Extra-articular release for knee stiffness post-fracture

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UNIVERSITÉ DE GENÈVE
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Management

- Initial fracture
- Implants
- Approach "double approaches"
- Degree of contracture
- Soft-tissue status
- Degree of patella capture

Management

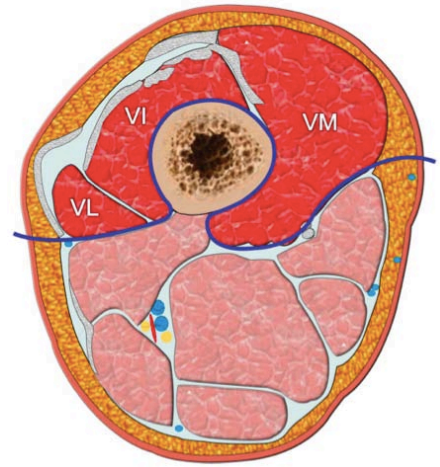
- Degree of fracture healing
  - Radiograph / Ct-scanner
  - Patella/medial tibial plateau
- Position of the patella
  - Lateral radiograph at 30° of flexion

Plan

- Arthroscopy
- Open approach (skin incision)
  - Release of the subcutaneous layer
  - Medial arthrotomy
  - Lateral arthrotomy
  - Release of the anterior compartment (PT release!!!)

Plan

- Release of the supra-patellar, superomedial and superolateral pouch
- Release of the lateral recess
- Release of the deep part of the distal quad (tendons vastus med, vastus intermediary, vastus lat)



Plan

- First manipulation under complete muscle relaxation
- Hardware removal
- Completion of the manipulation

Associated procedures

- Complete hardware removal
- Rectus femoris proximal snip
- Proximalisation osteotomy of the tibial tubercle

Objective

- To reach a durable 110-120° of knee flexion (Judet: excellent result)
- At least 90° of flexion
- To release the patella capture
- To obtain an active QUAD

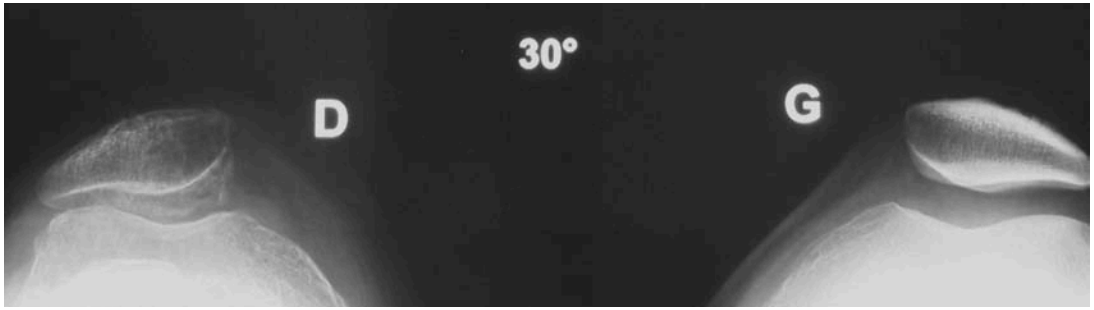
Case presentation

- Mrs G, 38 y old, airline pilot, MVA. Frontal collision. Complex tibial plateau fracture. 9 months post-ORIF. First manipulation under anesthesia at 6 months post-op. Persistent limited flexion to 60°.

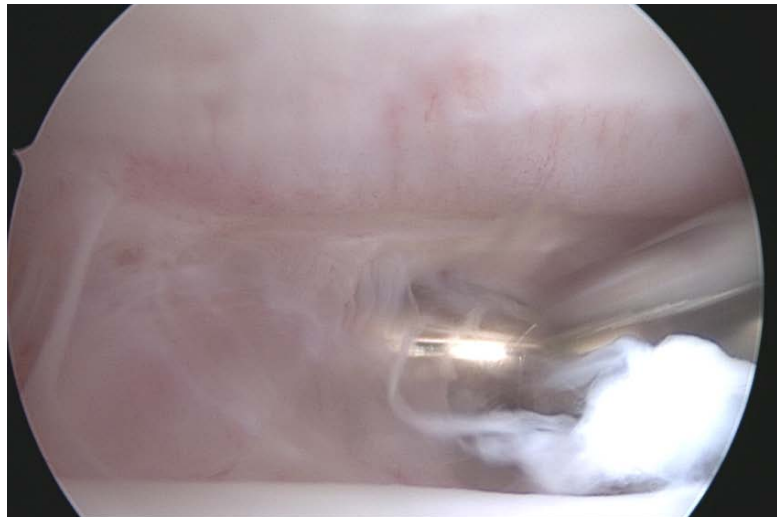
Case presentation

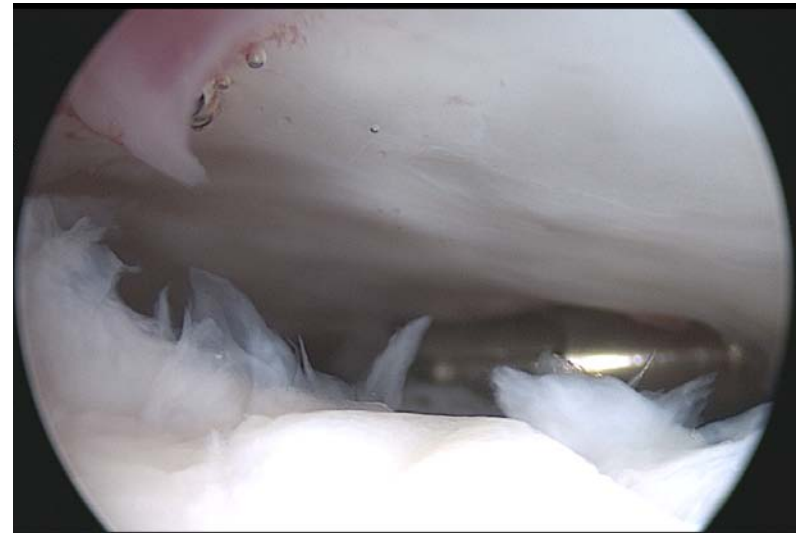
- Mr A.S. 44 y old, Policeman. Football accident: patellar chondral injury 3 years ago. 5 operations for cartilage, serial arthrolysis, proximal rupture of the patellar tendon. 3 years post-accident: Flexion limited to 45°.

