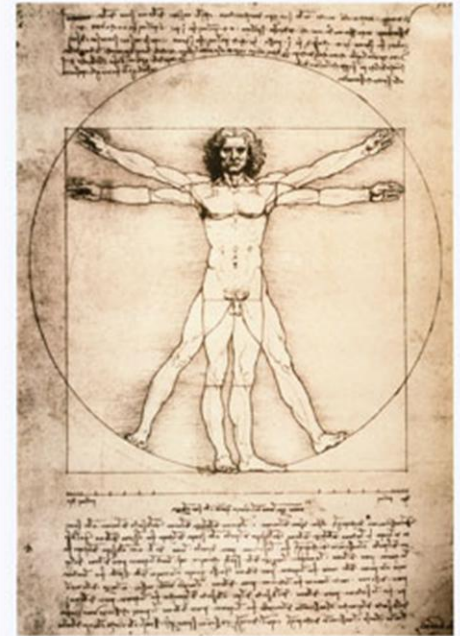


Fixation of Three Osteochondritis dissecans lesions with ActivaPins

by
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Patient

- 18-year old male patient
- Left knee pain started at the age of 12 years; active floorball player at the time
- MRI 2/2005:
 - Osteochondritis dissecans lesion in medial femoral condyle.
 - Diameter 3.3 cm



Operation # 1

- 5/2005 Arthroscopy
- Cartilage intact →
 - Microfracture (x 6 using K-wire)
- Outcome: Symptoms persisted



Operation # 2

- 4/2007 Arthroscopy:
- Fixation with two biodegradable nail-implants (SmartNail)
- Outcome: Symptoms persisted:
 - Pain even in minor physical activity
 - Development of flexion and extension deficit
 - Compensation in gait; turns spontaneously the knee joint into external rotation to avoid pain while walking.



