's University Park in Cambridge, Massachusetts, a world renowned center for biotech research and innovation.