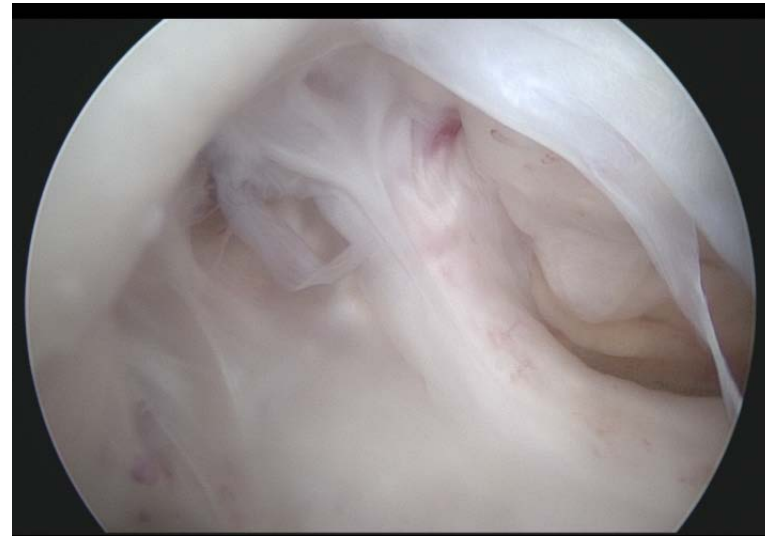
Mr A.S.44 y old



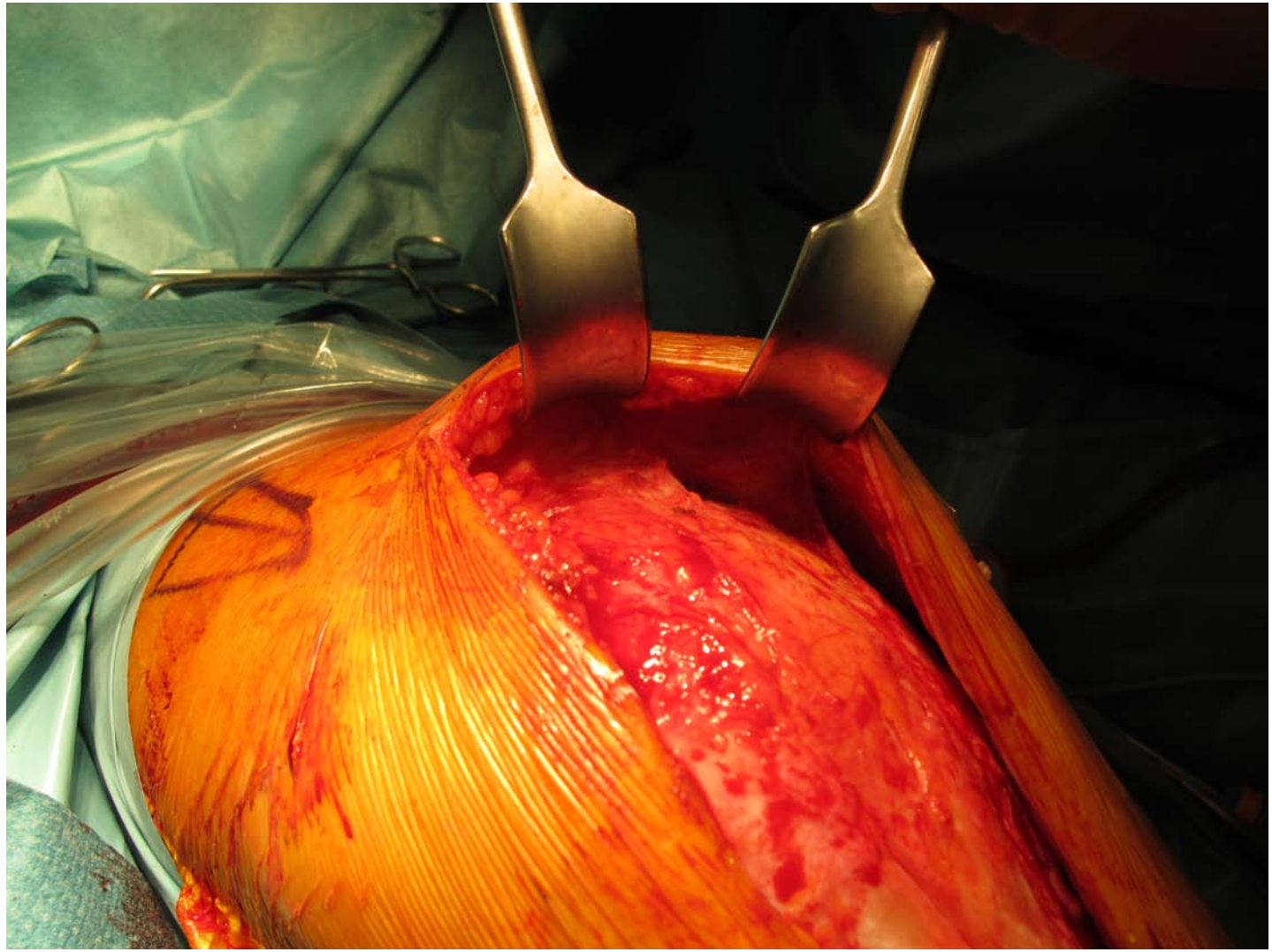
Arthroscopy



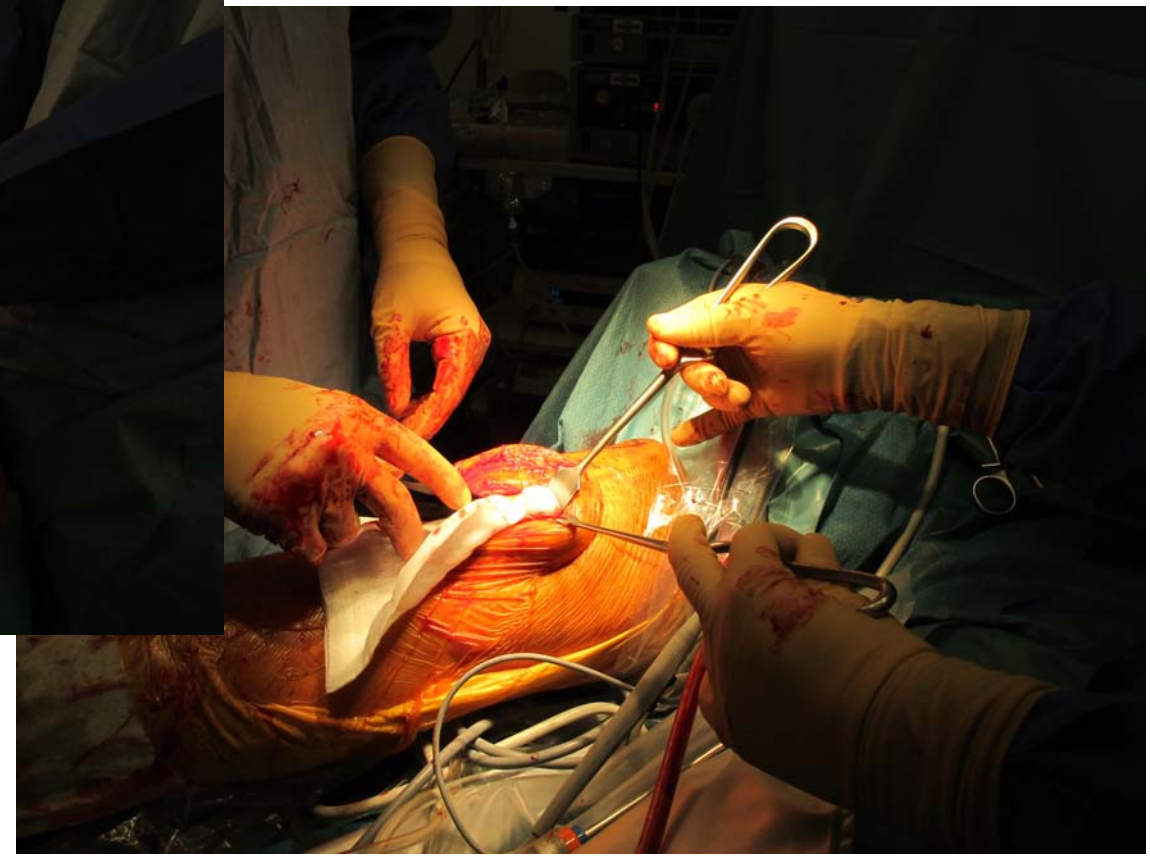




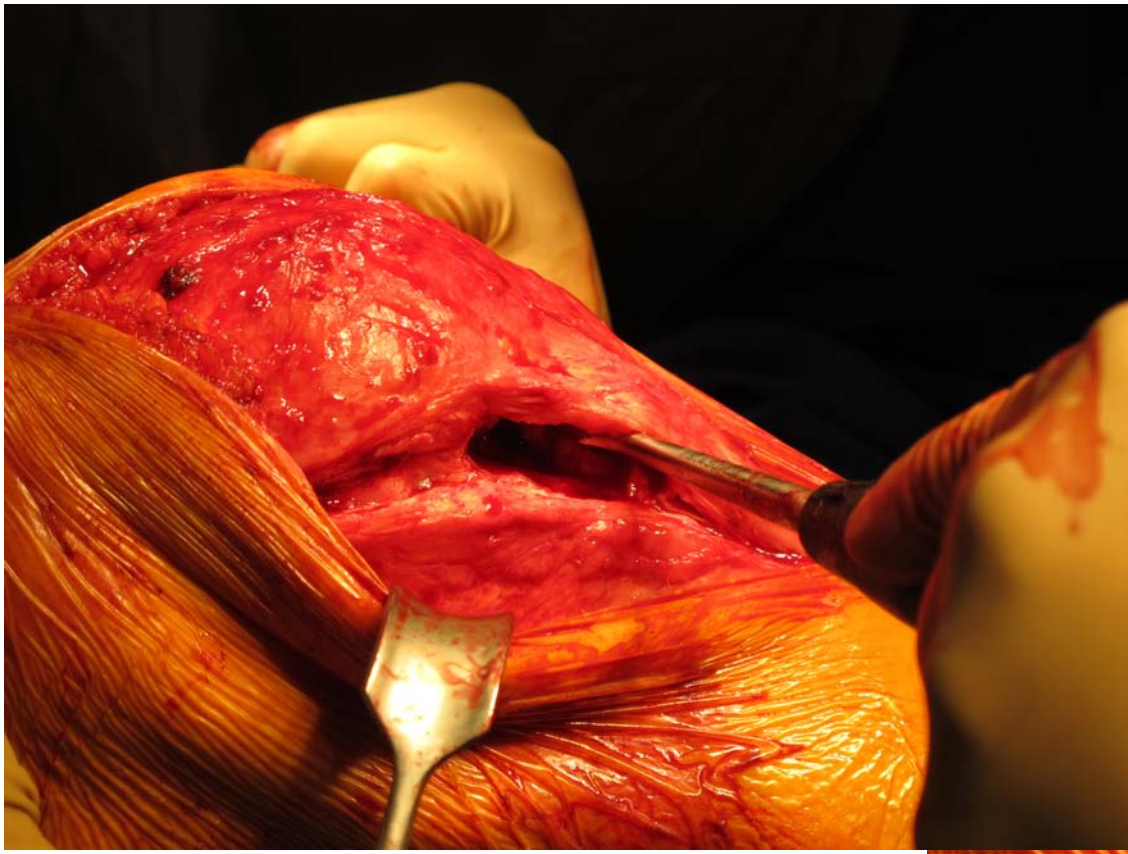