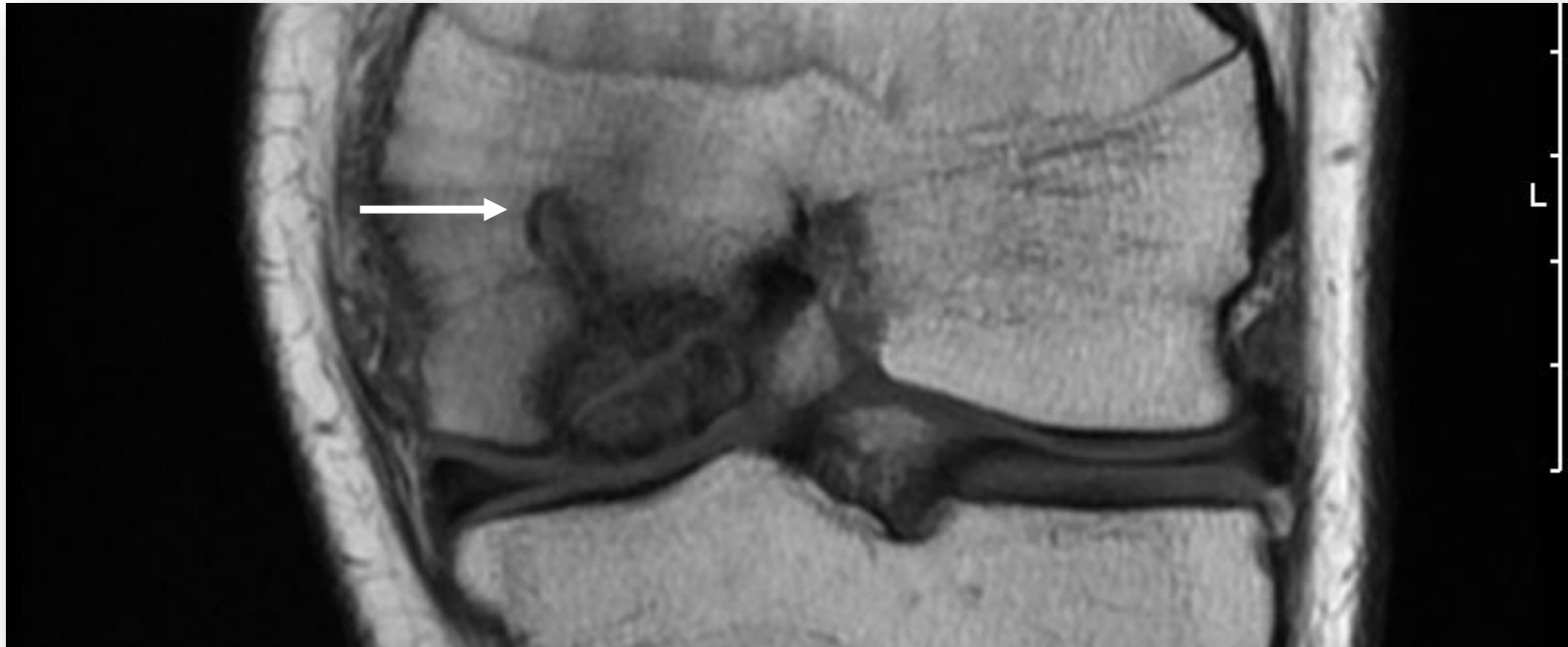
MRI 5/2009

- Loose OCD with fluid between the fragment and main bone



MRI 5/2009

- Biodegradable nail visible, but not holding the OCD fragment in place



Consultation with Orthopaedic surgeon at the age of 18

- Flexion and extension deficit, ROM 5 – 135. "Limping"
- Pain in normal physical activity, participation in sports not an option due to the pain → Mutual decision:
- Re-operation



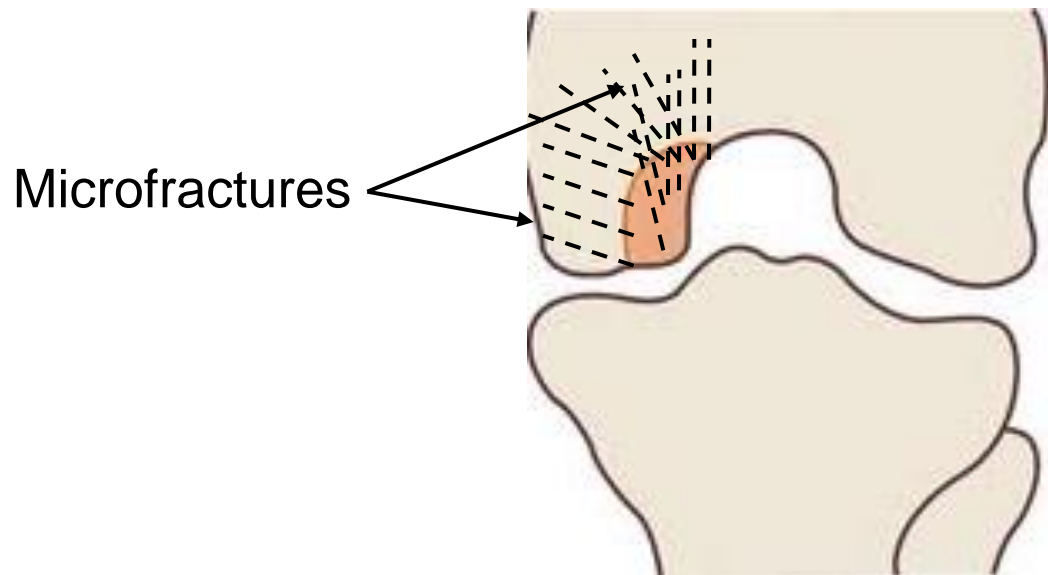
Operation # 3

- 12/2010 Arthroscopy → mini-arthrotomy
- Findings:
 - Three OCD fragments:
 - 3 cm x 3 cm round main fragment
 - Two 2 cm x 2 cm fragments posteriorly (see flexion-deficit, not good access by arthroscopy)
 - Total area 7 cm x 2.5 cm, comprising essentially the weight-bearing part of the condyle
 - Cartilage pieces held together loosely by fibrous tissue filaments
 - Cartilage pieces "floating" (0 – 7 mm above the joint line), held loosely to the main bone by fibrous tissue



