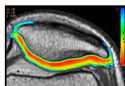


Chondral lesions associated with acute patellar dislocation

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Associated Injuries

- [Osteochondral fracture](#) of the lateral femoral condyle and/or [patella](#)
- Damage to articular surface of patella, resulting in [chondromalacia](#) patella
- [Pediatric patellar avulsion fractures](#)



Evaluation parameters

AGING

ACUTE (3 weeks)
CHRONIC

LOCALIZATION

WEIGHT-BEARING ZONE OF
FEMORAL CONDYLES
TIBIAL (UNDER MENISCAL)
PATELLA - TROCHLEAR GROOVE

DEEPNESS

SUPERFICIAL
PARTIAL
COMPLETE
OSTEOCHONDRAL

SIZE

SMALL < 1 cm
MEDIAL 1-3 cm
LARGE > 3 cm



Forces acting on patella

- **Walking** : 1/3 to 1/2 body weight
- **Stair climbing** : 3 times body weight
- **Squatting** : 7 times body weight



Anterior knee pain differential

Patella

- Patellofemoral pain syndrome
- Episodic patellar dislocation
- [Articular cartilage injury](#)
- Stress fracture
- Symptomatic bipartite patella
- Patellofemoral osteoarthritis

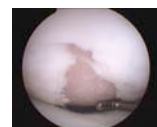
Soft tissue

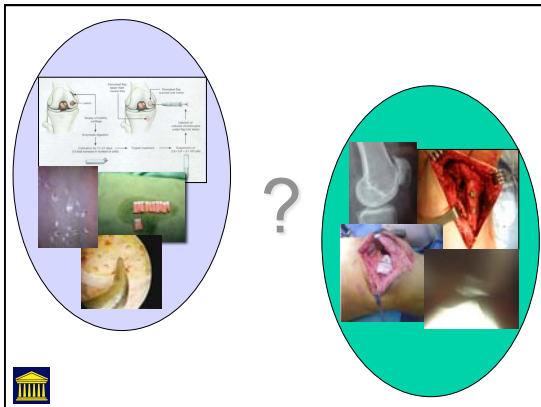
- Patella/quadriceps tendinopathy
- Prepatellar bursitis
- Fat pad impingement
- Synovial plica
- Osgood-Schlatter/Sinding-Larsen-Johansson syndrome
- Iliotibial band syndrome
- Pes anserinus bursitis



Articular cartilage injury

- **History**
 - Trauma
 - Mechanical symptoms may occur if loose body
- **Physical examination**
 - Effusion
 - Tenderness of involved structure
 - Femoral condyles
 - Patella
 - Patellar grind test (Zöhlen)





Accurate diagnosis

Trochlear dysplasia
 ↓
 Impingement Trochlea – Patella
Cartilage damage!

Non Operative Treatment

- **Non-operative treatment:**
 - Tonification exercises, stretching, bracing, taping
 - reinforce VMO: open chain en isométrisch exercise
 - Stretching, Closed chain exercises by McConnell
 - Balance exercises
 - Ice, NSAID
 - Ultrasonic, iontophoresis, phonophoresis, nerve stimulation

Operative Treatments of Cartilage Lesions

- Joint lavage and debridement
- Abrasion arthroplasty and subchondral drilling

Tissue transplantation

- Periosteal and perichondral resurfacing
- Osteochondral (allo/auto)grafts

Cell transplantation

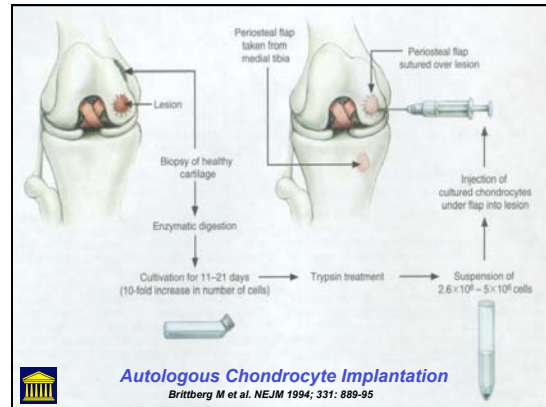
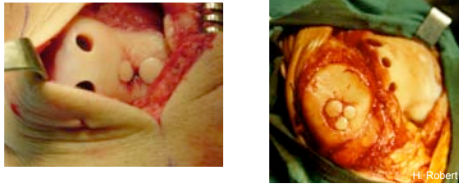
- Transplantation of chondrocytes in suspension
- Transplantation of cells in scaffolds

Shaving?

Microfractures - Patella

Open procedure with collagen I/III membrane

Mosaicplasty



Indications for ACI

- Symptomatic
- CHONDRAL or OSTEO-CHONDRAL (OCD) lesions
- Femoral or patellar articular surface
- 1 to 16 cm²
- Opposing surface undamaged

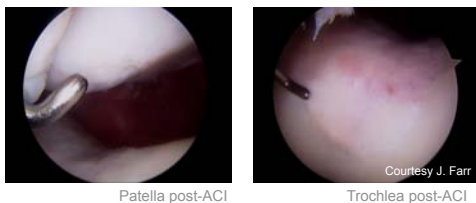


Results 1ST Generation ACI

- 1994: 87% good/excellent result in FC and 28% in patella
- 5-11 year follow-up
 - 89% in FC
 - 76% in patella
 - 81% in FC + ACL
- OCD: 91% g/e result



Autologous Chondrocyte Implantation

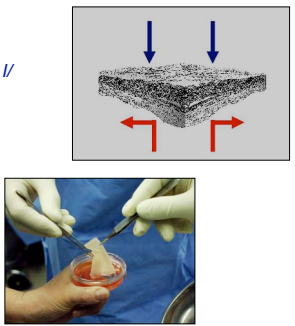


Is there room for improvement?



M.A.C.I

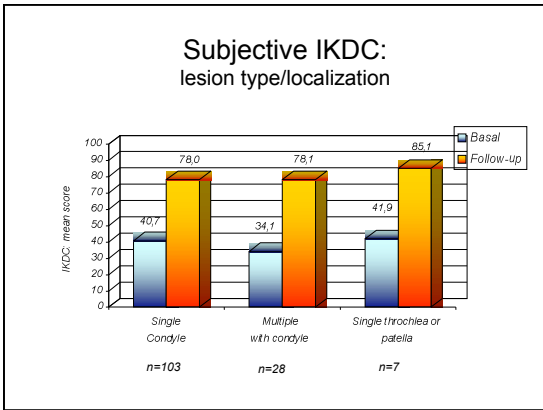
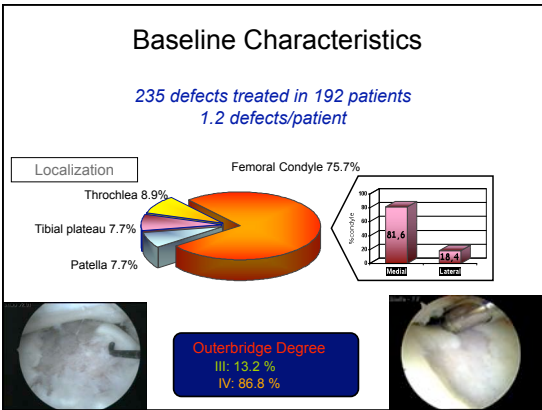
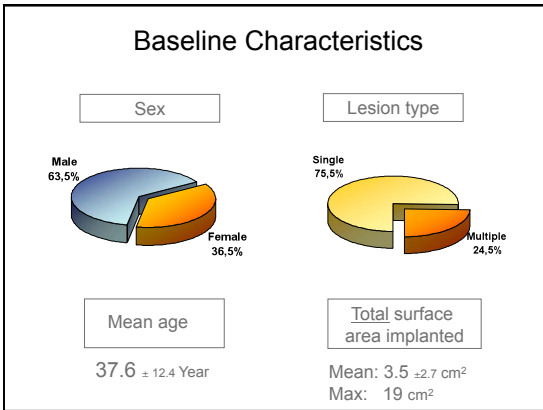
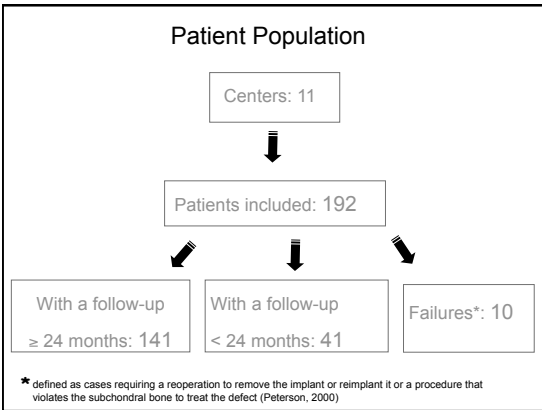
- After biopsy cells are expanded on a *collagen I/III scaffold* in vitro
- Subsequently implanted into the cartilage defect over *mini arthroscopy*
- Fixation is made with *fibrin glue*



The diagram shows a 3D view of a porous scaffold with blue arrows pointing down and red arrows pointing outwards. Below it, a photograph shows a surgeon's hands using a surgical instrument to implant a white, gelatinous material into a joint.

HYALOGRAFT® C in the treatment of knee cartilage defects:

3-year follow-up results of a multicenter Italian study



CONCLUSIONS

- Always exclude associated lesion / abnormalities.
- Correct diagnosis.
- Do NOT be too aggressive!



GENERAL CONCLUSIONS

- Cells are here to stay!
- ... but cells need a scaffold.
- Biomimetic scaffolds avoid the use of cells.
- Allogenic chondrocytes is an option for the future!
- PFJ – always normalize primary factors!



Thank You