Subcutaneous release

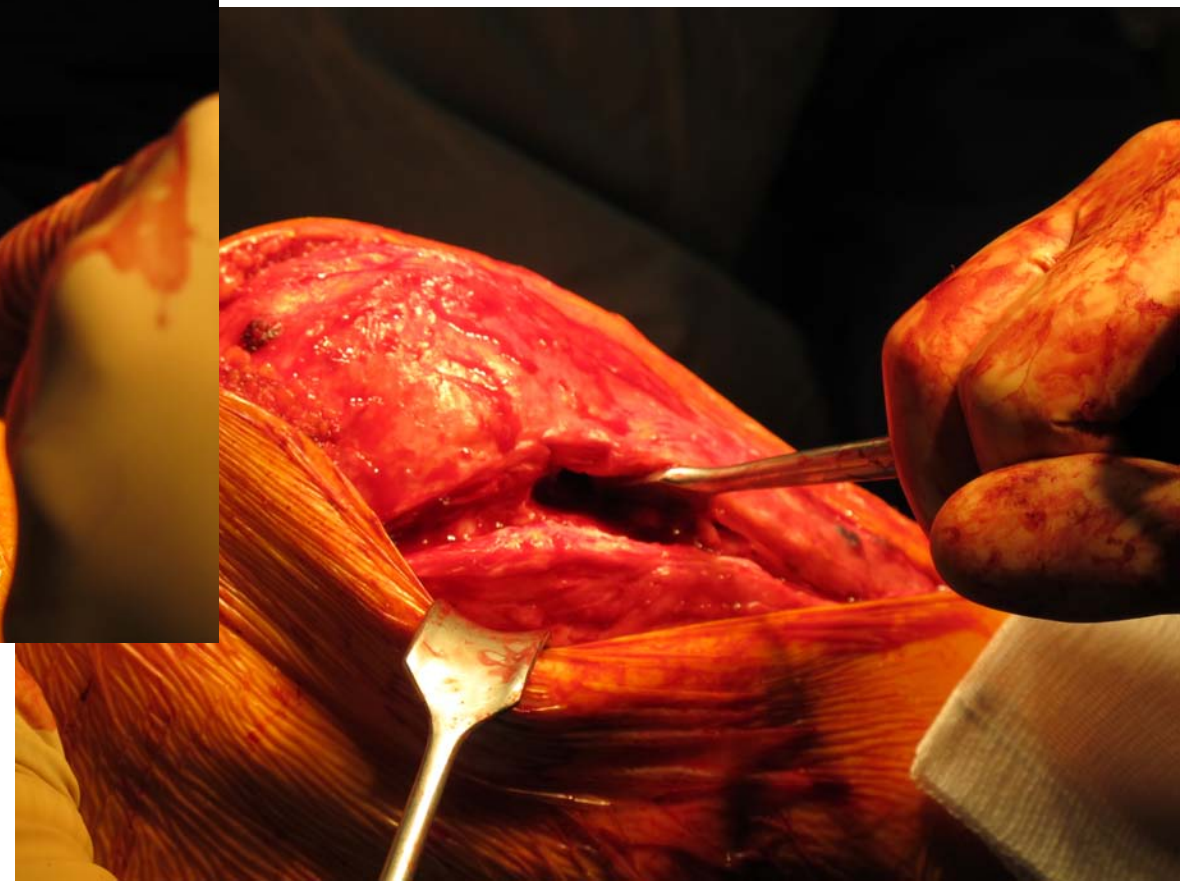


Medial arthrotomy

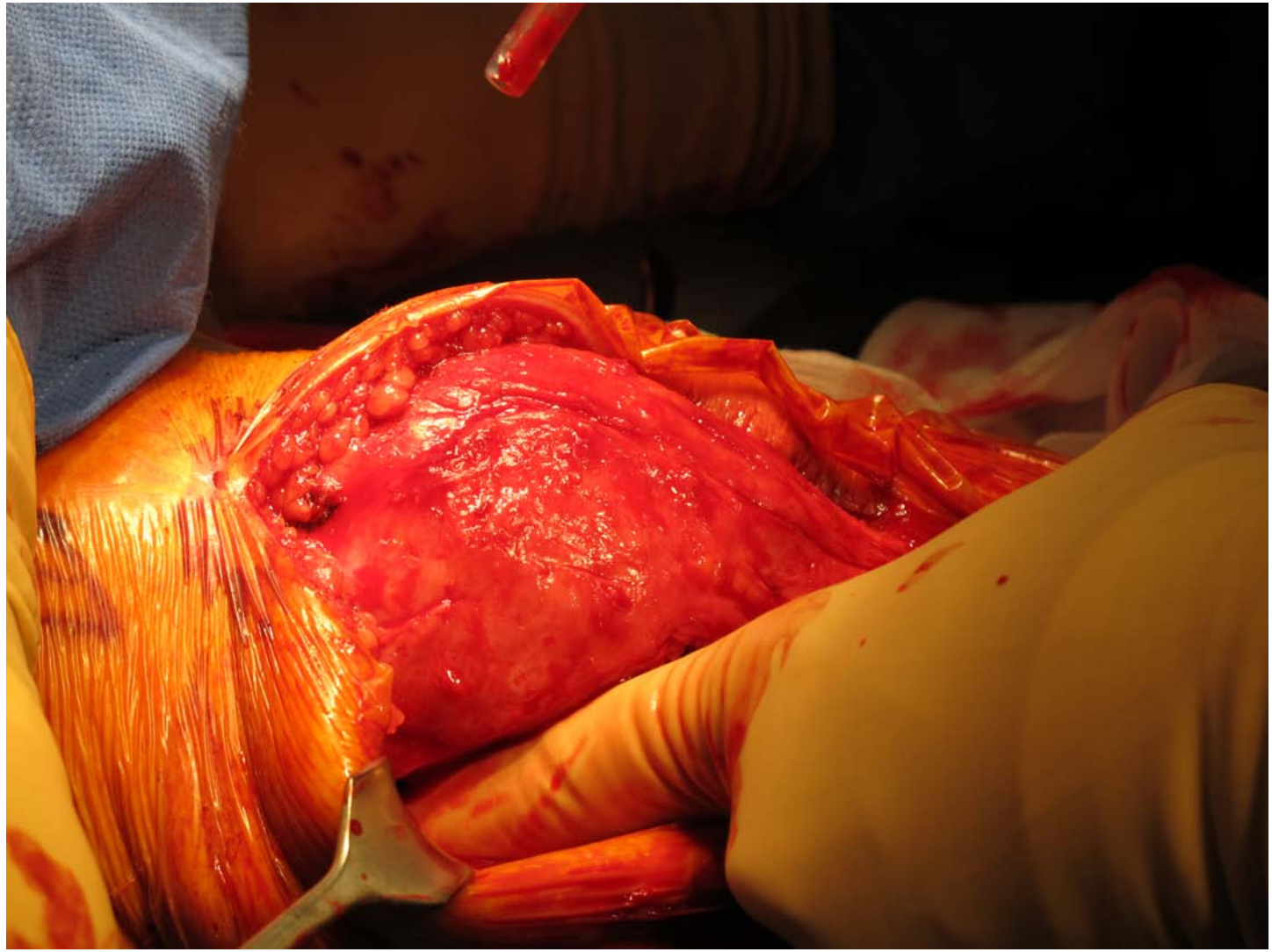


Patellar tendon release

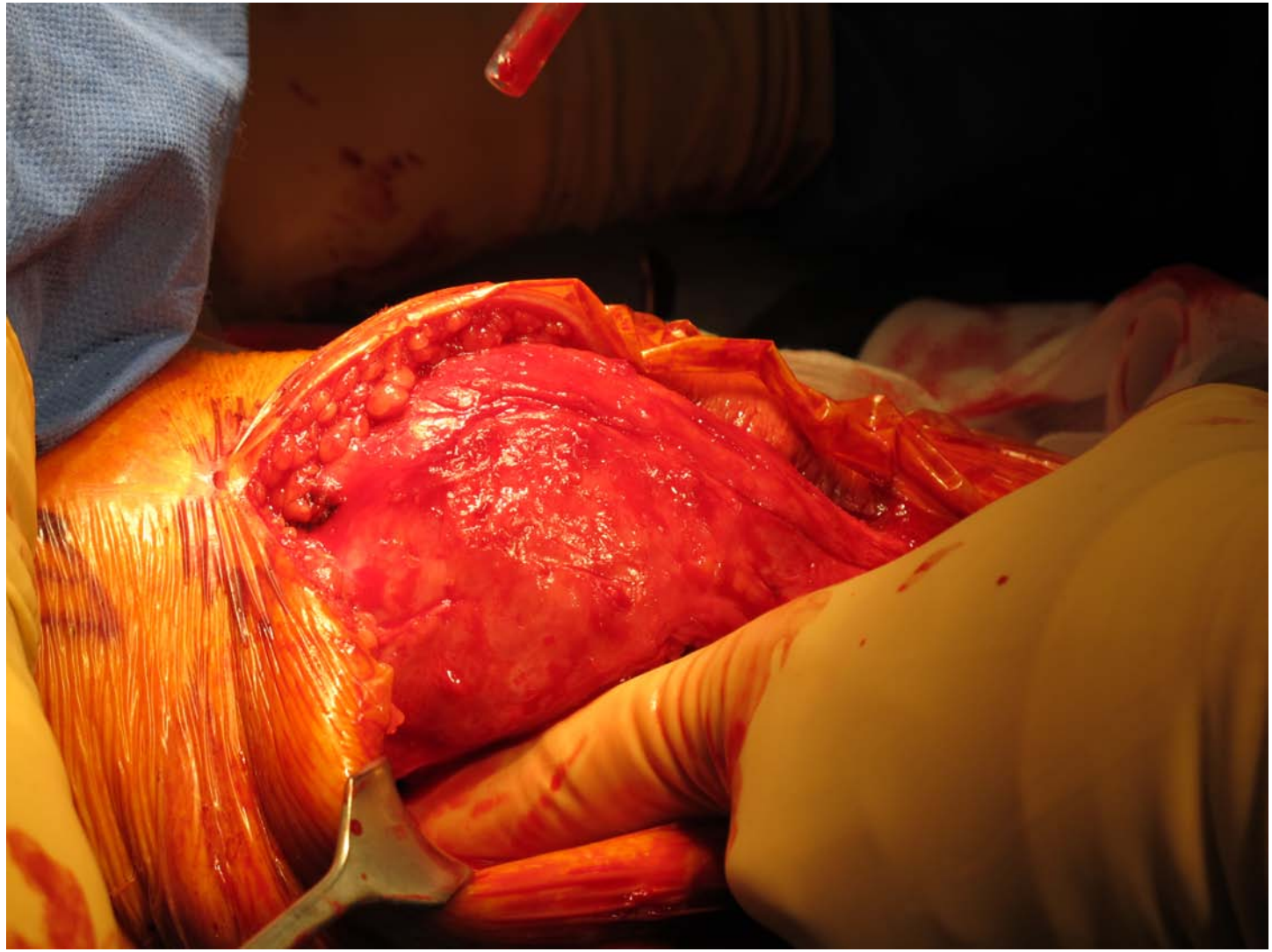




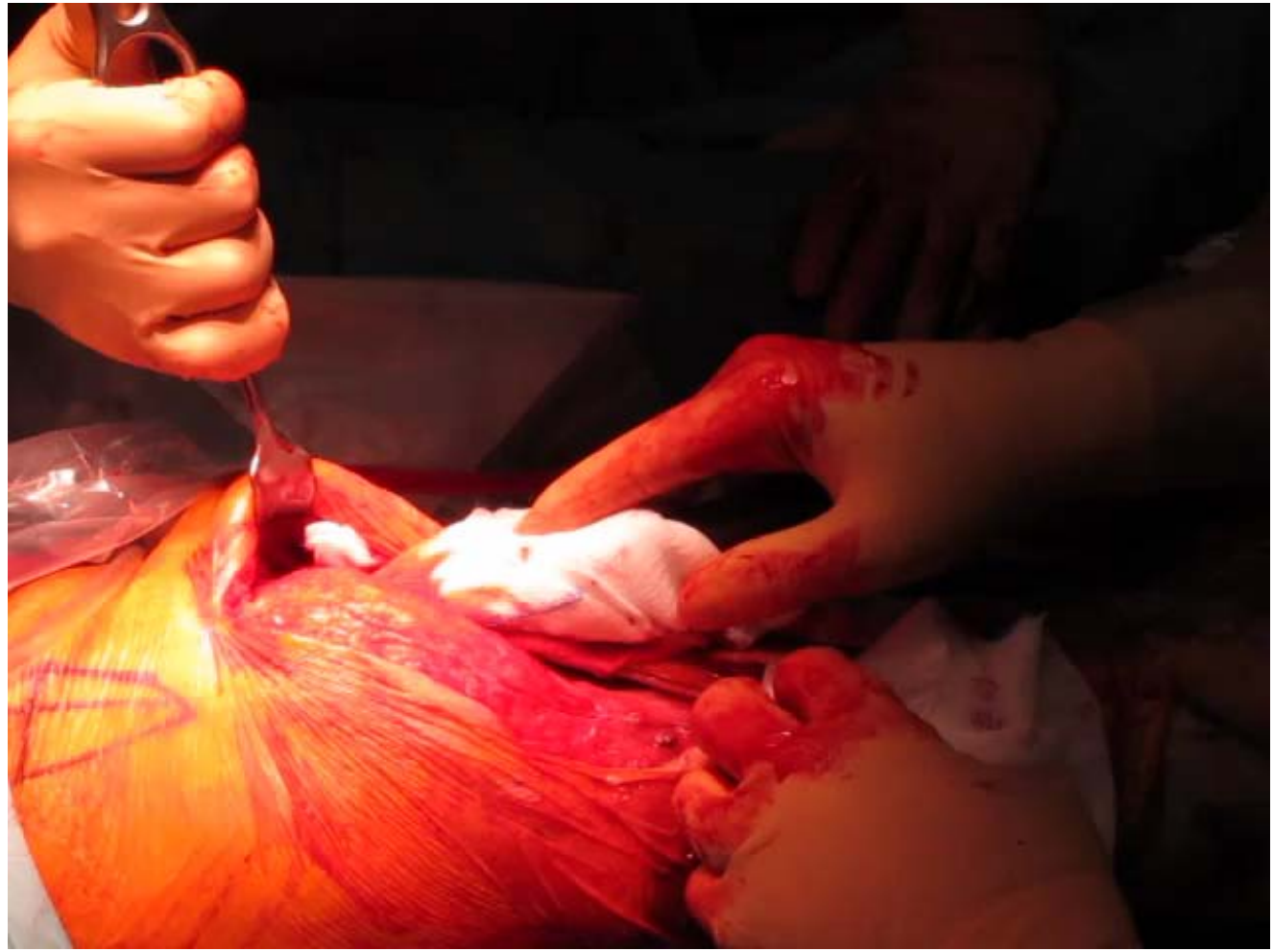
Lateral arthrotomy



Lateral recess



Distal quad release



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