

HIP ARTHROSCOPY: Current Concepts

ATLANTA CENTER FOR HIP PRESERVATION

FUNDAMENTALS

- Hip Anatomy
- Peripheral Space
- INDICATIONS: why do it?
- SELECTION: who to do it on?
- TECHNIQUE: how it's done
 - For the staff
 - For the surgeon
- REHAB: what comes after surgery?
- RESULTS: how do we measure outcomes?
- LABRAL TEARS
 - Resect
 - Repair
- FAI – Femoro Acetabular Impingement
 - Ball (CAM)
 - Socket (PINCER)
- Pathology

INDICATIONS

- Intra-articular pathology
 - Synovitis
 - Loose bodies
 - Cartilage Defects
 - Labral tears
 - AVN and early DJD
 - Synovial Chondromatosis
 - Femoral Acetabular Impingement
 - CAM
 - Pincer
 - Tendinopathies
 - Bursitis
 - Snapping hip
 - Ligamentum Teres problems
 - Infection
 - Primary
 - Post-surgical
- Femoroacetabular Impingement
 - Impingement Osteophytes
 - Labral Tears
 - Loose Bodies
 - Synovial Chondromatosis
 - Snapping Hip Syndrome (Iliopsoas)
 - Trochanter Bursitis
 - Chondral (Cartilage) Injuries
 - Ruptured Ligamentum Teres
 - Mild Arthritis
 - Synovial Diseases
 - Instability (DDH)
 - Pain After Total Hip Replacement
 - Unresolved Hip Pain

- Spur Removal
- View after FAI surgery: Osteoplasty with Labral Repair
- Osteoplasty
- Impingement
- CAM Cysts
- CAM Impingement
- CAM Bumps

What is FAI?

Femoroacetabular impingement is a cause of hip pain arising from abnormal contact between the proximal femur and the acetabulum during terminal hip motion. This is caused by a structural abnormality at the femoral head/neck junction or the acetabulum. The problem usually presents in young adults and can often go undiagnosed for years. Failure to identify and properly restore the biomechanics has been hypothesized to lead to the early onset of hip osteoarthritis; thus, early recognition is important.

- Femoroacetabular Impingement:
- Acetabulum: Pincer:
 - Retroverted
 - Coxa Profunda
- Femoral head neck junction:
 - CAM
 - Reactive femoral head osteophyte

- Types of Impingement
- CAM cysts on MRI
- Open FAI Surgery
- PINCER impingement

Acetabular Etiology

- Bony impingement that occurs on the Acetabular side
 - Pincer impingement
 - Coxa profunda: posterior wall is deep to center point of rotation of femoral head
 - Retroversion: anterior and posterior walls cross

Diagnostic studies that detect FAI

- 2 view pelvic x-ray: A/P and cross table lateral
- MRI with contrast/ pain test: Lidocaine
- Hip Exam by a trained physical therapist
 - ROM measurement
 - Hip dynamometer

Early Detection

- Common complaints: sitting for periods of time and getting in and out of a car
- Sleeping at night
- Pain felt deep into the groin; commonly misdiagnosed with “groin injury” or “sports hernia” ,
 - females: pelvic in origin.

Etiology of Labral Tears

- When bony impingement exists and rotational force is exerted on the joint
- Soft tissues will have excess forces applied
- Resulting in a Labral tear and possible Delamination of the cartilage

- Ligamentum Teres
- Hip Bursitis
- Chondral Debridement
- Microfracture
- Debridement of OA
- Labral Tears
 - Repair vs. Debridement

ASSOCIATED PATHOLOGY

- Athletic Pubalgia
 - Rectus abdominus insertion with pain in inguinal canal
 - Adductor longus inflammation
- Adductor (Groin) Strain
- Piriformis Syndrome
- Hamstring Syndrome
 - Pain overlying ischial tuberosity
- Snapping Hip
 - Iliopsoas gliding over iliopectineal eminence or femoral head
 - IT band over greater troch
 - Biceps over ischial tuberosity
 - Iliofemoral ligaments over femoral head

ASSOCIATED PROBLEMS

- Iliopsoas tendonitis
- Iliotibial band syndrome
- Osteitis Pubis
 - R/O infx, frx, neoplasm, prostatitis, endometriosis, tendonitis
 - Primary (noninfectious inflammatory condition secondary to repetitive micro trauma) vs. secondary
- Contusion
- Hip pointer (ASIS)
- Bursitis
- Fractures
 - Stress
 - Pelvis
 - Femoral neck
- Apophyseal avulsion (ASIS, AIIS, Ischial tuberosity)
 - Traumatic
 - SCFE

PATIENT SELECTION

- Clinical Examination
 - Impingement Test: Flexion Internal Rotation
- The hip needs to be examined in the supine, lateral and prone position.
- Strength deficits
- Impingement Tests
 - Anterior impingement
 - Posterior impingement
- Passive Prone ROM
- FABER Test
 - Negative
 - Positive

Physical Exam Findings

- Anterior impingement test
- FABER distance
- Logroll exam

ROM Measurements

- Significant increase in ROM when injured hip is compared to non-injured hip

Specific Tests

- Thomas Test
- Trendelenberg Test
- Ober Test
- Leg Length Discrepancy evaluation (pelvic obliquity)
- Faber
- Logroll Test

SELECTION

- History
- Exam
- Diagnostic Tests
 - Xrays
 - Xray Anatomy
 - Xray Diagnosis
 - CT scan
 - MRI

SHARP'S ANGLE

- **The Acetabular Angle. Ian K. Sharp**
- Normal values: 33 - 38°.
- 39 - 42° upper limit of normality.
- > 42 = risk
- > 47 degrees is shown in a hip with congenital subluxation.

CROSSOVER SIGN

- 27yo male with positive retroversion signs on both sides.
- oblique anterior aspect of the rim (solid line) crosses the more vertical posterior aspect of the rim (dotted line), = cross-over sign.
- The posterior wall sign is positive because the outline of the posterior wall is medial to the center of the femoral head

Etiology of FAI: CAM

- CAM:
 - Development
 - Congenital
 - Silent slip of the growth plate
 - Reactive formation
 - Pathophysiology
 - LCP
- CAM Impingement
- Delamination of the Acetabular Cartilage

- Labral Repair
- Impingement
 - Pincer
 - CAM
- CT Scan

TECHNIQUE

- For the staff
- For the surgeon
 - Portal placement

Foot in Internal Rotation

Appropriate Hip Subluxation/”Vacuum Sign”

Hip Arthroscopy Portals

- Anterolateral (AL)
- Posterolateral (PL)
- Anterior (AP)

Hip Arthroscopy Complications

- Pudendal nerve neurapraxia
- Lateral femoral cutaneous neurapraxia
- Chondral scuffs from inadequate distraction
- Sciatic neurapraxia – avoid postero lateral portal
- H.O. and notching after open surgery

REHABILITATION

- Stretching and mobilizing capsule
- Four Principles
 1. Early ROM
 2. Protected WBing
 3. Avoid Rotation
 4. LE strengthening

REHABILITATION

- Stage 1: Immediate post-surgery Weeks 0-2
- Phase I Maximum Protection Phase (2-4 weeks)
- Stage 2: Weeks 2 through 4
- Phase II: Moderate Protection Phase (weeks 5-6)
- Phase III: Controlled Activity Phase (Weeks 7-12)
- Phase IV: Return to Activity Phase (Months 3-4)

RESULTS and OUTCOMES

