TIBIAL TUBERCLE OSTEOTOMIES: COMPLICATIONS AND HOW TO MANAGE THESE

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UNCONFORTABLE SUBJECT
BUT.... COMPLICATION OF TTT....MORE THAN THAT
AND HOW TO FIX COMPLICATION AFTER TTT....
BUT...

I WILL TRY
Medialisation
Anteromedialisation
Medialisation and distalization
TTT old and new technique

ROUX 1888
MAQUET 1963
ELMSIE-TRILLAT 1964 (only for young patients without cartilage damage)
FULKERSON 1983
INDICATION TTT

- TT-TG >15-20mm
- Lateralizing forces: trochlear displasia, malalignament,
- Damage of distal cartilage of patella
- Patellar height (alta), tilt (>20)
- Secondary genu valgum, recurvatum and femoral and tibial torsion (Q angle)
Associate procedure

- lateral release
- medial reefing
- MPFL reconstruction
- cartilage surgery
- ....
No good candidate for TTT/AMZ?

Patients with diffuse patellar articular degeneration, proximal crush injury or nonspecific anterior knee pain

Patients with predominant sulcus chondrosis should be approached cautiously
Results after TTT—Elmslie-Trillat procedure


Levigne 1988—review 166 cases

Iterative surgery for patellar instability and pain. Analysis of causes of failures and results of reinterventions:
- correction of mechanical problems caused by original surgery
- patella alta was associated with failed primary intervention in 45%
Complications:

Bad indication
Bad technique
and... complications
How to deal with complication

- prevent them its better

- good indication

- good surgical technique

- good rehabilitation
Complications (overview of literature) : 0–11%

- “Over” medialization or AMZ
- “Under” medialization or AMZ
- Nonunion
- Fracture of proximal tibia
- Fracture of tuberosity
- Nerve palsy
- Wound hematoma
- Infection (superficial, deep)
- DVT
- PE
- Hardware removal
Complications y/n???

- Redislocation
- Cartilage damage
- Pain
- return to OR
Nonunion (<1%)

- most of time bad technique so….prevent:
- use sharp dissection, drilling, osteotome, oscillating saw, hemostasis, drain
- bicortical screw -self tapping (drill 4.5mm in first cortex for lag effect)
- tuberosity osteotomy: 5cm long, 1 cm deep osteotomy
- leave the distal periosteum intact
Non-union

Reintervention:
- cancellous bone, refixation, 
- cast immobilisation, 
non weight-bearing 6wk
Fractures (<1%) 

- uses the drilling before sagittal or osteotome to prevent addition problems
- use small osteotome
- be careful... not to deep inside the tibia (1 cm)
- no tight the screw more then necessarily
- respect the rehab protocol (nonWB)
Fractures

Cast immobilisation for 6 - 8 wks or surgery-LCP fixation
Hematoma (<1%)

- correct haemostasis
- drain
- compressive bandage

drainage, vacuum therapy
Peroneal palsy

- be careful when you prepare the lateral part of TT
- step by step drilling
- measurement the length of holes
- screws length: no more than 2-3mm from posterior cortex
- slight flexion the knee after the surgery
Nerve palsy

neurological tests, medications, TENS, removing the hardware, wait until 9 months if you are doubt that you need some reconstruction procedure
Deep infection (<1%) 

- clean surgery field,
- keep intact all the soft tissue,
- no too much traction
Deep infection

Second stage surgery, lavage, vacuum therapy, antibiotic therapy
DVT , PE

- decrease tourniquet time
- use LMHW
- use cuff pump
DVT

LMHW or HP for 2-3 wks
oral anticoagulant for couple months
case 1: iartrogenic patella baha
case 2: remanent patella alta