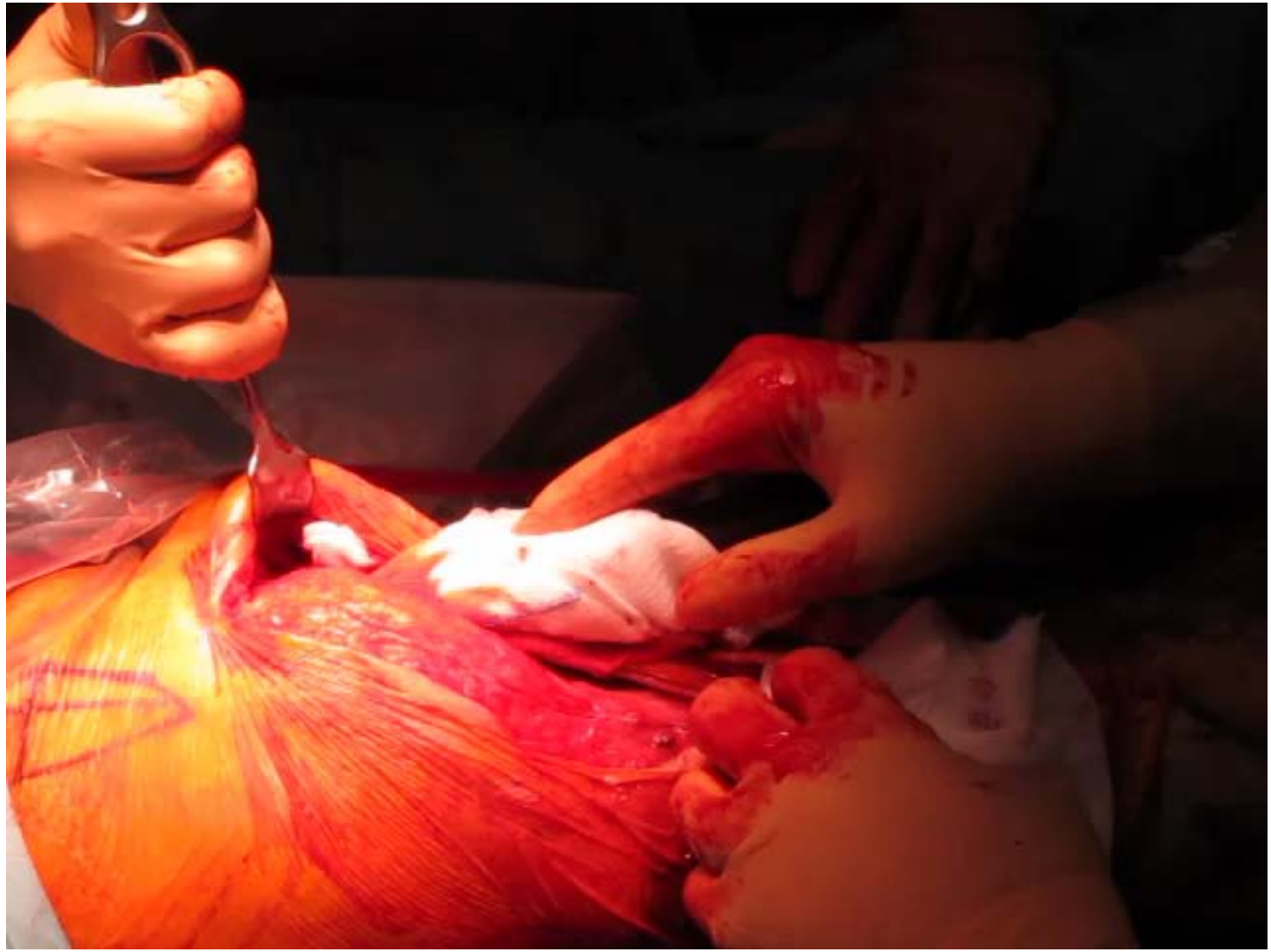

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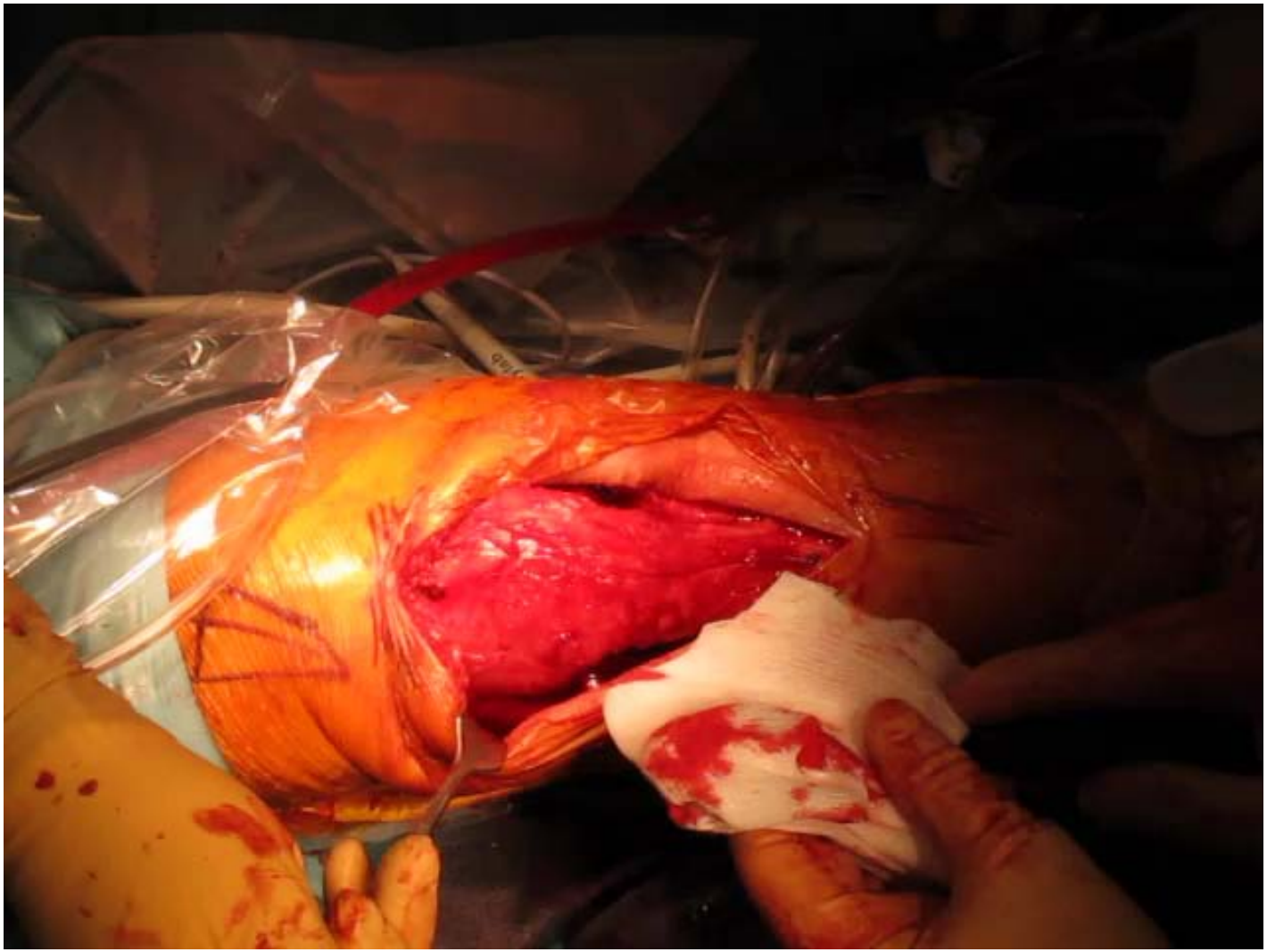
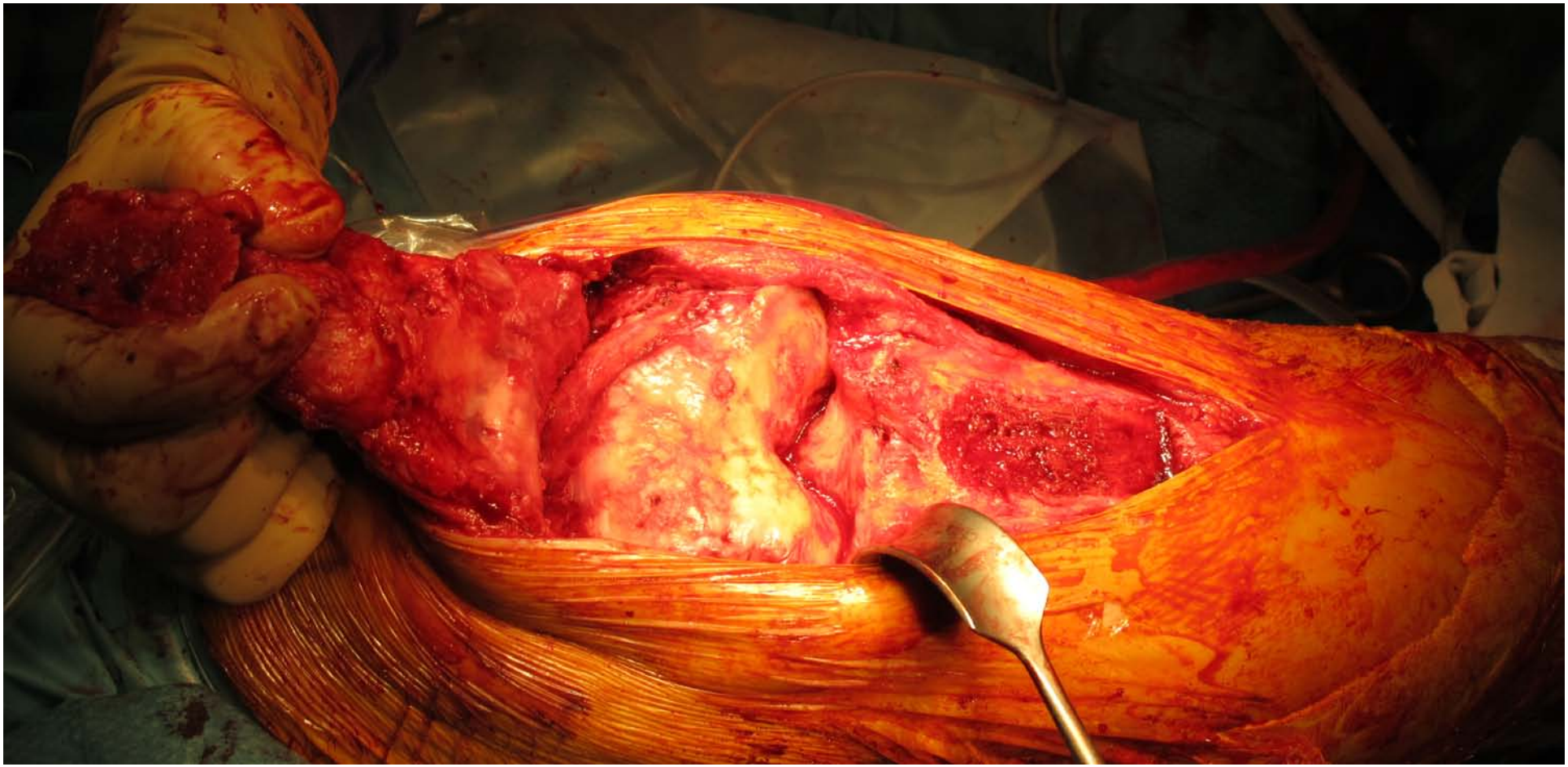


