Trochleoplasty
Different techniques, indications, risks, results

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Patellar instability
- Valgus quadriceps angle
- Patella alta
- Soft tissue imbalance
- Patellofemoral dysplasia

Trochlea dysplasia
- Patients with substantial trochlea dysplasia present an unsolved problem
- If the trochlea is truly flat or convex, there is little chance to correct the instability without creating instability in the opposite direction

Principle
- Correct patellofemoral congruence
- 2 types of trochleoplasty:
  - Lateral-facet elevating
  - Sulcus deepening

Lateral-facet elevating
- pioneered in 1915 by Albe
- “a simple change of the architecture of the outer condyle of the femur.”
- Osteotomy of the lateral condyle to produce a hinge near the intercondylar groove
Lateral-facet elevating

- The osteotomy of the condyle should be at least 5 mm from the cartilage to prevent necrosis of the trochlea.
- The lateral part is elevated open to create a 5-mm gap and a wedge of corticocancellous bone is inserted.

- Fixation can be obtained with absorbable or nonabsorbable transosseous sutures.
- The lateral facet is elevated sufficiently to block any further tendency of the patella to dislocate.

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Sulcus-deepening

- First described by Masse in 1978.
- Modified and formalized by Henri Dejour in 1987.
- Abolish the prominence of the trochlear sulcus and to establish a groove of correct depth.

- Create a new trochlear groove.

Sulcus-deepening

- This trochleoplasty is technically more demanding.
- However, it has the advantage of addressing the root cause of the dislocation by correcting the abnormal patterns underlying the different grades of trochlear dysplasia.

- Immediate weight-bearing is permitted. No limitation is placed on the range of motion.
- Rehabilitation on continuous passive motion can be indicated to model the trochlea and the patella.
Risks and complications

✓ Disruption of the cartilage surface and changes in the contact pressure, potentially leading to patellofemoral arthritis
✓ Necrosis

Risks and complications

✓ Recurrent instability
  • Trochleoplasty alone may not always provide sufficient stability
✓ Stiffness ++
  • Effective anesthesia and physiotherapy
✓ Effusion
  • Resolves 3 to 6 months postoperatively
✓ Patellofemoral crepitus
  • Often not symptomatic
✓ Patellofemoral pain
  • Often present, reduction of postoperative patellofemoral pain is not always predictable

Results

✓ Unfortunately, there is little literature to guide the surgeon in this area

Results

✓ The Albee technique of raising the lateral condyle and supporting it with a bone graft has had poor results with early arthritic change being common

Results

✓ In Dejour’s series, 32 patients underwent 40 trochleoplasties. Twenty-seven knees were subjectively satisfied or very satisfied, with 36 achieving patellar stability postoperatively

Results

✓ Thirteen knees in twelve patients
✓ Patellar pain with or without recurrent patellar instability
✓ Seven patients had a poor score
✓ Postoperative arthrofibrosis was found in five of the thirteen knees
## Results

- 45 knees in 38 patients (22 female and 16 male) with a mean followup of 8.3 years
- Thirty-three percent of the knees had undergone previous patellar procedures such as debridement, medial reefing, lateral release, or medial tibial tuberosity transfer
- No re-dislocations, but in one-third of the patients patellofemoral pain worsened after the procedure
- 94% of the patients demonstrated a correction of the dysplasia, but degenerative changes were present in 30% of the knees
- Authors concluded that the procedure treated the recurrent dislocation, but its effects on pain and degenerative changes were unpredictable

## Indications

- A patient with:
  - symptomatic patella instability,
  - who has failed a nonoperative treatment,
  - with severe trochlear dysplasia,
  - and no degenerative changes in the patellofemoral joint,
  - is the ideal candidate for trochleoplasty.

## Conclusion

- Trochleoplasty is in its infancy!
- The long-term results are not yet available, although short-term results seem encouraging

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Reference: