GUIDELINES FOR ORTHOPEDIC CONSULTATION AND FOLLOW-UP

<table>
<thead>
<tr>
<th>PELVIS AND HIP</th>
<th>Orthopedic Consult</th>
<th>Follow Up</th>
<th>Disability Period</th>
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<tbody>
<tr>
<td>Pelvic Fractures</td>
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<tr>
<td>Type I (single, non-ring)</td>
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<tr>
<td>- Avulsion</td>
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<td>- Ileal Wing</td>
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<td>Slipped Capital Femoral Epiphysis</td>
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MANUAL OF EMERGENCY ORTHOPEDICS
GUIDELINES FOR ORTHOPEDIC CONSULTATION AND FOLLOW-UP (Continued)

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<th>Orthopedic Consult</th>
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Pelvic Fractures

MECHANISM

- Athletic injuries
  - Sudden, strenuous muscular contraction (avulsion fractures)
  - Repetitive minor trauma (stress fractures)
- Severe indirect force transmitted via the femur (vehicular accidents)
- Direct blow or crushing injury (falls, auto versus pedestrian, industrial injuries)
- Force patterns
  - Anteroposterior compression (15%): vertical pubic rami fractures, "open book" injuries
  - Lateral compression (57%): horizontal pubic rami fractures, sacral fractures, iliac wing fractures, central hip dislocation, "bucket handle" injury (ipsilateral pubic rami fractures + contralateral posterior fracture or ligamentous disruption)
  - Vertical shear (6%): multiple ligaments disrupted and/or multiple fractures (often displaced)
  - Complex: combined effect of two or more force patterns
Pelvic Fractures
(Continued)

CLASSIFICATION

- Type I: Single fractures of individual pelvic bones
  - Avulsion fractures of muscular attachments (most commonly seen as apophyseal avulsions in adolescent male athletes)
  - Ileal wing fractures
  - Coccoygeal and transverse sacral fractures (below S-2)
  - Stress fractures (most common site is superior pubic ramus in female distance runners; may be sudden or insidious in onset)

- Type II: Single ring fractures
  - Subluxation of symphysis pubis (>2.5 cm separation implies additional injury; posterior fracture or ligamentous disruption)
  - Sacroiliac joint subluxation or vertical sacral fracture
  - Vertical transileal fracture
  - Unilateral pubic and/or ischial rami fractures

- Type III: Double ring fractures (unstable)
  - Malgaigne fractures (one disruption on each side of acetabulum)
  - Bilateral double rami fractures (straddle fractures)
  - Complex fracture patterns

- Type IV: Acetabular fractures
  - Anterior column (iliopubic: pubic ramus plus anterior rim, rare)
  - Posterior column (ilioischial: ischial tuberosity plus posterior rim, common); affects hip joint stability
  - Transverse (dome: both columns, superior acetabulum plus ilium, common); compromises weight bearing potential
  - Complex (burst, stellate, T-shaped; three or more acetabular fragments, most common type of acetabular fracture)

MANUAL OF EMERGENCY ORTHOPEDICS
Pelvic Fractures (Continued)

FINDINGS

- Sudden focal tenderness (may include swelling) and impaired function following acute muscular exertion; acute "snap" or "pop" may be reported (avulsion fractures)
- Pelvic injuries are a common component of multiple trauma
- Grey Turner’s sign (ecchymosis of perineum, flanks, groin or suprapubic area from extra-peritoneal bleeding)
- Compression pain and/or instability (lateral compression of iliac crests, anteroposterior compression of pubis, anteroposterior “rocking” of iliac crests)
- Rectal Exam (tone, blood, bone fragments, lacerations, prostate, palpation of sacral/coccygeal fractures)
- Bimanual Exam (blood, bone fragments, lacerations)
- Neurologic exam (nerve root or sciatic nerve injury)
- Hip and lower extremity exam (to rule out associated injury)

Radiographs

- Single anteroposterior view is prudent in the multiple trauma patient (reveals 94% of pelvic fractures)
- Special views: pelvic inlet and outlet (for posterior fractures/disruptions), 45° obliques (for acetabular fractures and dislocations)
- Special studies
  - Retrograde urethrogram (mandatory if gross meatal bleeding is present)
  - Cystogram and/or intravenous pyelogram (to rule out urologic disruption)
  - CT scan (for fracture detail and to rule out occult injury)

- Peritoneal lavage: 12-28% false positives because of posterior tear in peritoneum allowing anterior dissection of hematoma

PELVIS-HIP
Pelvic Fractures
(Continued)

MANAGEMENT

• Avulsion fractures
  - Bed rest, crutches, progressive activity, activity modification
  - Analgesia
  - Prognosis for full recovery is good (vast majority progress to painless fibrous union; healed lesions may mimic neoplasms)
  - Markedly displaced greater trochanter avulsion (gluteus medius and minimus) may require skeletal fixation
  - Follow-up: orthopedist - one week

• Ileal wing fractures: orthopedic consult
  - Blood loss and associated injuries may be significant
  - Bed rest, crutches, progressive
  - Analgesia
  - Perfect anatomic alignment is not essential

• Cocygeal and low transverse sacral fractures (below S-2)
  - Bed rest, activity modification and follow-up as needed
  - Stool softeners
  - Neurologic deficits associated with transverse sacral fractures are unusual and often improve with rest but occasionally require sacral laminectomy; orthopedic or neurosurgical consultation is required if any neurologic deficit is present

• Pubic ramus stress fractures
  - Activity modification
  - Orthopedic follow-up for persistent pain

• Single ring fractures: orthopedic consult
  - Rule out associated injury (25% will have visceral injuries)
  - Bed rest, crutches, progressive activity
  - Analgesia
Pelvic Fractures
(Continued)

- Double ring fractures (unstable): orthopedic consult
  - Significant associated injuries are common (genitourinary
    injuries - 20%, visceral injuries - 38%)
  - General anesthesia for reduction
  - Skeletal traction or skeletal fixation may be required
  - Emergent application of external fixator may be lifesaving in the
    hemodynamically unstable patient

- Acetabular fractures: orthopedic consult
  - Traction (skin or skeletal) often required initially
  - Many will ultimately require surgical fixation

COMPLICATIONS

- Subtle fractures and ligamentous disruptions may be overlooked
  (especially in the multiple trauma victim)

- Significant blood loss is common
  - Retroperitoneal space may hold 4,000 cc before tamponade
  - Exsanguination is more likely with open pelvic fractures (loss of
    tamponade effect)
  - Bleeding may be hidden (retroperitoneal) or give false positive
    peritoneal lavage if retroperitoneum is violated
  - Bleeding may be from cancellous bone, venous tears or arterial
    disruption (internal iliac, obturator, superior gluteal, or pudendal
    arteries)
  - Angiography is often helpful diagnostically and selective
    embolization may be life saving in the exsanguinating patient
  - MAST suit provides compression, tamponade and fracture
    stabilization
  - External fixator may help control severe bleeding (especially in
    "open book" injuries

MANUAL OF EMERGENCY ORTHOPEDICS
Pelvic Fractures (Continued)

- Urinary tract injuries
  - Most common with anterior fractures (up to 20%)
  - Hematuria is very common in pelvic fractures (>50%)
    - Degree of hematuria is not proportional to severity of injury
    - Excretory urography (IVP) is frequently necessary
  - Bladder rupture (inability to void may be first clinical sign)
  - Urethral injuries (much more common in men)
    - Prostate may feel boggy, indistinct or high riding
    - Gross bleeding mandates retrograde urethrogram prior to catheter insertion (suprapubic cystostomy may be necessary)

- Neurologic injuries
  - May be overlooked (findings often subtle or delayed)
  - Nerve root traction, avulsion or transection (sacroiliac joint disruption or sacral fractures)
  - Sciatic nerve injury (acetabular fractures or posterior hip dislocation)

- Visceral injuries (up to 38% in Type III fractures)
- Open fractures (skin, GI tract, vagina)
  - Common but may be subtle
  - Up to 50% mortality (early: exsanguination; late: sepsis)

- Diaphragmatic rupture (from severe compression loading)
- Late complications: malunion, non-union, leg length discrepancy, aseptic necrosis of femoral head, post-traumatic arthritis, disabling low back pain
Posterior Hip Dislocation

MECHANISM
- Most common hip dislocation
- Axial loading of femur with hip flexed and adducted (degree of flexion and adduction determines the extent of the injury)
- Most occur in front seat auto accident victims without seat belts
- Posterior capsule and ischiofemoral ligaments are disrupted
- Dislocations in children may be from trivial trauma (under age 6) or from athletic injuries (school age children)

FINDINGS
- Buttocks and posterior thigh pain with limited/painful range of motion
- Characteristic posture: hip flexed, adducted, internally rotated
- Greater trochanter is elevated and leg appears shortened

MANAGEMENT - urgent orthopedic consult
- Analgesia
- Best managed in the operating room under general anesthesia to minimize further bony or soft tissue injury from reduction

COMPLICATIONS
- Acetabular fracture (usually posterior rim; common; may be occult)
- Open reduction may be necessary (3-16%) if interposed soft tissue prevents closed reduction
- Sciatic nerve injury (6-13%)
  - Weak dorsiflexion of foot
  - Most common with fracture of the acetabulum or proximal femur
  - Many (60-70%) resolve spontaneously
- Associated knee injury (up to 50%)
- Associated ipsilateral femoral shaft fracture (hip dislocation may be overlooked)
- Associated femoral head or neck fracture (10%)
- Late complications
  - Aseptic necrosis of the femoral head (10-15%); risk increases dramatically if reduction is delayed
  - Post-traumatic arthritis (13-30%)

MANUAL OF EMERGENCY ORTHOPEDICS
Anterior Hip Dislocation

MECHANISM

- Uncommon (10-13% of all traumatic hip dislocations)
- Forceful abduction and external rotation with blow to medial aspect of the knee or to the posterior thigh
- Degree of hip flexion/extension determines whether the femoral head is forced superiorly (pubic type) or inferiorly (obturator type)
- Most are the result of vehicular trauma but may be from a fall or athletic injury

FINDINGS

- Groin and anterior thigh pain with limited/painful range of motion
- Characteristic posture: hip held abducted, flexed and externally rotated; leg may appear shortened
- Femoral head may be palpable in the inguinal area near the pubis or in the obturator foramen

MANAGEMENT - urgent orthopedic consult

- Analgesia
- Best managed in the operating room under general anesthesia to minimize further bony or soft tissue injury from reduction

COMPLICATIONS

- Injury to femoral vasculature
- Femoral nerve injury (impaired quadriceps function)
- Late complications
  - Aseptic necrosis of the femoral head (less common than with posterior hip dislocation)
  - Post-traumatic arthritis
  - Myositis ossificans

PELVIS-HIP
Central Hip Dislocation

MECHANISM

- Usually from vehicular trauma or fall from height
- Violent force to lateral thigh transmitted to greater trochanter
- Axial loading of femur with hip abducted
- Head of femur driven through acetabulum into pelvic cavity (type IV pelvic fracture)

FINDINGS

- Pain in groin and anteriomedial thigh
- Hip may be slightly abducted and externally rotated with limited/painful range of motion
- Cullen’s sign may be present (periumbilical ecchymosis from tracking of retroperitoneal bleeding)

MANAGEMENT - orthopedic consult

- Many will require open reduction with internal fixation
- Prolonged skeletal traction may be used initially but many will ultimately require reconstruction

COMPLICATIONS

- Sciatic nerve injury
- Lower genito-urinary injury
- Late complications:
  - Aseptic necrosis of the femoral head
    - Risk increases with delay in reduction
    - Usually appears 3-24 months post injury
  - Post-traumatic arthritis very common (40-70%)

MANUAL OF EMERGENCY ORTHOPEDICS
Hip Fractures

MECHANISM

- Twisting or shearing forces applied to proximal femur
- Most common in older osteoporotic patients
  - Much more frequent in females
  - Force required may be minimal
- May occur in young patients after high energy trauma
  - Vehicular trauma or fall from height
  - Usually involves the femoral neck
- Stress fractures (usually involves the femoral neck)
  - Fatigue fractures: normal bone subjected to extraordinary stress
    - Military recruits, young athletes
    - Usually involves the femoral neck
  - Insufficiency fractures: normal stress fractures weakened bone
    - Predisposing factors: osteoporosis, osteogenesis imperfecta,
      Paget's disease, hyperparathyroidism, rheumatoid arthritis,
      post-irradiation
    - Pathologic fractures: fractures through tumor weakened bone

TYPES

- Intracapsular
  - Subcapital
  - Transcervical
  - Base of neck
- Extracapsular
  - Intertrochanteric
  - Subtrochanteric
Hip Fractures
(Continued)

FINDINGS

- Groin and anterior thigh pain; may present as isolated knee pain
- The patient is usually nonambulatory with any hip motion or weight bearing causing pain
- Characteristic posture (displaced fractures): extremity is shortened and externally rotated
- Subtle femoral neck fractures (fatigue, incomplete or nondisplaced) may present acutely or insidiously with antalgic gait and increased pain on internal rotation (increased intracapsular pressure)
- Bone scan may be required to diagnose subtle fractures

MANAGEMENT - orthopedic consult

- Usually requires surgery
- Debilitated nursing home patients may be managed with bed rest
- Selected young patients with nondisplaced fatigue fractures may be treated with bed rest (3-6 weeks) followed by progressive activity

COMPLICATIONS

- Fracture may be overlooked (mainly femoral neck fractures):
  - Multiple trauma patient
  - Non-displaced, incomplete or fatigue fractures (especially with no history of severe or specific trauma)
  - Diagnosis may be delayed until fracture displaces
- Aseptic necrosis of femoral head and subsequent collapse (highest incidence with subcapital fractures)
- Non-union
- Post-traumatic arthritis
- Risk of hypovolemia with extracapsular fractures

MANUAL OF EMERGENCY ORTHOPEDICS
Legg–Calve–Perthes’ Disease

MECHANISM
- Obliteration of the blood supply to femoral head produces aseptic necrosis; the underlying etiology is uncertain but may be related to trauma, inflammatory disease or generalized disorder of epiphyseal hyaline cartilage
- Most common between 4 and 8 years of age (range: 2 years to teens)
- Over two or three years the necrosed femoral head is absorbed and replaced with new viable bone

FINDINGS
- Insidious onset; intermittent limp
- Intermittent pain in the groin, anterior thigh or knee; pain may be accelerated by activity and improved with rest
- Pain limits full extension, internal rotation and abduction
- Contractures (adduction) or atrophy may be present
- Radiologic findings
  - Variable depending on the stage of disease
  - Plain x-ray views should include: anteroposterior, lateral and frog leg lateral
  - Radionuclide scanning may be helpful in evaluating early disease
  - MRI scanning may be helpful in defining pathologic changes in articular and epiphyseal cartilage and synovium
  - "At risk signs" (correlate with higher probability of early degenerative osteoarthritis)
    - Clinical findings
      - Adduction contractures
      - Decreased range of motion
    - Radiographic findings
      - Lateral subluxation
      - Calcification lateral to epiphysis
      - Diffuse metaphyseal lesions
      - Horizontal inclination of the growth plate
      - Gage’s sign (lytic area in the lateral epiphysis and adjacent metaphysis

PELVIS–HIP
Legg–Calve’–Perthes’ Disease
(Continued)

MANAGEMENT - orthopedic consult

- Objective is to contain the femoral head within the acetabulum (prevent subluxation) which promotes uniform pressure on and molding of the femoral head and acetabulum for eventual spherical congruity of joint surfaces; this lessens the risk of subsequent osteoarthritis
- Bracing is the first line of treatment but surgery is sometimes advocated
- Initial management should include rest, crutches and orthopedic referral

COMPLICATIONS

- Missed initial diagnose from focusing on referred knee or thigh pain
- Degenerative osteoarthritis
- Evaluation must exclude: toxic synovitis, septic arthritis, juvenile rheumatoid arthritis

MANUAL OF EMERGENCY ORTHOPEDICS
Slipped Capital Femoral Epiphysis

MECHANISMS

- Exact etiology is unknown; risk factors include:
  - Strenuous activity in the obese child
  - Subtle anatomic variations of the proximal femur
  - Skeletal immaturity
  - Hormonal imbalance (hypothyroidism, low levels of testosterone or growth hormone, delayed sexual maturation)
  - Autosomal dominant trait with variable penetrance
- Age ranges: boys 10-16 years (average = 13.5 years); girls: 8-15 years (average = 11.5 years)
- Boy:girl ratio = 2.5:1
- Bilateral in 20-50%
- Femoral head (capital epiphysis) gradually slips posteriorly, medially and inferiorly relative to the femoral neck

FINDINGS

- Onset is often insidious with intermittent limp or pain in the groin, medial thigh or knee; pain may be associated with reactive synovitis (inflammatory process may be primary or secondary)
- Onset of pain is occasionally abrupt and related to strenuous activity or minor trauma
- Antalgic gait with leg externally rotated; leg may be shortened
- Positive log roll test: internal rotation with hip in extension is painful and limited
- Plain x-rays are usually diagnostic (both hips: anteroposterior, true lateral and frog leg lateral); CT scan may clarify subtle slipping
Slipped Capital Femoral Epiphysis
(Continued)

CLASSIFICATION

• Preslip
  - Pain (usually in knee and thigh) with decrease hip range of motion
  - X-rays show widened or irregular physis but no slip
  - Positive bone scan

• Acute slip (symptoms <3 weeks duration)
  - Often presents with groin, hip, thigh or knee pain after mild trauma
  - X-rays show displacement of epiphysis relative to metaphysis

• Acute-on-chronic slip
  - Variable prodrome of groin, thigh or knee pain
  - Increased pain and decreased range of motion following mild trauma
  - X-rays show acute physeal separation superimposed on osseous remodeling of metaphysis

• Chronic slip (symptoms >3 weeks duration)
  - Intermittent limp and/or groin, thigh or knee pain (weeks to years)
  - Leg fixed in external rotation with variable shortening

MANAGEMENT - orthopedic consult

• Initial management includes non-weight bearing (crutches) and bed rest with hip in extension
• Traction or casting are occasionally used but surgery is usually required

MANUAL OF EMERGENCY ORTHOPEDICS
Slipped Capital Femoral Epiphysis (Continued)

COMPLICATIONS

- Hip pathology may be overlooked if diagnostic efforts only focus on the referred knee or thigh pain
- Chondrolysis: rapid degeneration of articular cartilage
  - Occurs in 30-33%
  - Seen as joint space narrowing on x-ray
  - Can occur with or without treatment
- Avascular necrosis of the femoral head
  - Occurs most often following manipulation, reduction and pinning after an acute slip
- Degenerative osteoarthritis
Pyogenic Arthritis of The Hip

MECHANISM

- Primary: hematogenous seeding (most common mechanism)
  - Staphylococcus aureus is the most frequently identified organism
  - Haemophilus influenza predominates in children under 2 years old
  - There is usually a history of an antecedent respiratory, ear, nose or throat infection
- Secondary: direct inoculation
  - Traumatic arthroscopy
  - Post-surgical
- Second most common hip affliction during the first 3 years of life
- May be preceded by closed hip joint trauma (pathophysiology uncertain)

FINDINGS

- Onset is often acute with fever and refusal to weight bear; the spectrum of presentation varies from mild hip discomfort without fever (often associated with an upper respiratory infection or minimal trauma) to overt sepsis
- Hip exam varies from slight limp with mild pain on internal rotation to exquisite pain with any movement; preferred position of rest is usually partial flexion and external rotation
- White blood cell count may be elevated but is frequently normal
- Erythrocyte sedimentation rate is usually elevated (82-100%)
- Initial x-rays are usually normal but may show increased joint space; bony or cartilaginous destruction may not be visible for two weeks
- Ultrasound may show capsular distention
- Diagnosis can usually be confirmed (and organism identified) by blood cultures, hip joint aspiration and/or arthroscopy

MANUAL OF EMERGENCY ORTHOPEDICS
Pyogenic Arthritis of The Hip
(Continued)

MANAGEMENT - orthopedic consult

- Intravenous antibiotics
- Surgical drainage (selected cases may be managed with repeated aspirations)

COMPICATIONS

- Highest risk if the diagnosis is delayed or if the child is less than one year old (neonates fair the worst)
- Sepsis
- Osteomyelitis of adjacent bone
- Total destruction of the hip joint
- Long term residuals include chronic limp, decreased range of motion and leg length discrepancy
Transient (Toxic) Synovitis of the Hip

MECHANISM

- Unknown etiology; may be related to trauma, viral infection and/or hypersensitivity reaction
- Most common cause of painful hip or antalgic limp in young children
  - Average age: 5.9 years (most cases occur in the range from 3-10 years)
  - Boy:girl ratio = 2:1

FINDINGS

- Variable presentation
  - Acute onset (symptoms for 1-3 days) in 50%
  - Gradual onset (symptoms present for weeks to months) in 50%
- History of recent respiratory, ear, nose or throat infection in 50%
- Presenting complaints include refusal to bear weight, painful limp, pain in groin, anterior thigh or knee
- Hip position of comfort is flexion; abduction, external rotation (lowest intra-articular pressure when effusion is present)
- Most consistent physical finding is pain with internal rotation of the hip but all extremes of range of motion may cause pain
- Fever is absent or low grade (<100°F)
- White blood cell count and sedimentation rate are normal or only minimally elevated
- X-rays are usually normal but may show widening of the medial joint space (up to 40%) if effusion is present
- Ultrasound is the best diagnostic modality to detect joint effusion but cannot differentiate the type or cause of the effusion
- Bone scan may be normal (46%) or may show slightly increased activity

MANUAL OF EMERGENCY ORTHOPEDICS
Transient (Toxic) Synovitis of the Hip
(Continued)

MANAGEMENT

- Transient synovitis is a diagnosis of exclusion; septic arthritis, Perthes' disease, slipped capital femoral epiphysis, juvenile rheumatoid arthritis, trauma, osteomyelitis and tumor must be excluded
- Arthrocentesis is mandatory if septic arthritis is suspected; toxic synovitis may yield a dry tap or 1-3 cc's of serosanguinious fluid with negative gram stain, few white cells and negative culture
- Careful home monitoring with bed rest and salicylates followed by progressive activity as tolerated is adequate treatment for most children; occasionally pain may be severe enough to require hospitalization, Buck's traction and narcotics

COMPLICATIONS

- Failure to exclude a more serious diagnosis
- Clinical and radiographic monitoring for at least 6 months is prudent since a small percentage will develop Perthes' disease (2-4%)
Bursitis in The Hip Region

MECHANISM

- Reactive inflammation secondary to mechanical irritation: overuse (repetitive microtrauma), excessive pressure, direct trauma or altered gait mechanics
- Primary inflammation: gout, rheumatoid arthritis
- Infection (septic bursitis): uncommon

TYPES AND FINDINGS

- Trochanteric
  - Most common in middle age (or older) females
  - Pain over the lateral hip and thigh exacerbated by walking or extreme passive flexion or adduction
  - Adduction against resistance is painful
  - Point tenderness over the lateral aspect of the greater trochanter is the most reliable diagnostic finding
- Ischial
  - Pain in the buttocks and posterior thigh exacerbated by sitting on a hard surface
  - Point tenderness over the ischial tuberosity
- Iliopectineal
  - Pain over the anterior hip joint that may radiate down the anterior thigh (if the adjacent femoral nerve is irritated)
  - Focal tenderness (which may include swelling) lateral to the femoral artery at the level of the hip joint
  - Most comfortable position is with the hip flexed, abducted and externally rotated; extension, adduction and internal rotation increases the pain
Bursitis in The Hip Region (Continued)

MANAGEMENT

- Eliminate or treat precipitating factor if possible
- Initial rest followed by range of motion exercises and passive stretching
- Application of ice (24-48 hours), then moist heat
- Non-steroidal anti-inflammatory medication
- If inadequate response to oral medication, intra-bursal injection of steroid/lidocaine (e.g., 10-40 mg triamcinolone hexacetonide plus 2 cc of 1% lidocaine)
- Follow-up: primary care - one week
  : orthopedist if no improvement in 2-3 weeks
Meralgia Paresthetica

MECHANISM

- Entrapment of the lateral femoral cutaneous nerve at the inguinal ligament
- Mechanical neuritis (prolonged sitting, standing, belts, obesity, etc.)
- Trauma (blow to the area around the anterior superior iliac spine or after harvesting of bone graft from the region)
- May be associated with pregnancy or diabetes

FINDINGS

- Burning pain or numbness over the anterior and lateral thigh; pain often waxes and wanes
- Pressure or percussion over the medial aspect of the anterior superior iliac spine may create an electric dysesthesia which radiates into the anterior and lateral thigh
- X-ray and laboratory data are normal
- 20% of patients experience bilateral symptoms

MANAGEMENT

- Eliminate aggravating factor(s)
- Anti-inflammatory drugs (especially non-steroidals)
- Local injection of lidocaine/steroid may be diagnostic and therapeutic
- Surgical or chemical nerve ablation may be considered in refractory cases
- Follow-up: primary care in 1-2 weeks, orthopedist if no improvement in 4-6 weeks

COMPLICATIONS

- May be confused with trochanteric bursitis, lumbar disc disease, or L-3/L-4 spinal stenosis

MANUAL OF EMERGENCY ORTHOPEDICS
References

PELVIC FRACTURES: EVALUATION AND MANAGEMENT


References (Continued)


**PELVIC FRACTURES: STRESS AND AVULSION FRACTURES**


**MANUAL OF EMERGENCY ORTHOPEDICS**
References (Continued)


PELVIC FRACTURES: SACRUM AND COCCYX


PELVIC FRACTURES: ACETABULUM


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