Caution: perforating artery of the vastus lateralis

Tibial tubercle OT



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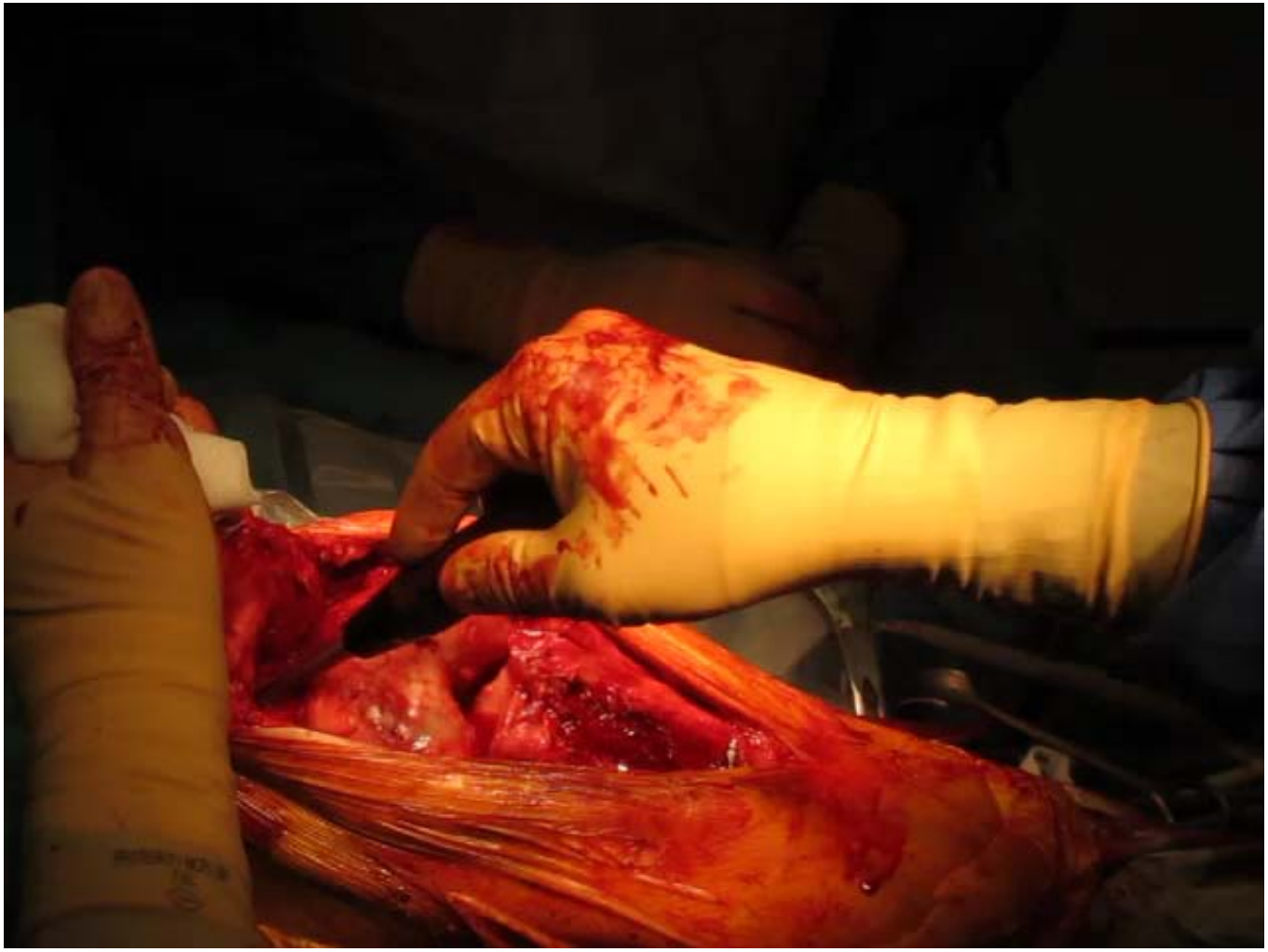

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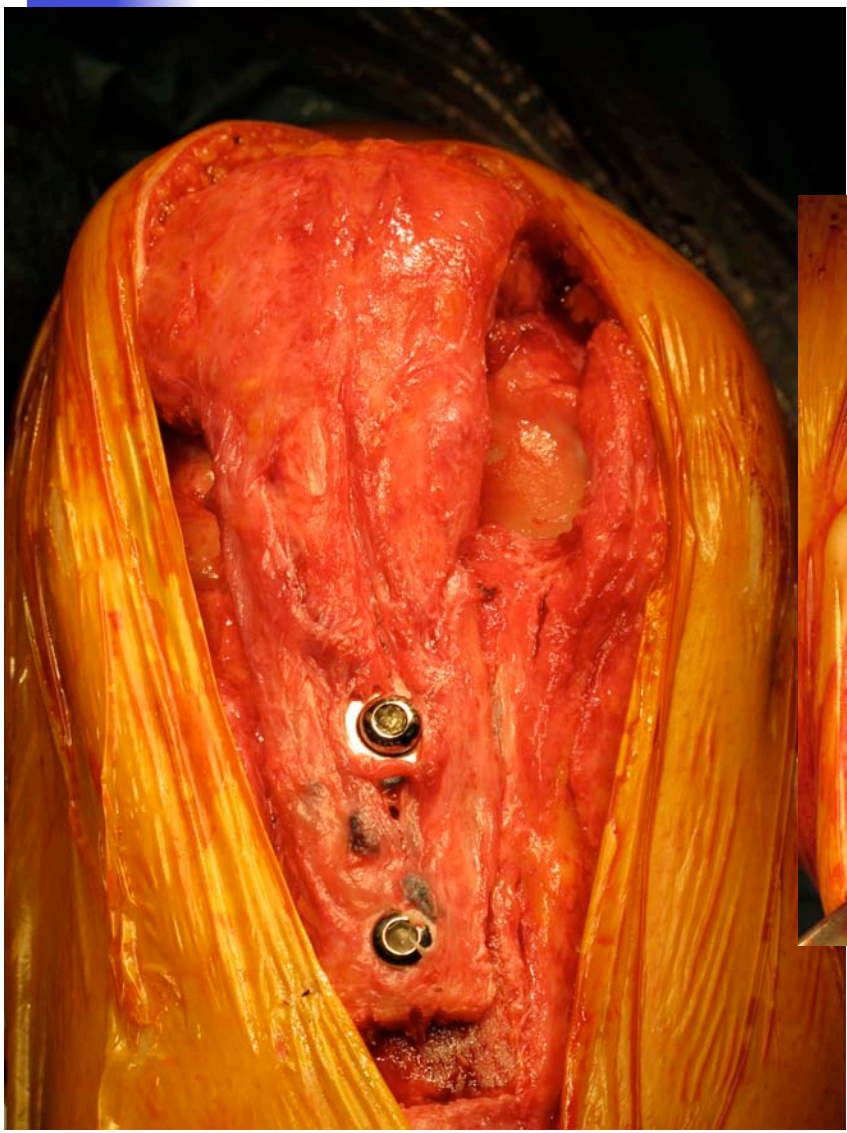
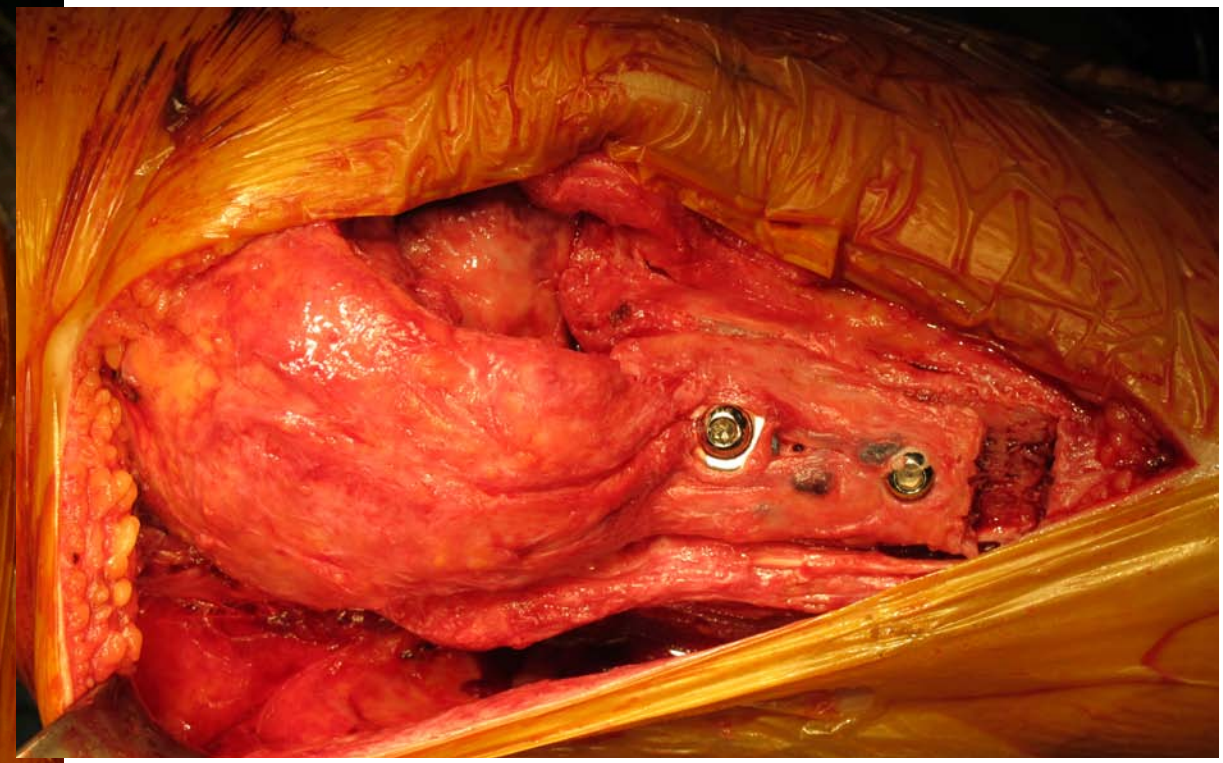
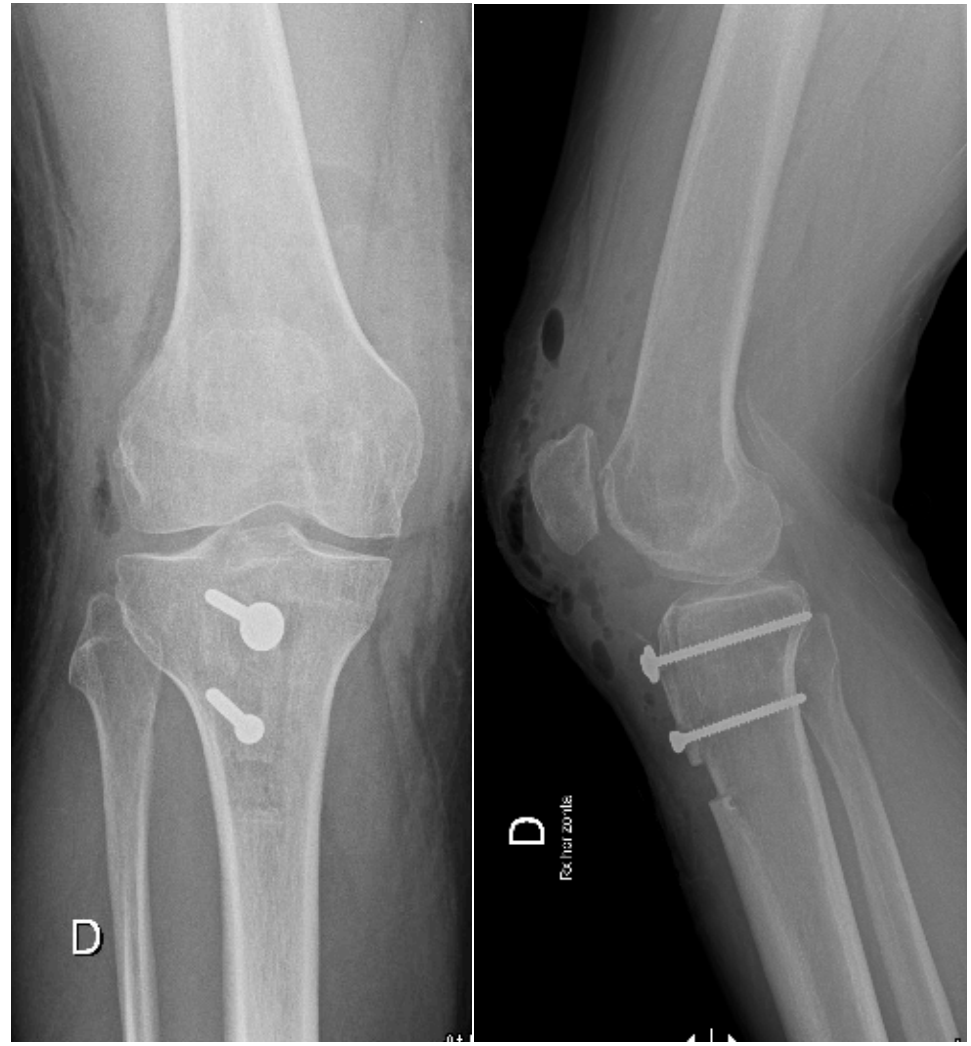


