Intra-Patellar Contracture Syndrome

**Definition**

- abnormal fibro-sclerotic healing response through:
  - The anterior retinaculum,
  - Patello-meniscal ligaments, and
  - Fat pad tissues,
  - which entraps the patella and leads to loss of extension and flexion of the knee and,
  - in advanced stages, to patella baja and patello-femoral arthrosis.

**C. Prodromos**  The ACL 2007

- It is a localized form of arthrofibrosis
- A large majority complain of anterior knee pain
- Common in anterior knee pain Athletes
- Associated with Quad weaknesses

**I.P.C.S can occur:**

- Primarily as an exaggerated pathologic fibrous hyperplasia of the anterior soft tissues of the knee beyond that associated with normal healing.
- Secondarily to prolonged immobility and lack of extension associated with knee surgery, particularly intra-articular ACL reconstruction or TKR

**Etiology**

**The anterior intevale**

- Normal anatomy of the anterior interval (A) and
- Retraction of the patellar tendon with anterior interval scarring (B).

**The anterior intevale**

- MRI

Low T1 signal on the posterior aspect of the patella is related with scar tissue.

**MRI**


J. Richard Steadman, AJSM 2008, 39 (8), 1763-69

DeHaven94

Richard Steadman, AJSM 2009, 36 (9), 1763-69
The anterior intervals

The Hoffa test:
- The thumb was placed at the margin of the infrapatellar fat pad and the patellar tendon with the knee bent 30°. Pressure was applied with the thumb, and the knee was fully extended. Increased pain in the fat pad indicated a positive test result.

Treatment

Consist in different isolated or combined techniques:
- Arthroscopic or open Anterior arthrolysis
- Patellar tendon "Z-plasty"
- Transposition of Anterior Tibial Tuberosity
- Patellar tendon distraction

Results

- 25 patients were identified with isolated scarring of the anterior interval.
- All patients had a minimum of 2 previous surgical procedures, and 11 (44%) of the patients had a previous ACL reconstruction.
- Average follow-up of 4.0 years (range, 2.0-7.2).

Arthrolysis for flexion deficit

Arthroscopic Fat Pad resection

Results

- 21 patients had full range of motion of the patella in all directions and a negative Hoffa test.
- All patients recovered a normal range of motion, no complication.
- Four patients (16%) had a failure and required a second surgical release.
Arthrolysis for flexion deficit
Z-plasty patellar tendon (Dejour)

Arthrolysis for flexion
Z-plasty patellar tendon (Dejour)

Arthrolysis for flexion
Transposition of tibial Tub.

M.17 y. Infection post arthroscopy, 7 revisions,
Transposition tibial tuberosity 2 cm.
resection M. vastus intermedius (Thompson)

Technique - Flexion
Transposition of tibial Tuberosity
F. 26 y. post infection, 15 mm. Cranial. Tibial Tub.

Technique - Flexion
postop
6 Mo, 0/0/130°
12 Mo, 0/0/130°
M.17 y. Infection post arthroscopy, 7 revisions, 0 / 10/30°
Transposition TIBL tuberosity 2 cm, resection M. vastus intermedius (Thompson)

F. 26 y. 0/0/85°
Caton-Index 0.6
Patellar tendon distraction (D. Paley 2000)
3 weeks: 0/0/100°
9 weeks: 0/0/125°, Caton-Index 0.9

Ø 19 pat., all salvage cases, fu min. 6 months
Ø Pre-op flexion min. 30°, max. 90°
Ø Post-op flexion min. 120°, max. 130°
Ø mean flexion increase 26°
Ø no complication

D-45  M-6  Mob under Anest.
Athroscopic Arthrolysis  Open Arthrolysis

Early action, in cases without technical error
Beware of Complex Regional Pain Syndrome
Arthroscopy is better then Open surgery
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Painful exercises are prohibited
Program are specifically tailored to each patient
initial phase focused on range of motion exercises and patellar mobility
CPM can be helpful
Femoral nerve block
Fight against Quad inhibition
Return to Sport after 4 months
CONCLUSION

I.P.C.S.

- Must be prevented by adapted Post-op regimen
- Precise analysis is required
- Early action is recommended

Thanks for your attention!