Hip Pain In Young Adult

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- Corentec
Joint Preservation

- Subcapital reduction osteotomy
- Relative lengthening of femoral neck (Perthes)
- AVN surgery
  - Femoral osteotomy
  - Trap door technique
- FAI surgery
  - Hip Arthroscopy
  - Mini-open technique
  - Surgical dislocation
- Periacetabular osteotomy
A 21-year-old woman presents with bilateral hip pain. The radiograph of the hip is shown in Figure 11. Which condition is present in the left hip:

1) Coxa profunda
2) Developmental dysplasia of hip
3) Acetabular retroversion
4) Slipped capital femoral epiphysis
5) Protrusio acetabuli
Femoro-Acetabular Impingement (FAI)


Chronic anterior impingement causes damage to the acetabular rim and the adjacent acetabular cartilage.
FAI: Types

Cam  (Ito K. J Bone Joint Surg 2001)

Pincer
A 32 year old athlete is complaining of groin pain and inability to sit for long. He has been symptomatic for 7 months despite all conservative measures. The radiograph of his hip is shown. What is the best surgical option for this patient?

1) Periacetabular osteotomy
2) Femoroacetabular osteoplasty
3) Femoral osteotomy
4) Acetabular osteoplasty
5) Labral resection and osteoplasty
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Preoperative

Postoperative
FAI: Treatment Options

- **Non-operative**
  - NSAIDS
  - Activity modification

- **Surgery**
  - Surgical dislocation
  - Arthroscopy
  - Mini-open (direct anterior)
  - Redirectional osteotomy

Unsuccessful
FAI: Treatment Goal

Femoral neck osteoplasty

Acetabular osteoplasty
Hip Arthroscopy

- Numerous Limitations (currently)
- Confined space (Hip is not the knee or shoulder)

Labral repair
Smith Petersen Approach
A 22 year old is presented with bilateral hip pain and stiffness. Non-operative measures have not been successful in alleviating her symptoms. What is the most appropriate surgical option?

1) Total hip arthroplasty
2) Reverse periacetabular osteotomy
3) Femoral osteotomy
4) Global acetabular osteoplasty
5) Resection of heterotopic ossification
Pre-existent arthritis
  - <3 mm of joint space
  - Posteroinferior osteophyte

Labral debridement vs repair

Workman’s comp

Previous surgery (arthroscopy)
A 30-year-old patient presents with acetabular labral tear and hip pain that has been refractory to non-operative management (see image). What is the best surgical option?

1) Femoroacetabular osteoplasty
2) Hip arthrocopy and labral debridement
3) Femoral osteotomy
4) Labral resection and osteoplasty
5) Periacetabular osteotomy
Dysplasia and Labral Tear
Dysplasia and Labral Tear

- Causes instability
- Increased stress on acetabular rim
  - Labral hypertrophy
  - Labral tear
  - OA
Preoperative

14 months after Hip Scope
**Dysplasia**

**Treatment Options**

- Acetabular Osteotomy
- Femoral Osteotomy
- Combined Osteotomy
Reconstructive
- Reorient the articulating surfaces
- Increased joint congruity
- Examples (Bernese, Dega, Steel, Salter, etc)

Salvage
- Provides coverage by metaphyseal bone and not articular cartilage
- Examples (Shelf, Chiari)
Plain radiographs

- AP Pelvis
- Lateral Hip
- Abduction view (30/neutral)
- False profile
Osteotomy
Rationale

- Reorient the articulating surfaces
  - Increased joint congruity
  - Decrease load
  - Medialize hip center (lower JRF)

= reduced pain, possibly protect articular cartilage
Osteotomy

**Indications**

- Young patients with symptomatic hip dysplasia
  - Without excessive proximal migration of hip center of rotation
  - Preserved ROM
  - Mild degenerative changes at most
Survival Free of True Revision by Preop Grade

Years following surgery

Preop grade 1
Preop grade 2
Preop grade 3

Survival free of true revision
A 28-year-old patient presents with intractable hip pain and labral tear. The patient has failed non-operative treatment. What is the best surgical option for the patient?