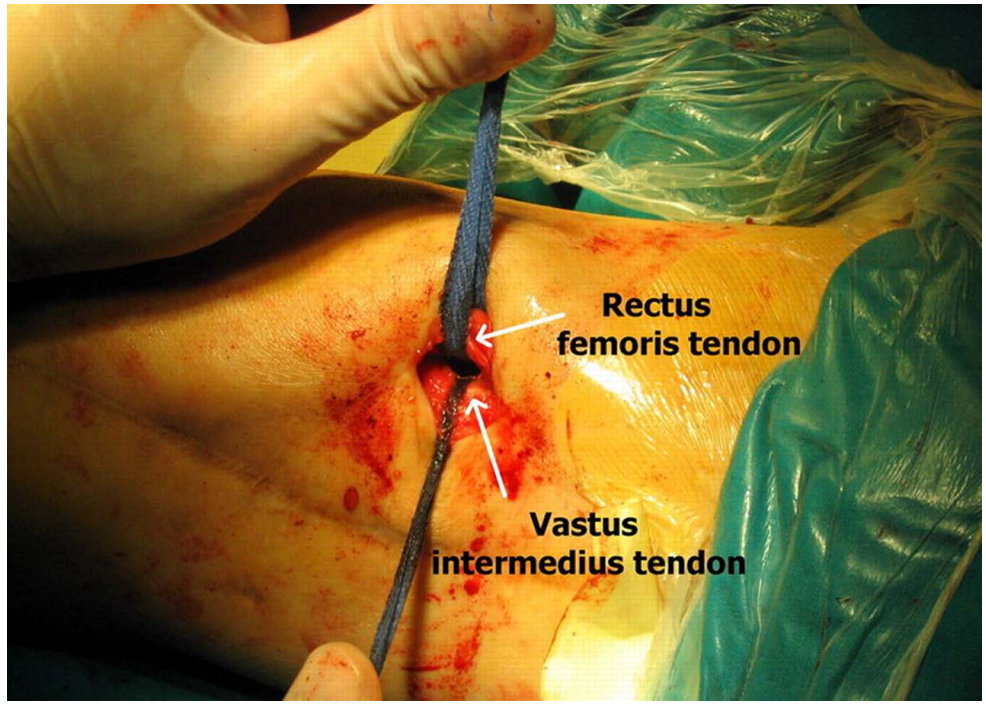


Finally



Judet quadricepsplasty Step III

- Only performed in case of distal and mid-shaft femur fracture



Wang et al *JBJS* 2007

Judet quadricepsplasty Step III

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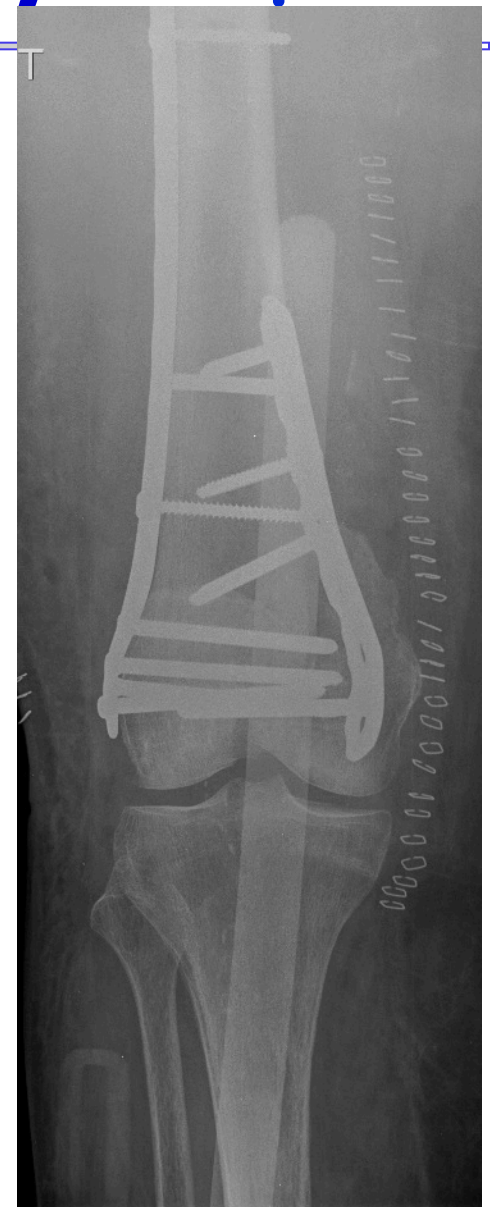
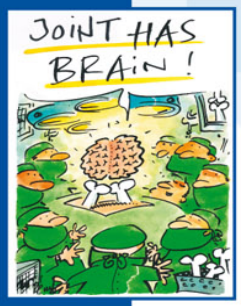


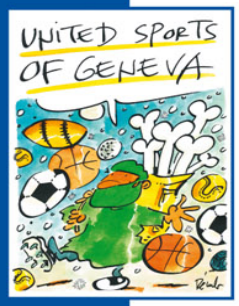
Post-op program

- Femoral nerve block
- Mobilization twice a day with the physical therapist for one week
- Maximal ROM
- Quad relaxation and patella mobilization
- Walk with weight-bearing as tolerated
- PT 3x per week for 3 months

Post-op program

- PT in water from D10
- NSAID for 3 weeks
- Powerful pain killer as long as necessary
- Cycling as soon as possible
- No strenghtening before flexion > 110°





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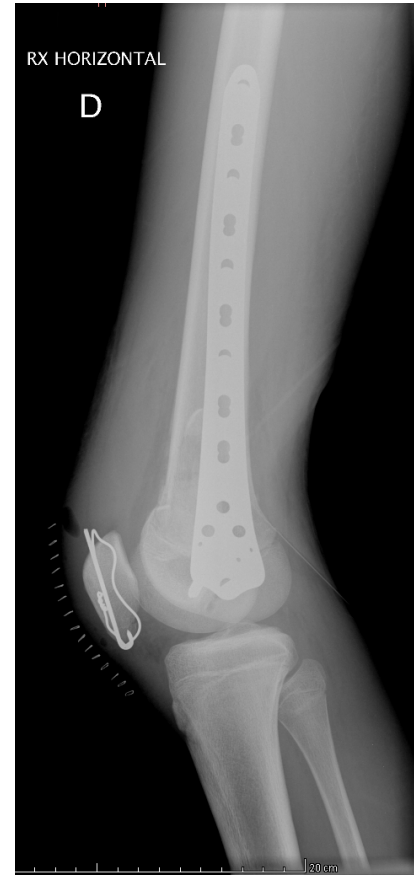
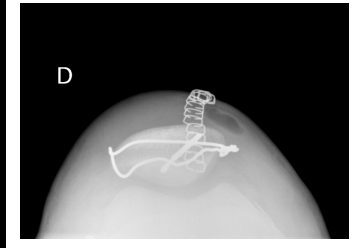
Case presentation

- Mr RFS, 17 y old, Mechanic. Scooter accident. Distal femur fracture and fracture – avulsion of the patella tip. Patello-tibial protective wire band for 8 weeks. FU 6 months: flexion limited to 80°





Mr RFS 17 y old

- Arthroscopic release
- Removal of the K-wire and tension wire
- Manipulation under anesthesia
- Kept the LISS in place
- Post-op ROM : 130-0-0