Operation # 3

- Arthroscopy → mini-arthrotomy
- Debridement of the bed and the OCD fragments softly by shaver
- 30 – 50 microfractures to all directions (comprising the condyle) in the bony "bed" with K-wire



Operation # 3

- Fixation of the OCD fragments by 8 (4+2+2) Bioretec`s resorbable 30 mm (4 pcs 2.0, 4 pcs 1.5) pins (ActivaPin™)
- Restoration of joint line established



Post-operative Program

- Immediate mobilization
- Full ROM exercises immediately
- Isometric quadriceps training started
- The 1st month: no weight bearing
- 5 – 6 weeks partial weight bearing
- At 6 weeks full weight-bearing, walking exercises



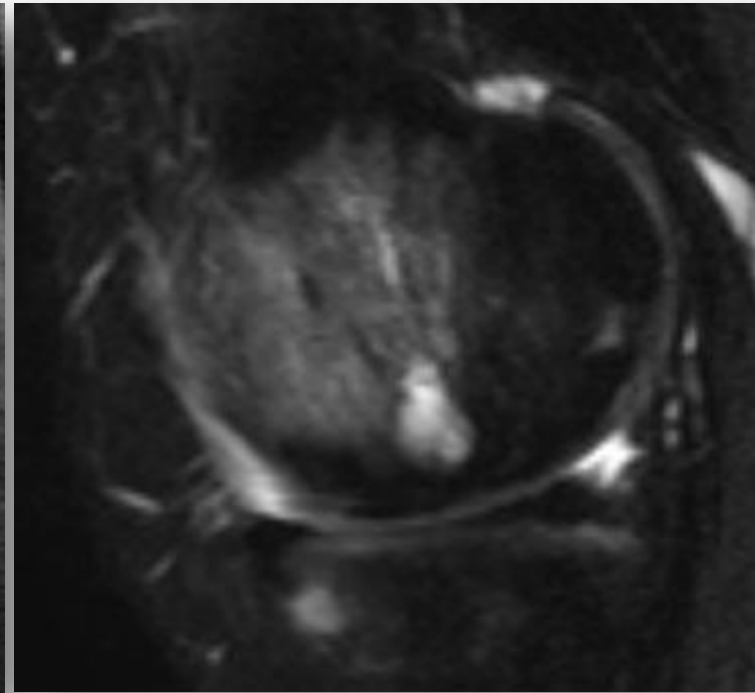
Post-operative Controls

- 6 weeks:
 - Full ROM established
 - No symptoms
 - Full-weight bearing started
- Subjective evaluation: "Better than ever!"
- 3 months:
 - No symptoms
 - Normal gait established
 - Weight training started
- 6 months:
 - No symptoms, no pain, no detectable quadriceps atrophy
 - Knee can withstand strenuous physical activity such as volleyball, floorball
 - Heavy weight lifting
 - Considering return to competitive sports after 6 year-hiatus



