Ankylosing Spondylitis
Epidemiology

- Peak onset between 20 and 30 years
- Form of spondyloarthritis (cause inflammation around site of ligament insertion into bone) and association with HLA–B27
- Prevalence as high as 5% in adults with chronic low back pain
- Male to female ratio 2–3:1
Differential Diagnosis

- Rheumatoid arthritis: predominantly affects small peripheral joints in symmetrical pattern, often RF or anti–CCP positive, not associated with HLA–B27
- Reactive arthritis: history of preceding intestinal or GU tract infection
- Psoriatic arthritis: presence of typical psoriatic skin or nail changes
<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Rheumatoid arthritis</th>
<th>Gonococcal arthritis</th>
<th>Psoriatic arthritis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>Young</td>
<td>Middle</td>
<td>Young</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>Male &gt; female</td>
<td>Female &gt; male</td>
<td>No effect</td>
</tr>
<tr>
<td><strong>Onset</strong></td>
<td>Abrupt</td>
<td>Insidious</td>
<td>Abrupt</td>
</tr>
<tr>
<td><strong>Joint number</strong></td>
<td>Oligoarthritis</td>
<td>Polyarthritis</td>
<td>Monoarthritis or oligoarthritis</td>
</tr>
<tr>
<td><strong>Symmetry of arthritis</strong></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Sausage digits</strong></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Back pain</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Urethritis</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Skin lesions</strong></td>
<td>Palms and soles in 10 percent</td>
<td>Subcutaneous nodules or vesicular psoriasis</td>
<td>No</td>
</tr>
<tr>
<td><strong>Gonococcus</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Diagnosis—Identifying Inflammatory Back Pain

- Onset of back pain before age 40
- Insidious onset
- Improvement with exercise
- No improvement with rest
- Pain at night
Chronic low back pain (5 percent probability of axial SpA)

**Inflammatory back pain**

- **Yes (14 percent probability)**
  - **HLA-B27**
    - **Yes (59 percent)**
    - **No (<2 percent)**

Rheumatologist:
- Evaluation of clinical SpA features (enthesitis, positive family history, uveitis, alternating buttock pain, peripheral arthritis, dactylitis, psoriasis, Crohn’s disease, positive response to NSAID),
- Acute phase reactants
- HLA-B27 (if not done already)
- Imaging (x-rays, MRI)

**No further testing unless SpA strongly suspected***

Judgement on probability of axial SpA

- Axial SpA
- Other diagnosis
Physical Exam: Reduced range of motion: Schober test
Physical Exam: Occiput to wall distance
Physical Exam

- Chest expansion: expansion of less than 2.5cm abnormal (5cm considered normal)
- Sacroiliac joint tenderness
- Hip joint involvement
- Peripheral joint involvement (dactylitis—“sausage toes”)
Laboratory Tests

- CRP typically elevated
- HLA-B27: present in 8% of population, prevalence in HLA-B27 positive population is only 5%
Imaging

- Widening, erosions, sclerosis, or ankylosis of sacroiliac joint
- Early signs: squaring of vertebral bodies due to anterior and posterior spondylitis
- Late stages: proliferative changes, anterior atlantoaxial subluxation
- MRI: more sensitive—can use in patients who do not have sacroiliitis on plain radiographs (can see “bone marrow edema”
Extra-articular involvement

- Acute anterior uveitis: occurs in 25–40% of patients
  - Presents as acute unilateral pain, photophobia, and blurring of vision
- Neurologic symptoms: fracture of ankylosed spine, atlantoaxial–axial subluxation, cauda equina syndrome
- Cardiovascular disease: increased risk
- Pulmonary disease: restriction secondary to restriction in chest expansion
- Renal disease: IgA nephropathy and secondary amyloidosis (only in patients with longstanding active inflammation)
- Bowel lesions: Inflammatory bowel disease
- Osteopenia (in patients with persistent active disease)
Classification Criteria

Clinical:
1) Low back pain and stiffness >3 months improves with exercise and not relieved by rest
2) Limitation of motion of lumbar spine
3) Limitation of chest expansion relative to normal values correlated for age and sex

Radiologic:
1) Sacroiliitis grade >2 BL or 3 to 4 unilaterally
Clinical Features

- Spinal and sacroiliac involvement
- Hip and shoulder involvement
- Costovertebral, sternoclavicular, costochondral inflammation
- Inflammation of extraspinal entheses
Symptoms

- Low back pain (inflammatory in nature)
- Buttock pain (may be indicative of sacroiliac involvement)
- Limited spine mobility and chest expansion
- Hip pain
- TMJ involvement
- Enthesitis
Goals of Therapy

- Symptomatic relief
- Restore function
- Prevent joint damage
- Prevent spinal fusion (prevent progressive bony erosions and ankylosis of the spine)
- Minimize extraspinal and extraarticular manifestations
- Prevent complications of spinal disease
Assessment of disease activity

- Global pain
- Axial pain
- Degree and duration of morning stiffness
- Activities that are limited

- ESR or CRP are useful as laboratory parameters of active disease
Prognostic Indicators

- Hip arthritis
- Dactylitis
- Poor efficacy of NSAIDs
- High ESR
- Limitation in ROM of lumbar spine
- Oligoarthritis
- Onset less than 16 years of age

Also associated with poor outcome: cigarette smoking, severe radiographic changes, functional impairment
Treatment

- Physical therapy: can help maintain function and partially relieve symptoms
- Local application of heat/cold
- Pharmacologic therapy: Analgesics, NSAIDs, sulfasalazine, MTX, anti-TNF agents
  - 70–80% of patients report substantial relief with NSAIDs. Continuous use may reduce radiographic progression
Anti–TNF Agents

- Typically have rapid response: improvement in pain, functional assessment, degree of inflammation
- Patients with good functional ability, elevated ESR/CRP, and HLA–B27 positive respond best
- Need to be wary of possibility of reactivation of latent TB