IV Anterior Knee Pain

Insall's classification of Patellofemoral disorders

I Cartilage damage

Chondromalacia

Osteoarthritis

Osteochondritis dissecans

II Malalignment syndrome

III Overuse

IV Plica syndrome, Hoffa's syndrome, ITB tendonitis, Jumper's knee, Bipartite patella

V Normal cartilage: Bursitis

Tendonitis

RSD

Referred pain from hip or spine
Sephanous nerve neuritis

Treatment

1. A comprehensive rehabilitation program.

2. Reduction of loading to the patella-femoral joint and surrounding soft tissues is the first step to reduce pain.
a. Avoid full squats
b.Runners should reduce mileage to a level that does not provoke pain
c.Alternative activities such as bicycling, swimming

3. Physical therapy : May require significant strengthening of the quadriceps.

4.Analgesics. Although nonsteroidal anti-inflammatory drugs (NSAIDs)

5. Bracing.

6.Patellar Taping.

7.Foot Orthoses.: Over-the-counter soft orthoses are a reasonable choice for patients who have PFPS with malalignment.

Surgical consultation for PFPS may be considered for those patients whose symptoms persist despite their completing at least six to 12 months of a thorough program of rehabilitation.

It is essential that the surgical procedure specifically address the individual characteristics of patellar maltracking in each patient.

Surgical options include release of the lateral retinaculum, articular cartilage procedures, proximal realignment, and distal realignment-often with anteromedialization of the tibial tubercle.

Patients with tight lateral structures may benefit from lateral release, with proximal realignment in some cases. Distal realignment with anteromedialization of the tibial tubercle may benefit those with lateral compression and associated articular cartilage injury.

Chondromalacia patella and osteoarthritis

Aleman used the term "Chondromalacia" in 1928 to describe the gross appearance at surgery of previously traumatized articular cartilage. If a thorough search fails to discover a cause for the anterior knee pain, there is nothing wrong with the diagnosis of "idiopathic chondromalacia".

Age related changes in the cartilage are common. Incidence of edema and Fissuring in 50% at 20 yrs and 90% after 40 years

Insall suggested that the chondromalacia is age related and usually starts in the medial facet and are asymptomatic and non-progressive. In some, middle age: lateral facet chondromalacia changes can be seen. This lesion may progress to erosion and proceed to osteoarthritis.

Classifies chondromalacia [Outerbridge]

Grade I	Swelling
Grade II	Superficial fissuring in area less than 1.25 cm
Grade III	Deep fissuring more than 1.25 cm
Grade IV	Cartilage erosion down to bone

Ficat suggested lateral pressure syndrome is a type of chondromalacia due to hyper pressure at the lateral patellar facet and hypo at the medial side.

Insall: reported incidence of chondromalacia in malalignment
71% central [astride of ridge] in the middle third
21% Medial alone
7% Lateral alone

Histology of chondromalacia [**Goodfellow]**

1. Fissuring, Fasciculation
2. Collagen: superficial lost parallel orientation [random arrangement]
3. Deep: Increase in water content and decrease in Pg
4. Chondrocyte slightly reduced; increased activity; some necrotic

Factors for chondromalacia

1. Age related changes: no clinical significance
2. Traumatic
3. Malalignment
4. Pressure syndrome
5. ACL surgery
6. Prolonged immobilization

Treatment

I Non-operative

NSAID
Quadriceps exercises
Heat treatment
Activity modification

II Operative Treatment

a) Relieve stress at PF joint: Lateral Retinacular release
Distal alignment
Elevation of the tubercle

b) Address disorder of Patellofemoral joint
Spongiolisation: Debride the loose cartilage
Drill subchondral bone
Aim: formation of fibrocartilage
Variable results
Patellar resurfacing: selected
Patellectomy should be never done

1.Lateral Retinacular release

Lateral release did not improve contact area or pressure changes
Not recommended in chondromalacia

2.Macquet's procedure

Maquet: elevates tibial tuberosity to elevate the lever arm of the quadriceps in order to decrease the Patellofemoral joint reaction force. Maquet: suggested that 2 cm elevation of the tibial tuberosity, the force is reduced by 50%

However it has been suggested that with increase elevation, there is decrease in contact surface. Therefore it has been recommended to elevate only one cm to compromise between forces and contact areas.

Disadvantages: Skin necrosis; compartment syndrome; inability to kneel, cosmetic, tilting of the patella

3.Patellar resurface

Young patient; Patellofemoral arthritis with failed other surgery and normal Tibio-femoral joint. Recently Avon prosthesis has been used and early results appears to be satisfactory. Major objection to complete patellofemoral joint replacement is revision to a TKA is difficult. Results: Excellent to good results in 76% of the younger