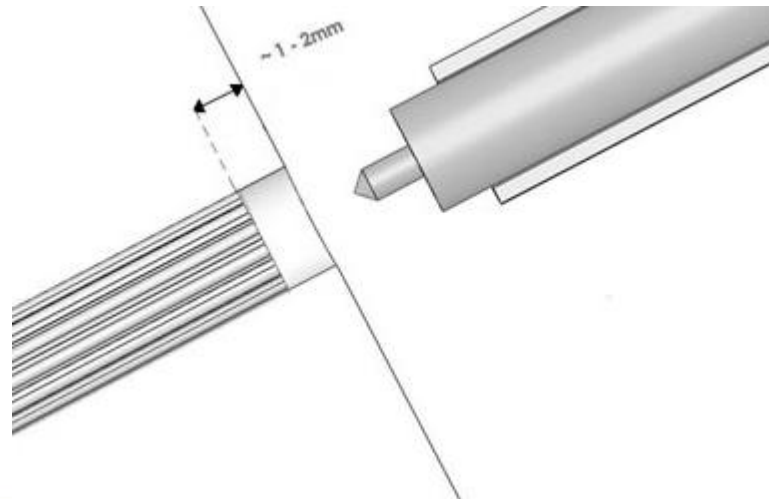
MRI 5/2011

- Complete osteointegration of OCD fragments
- No fluid between the main bone and OCDs.
- Active remodelling. The bio-pins still visible



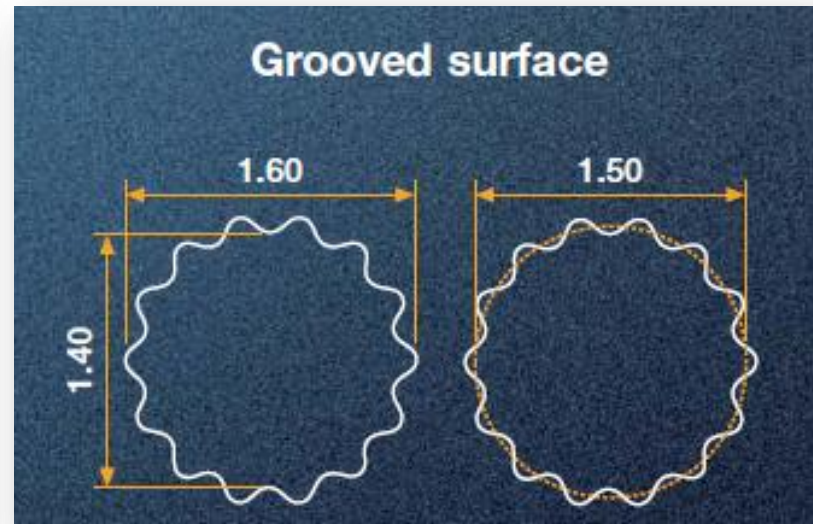
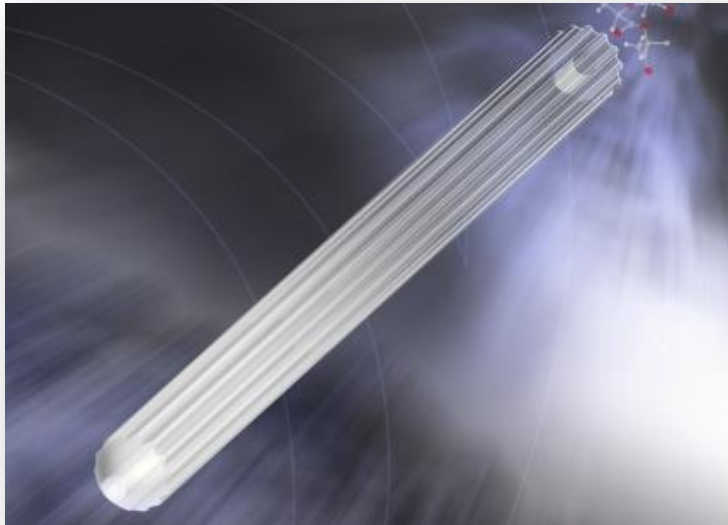
Discussion

- Microfractures crucial for regenerative response, i.e. Osteointegration
 - No fracture-risk due to the reduced weight-bearing after the operation for 6 weeks.
- ActivaPin's biological properties beneficial;
 - Pins 1 mm below the joint surface → Symptomless (no mechanical irritation)



Discussion

- ActivaPin's biological properties beneficial:
 - Self-locking and rotational stability provided by "swelling" of the ActivaPin in contact with tissue fluids and by the "shape-memory" of the pin are ideal for OCD-fragment fixation



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