1) Salvage (Chiari) pelvic osteotomy
2) Periacetabular osteotomy
3) Reverse pelvic osteotomy
4) Femoral osteotomy
4) Hip Fusion
FAI and Retroversion

Symptoms: reduced internal rotation especially in flexion

Flexion of Leg

- Anteversion
- Retroversion
A 13-year-old patient with Perthes’ disease presents with intractable hip pain and instability of the hip. What is the best surgical option for the patient at this point?

1) Femoral osteotomy
2) Combined femoral and acetabular osteotomy
3) Hip fusion
4) Hip resection (Girdlestone)
5) Periacetabular osteotomy
Also check the Exam Corner
A 23-year-old patient with residual Perthes disease presents with intractable lateral hip pain and inability to walk long distances. On Examination she is found to have positive Trendelenburg’s test. What is the best surgical option for this patient?

1) Combined femoral and acetabular osteotomy
2) Femoral osteotomy
3) Hip fusion
4) Surgical dislocation and greater trochanter advancement
5) Total hip arthroplasty
Surgical Dislocation
Femoral Neck Lengthening
Femoral Neck Lengthening
A 60 year old patient is having lateral hip pain and inability to abduct beyond 40 degrees. She has no groin pain and no evidence of abductor bursitis. During examination under fluoroscopy she is found to have trochanter to pelvic impingement. What is the best surgical option for this patient?

1) Total hip arthroplasty
2) Pelvic osteotomy
3) Femoral lengthening
4) Greater trochanter advancement
5) Hip fusion
Femoral Neck Lengthening

**Lever Arm Ratio (LAR)**
Femoral Neck Lengthening
A 23-year-old with prior SCFE, develops acute hip pain that has not responded to non-operative management. Surgical Dislocation of the hip is done and the patient is found to have mal-alignment of the femoral neck (Dunn angle > 40 degrees). What surgical option is best suited for this patient at this point?

1) Femoral neck osteoplasty alone
2) Femoral neck osteoplasty combined with osteotomy (Dunn’s procedure)
3) Femoral lengthening
4) Total hip arthroplasty
5) Pelvic ostetotomy
A 18-year-old girl presented with cerebral palsy is having left hip pain. She relies on lower extremities for transfer. She is not an ambulator. What is the best surgical option for treatment of her hip pain that can also address her limb length discrepancy?

1) Total hip arthroplasty
2) Hemiarthroplasty
3) Hip resection (Girdlestone)
4) Femoral osteotomy
4) Hip Fusion
Also check the exam corner
MRI = Gold Standard

- Classic Findings:
  
  T1 images:
  - will show low signal intensity from ischemic bone;

  T2 images:
  - double line sign:
  - granulation tissue

Bone marrow edema
Kerboul angle
What to do before collapse?

- Head preservation
  - Restricted Weightbearing
  - Drilling
  - Core Decompression
  - CD + Vascularized fibula graft
  - CD + Cancellous / free fibula graft
  - CD + Muscle pedicle graft
Vascularized Fibular Bone Grafting with Internal Fixation

- Aseptic necrosis
- Fibular graft
- Gluteus medius m.
- Ascend. branch of lat. fem. circumflex a.
- Lat. fem. circumflex a. & v.
- Peroneal a. & v.
- Anastomosis
What to do after collapse?

- Head preservation
  - Valgus osteotomy
  - Varus osteotomy
  - Sugiako anterior rotation osteotomy
Head Preserving Treatment Modalities

- **Non-Invasive**
  - Pharmacological measures
  - Electrical stimulation with direct current
  - Shock wave therapy
  - Pulsed electromagnetic field
  - Biological induction of bone formation
  - Hyperbaric oxygen treatment

Short-term follow-up for many of these methods has demonstrated promising results in delaying the need for total hip arthroplasty
Improve Blood Circulation

- Anticoagulants
- Angioproliferating agents
- Hyperbaric Oxygenation
- Electric stimulation
- Shock wave
- Vasodilators
- Anabolic hormones
- Decompression