Ankylosing Spondylitis

Introduction

- It is now recognized that AS forms part of the spectrum of axial spondyloarthritis.
- Axial spondyloarthritis is an inflammatory disorder primarily affecting fibrous and synovial joints of the spine.
- Sacroiliac joint changes are seen only on MRI. When radiographic changes at the sacroiliac joints are present, the term ankylosing spondylitis (AS) is used.

Epidemiology

- It is seen in 0.2–0.5% of the population in Northern Europe and approximately 0.5% in the USA, affecting mainly young adults (late teens to early thirties) and occurring worldwide, with a **male to female ratio of 3 :1.**
- Women present later and are under-diagnosed.
- Associated strong genetic component- **HLA B27**

Aetiology

Genetic Factors

1. HLA-B27
2. ERAP-1
3. IL-1 gene cluster
4. CYP2D6

Environmental Factors

Local erosion of bone at the attachments of the intervertebral and other ligaments

Clinical Features

Initially, the diagnosis is often missed because the patient is asymptomatic between episodes and radiological abnormalities are absent.

Back pain with episodic inflammation of the sacroiliac joints- first manifestation of axial spondyloarthritis in late teenage years

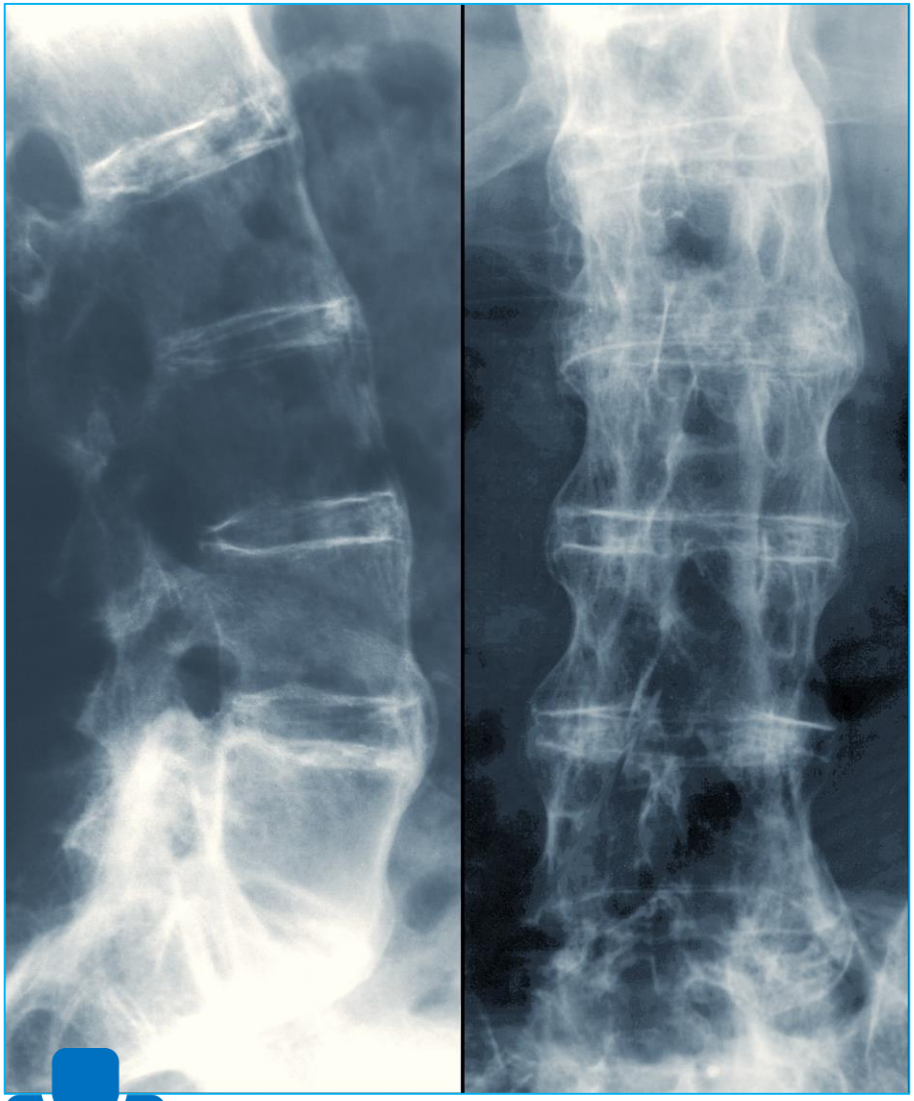
Pain in one or both buttocks and low back pain and stiffness- typically worse in the morning and relieved by exercise.

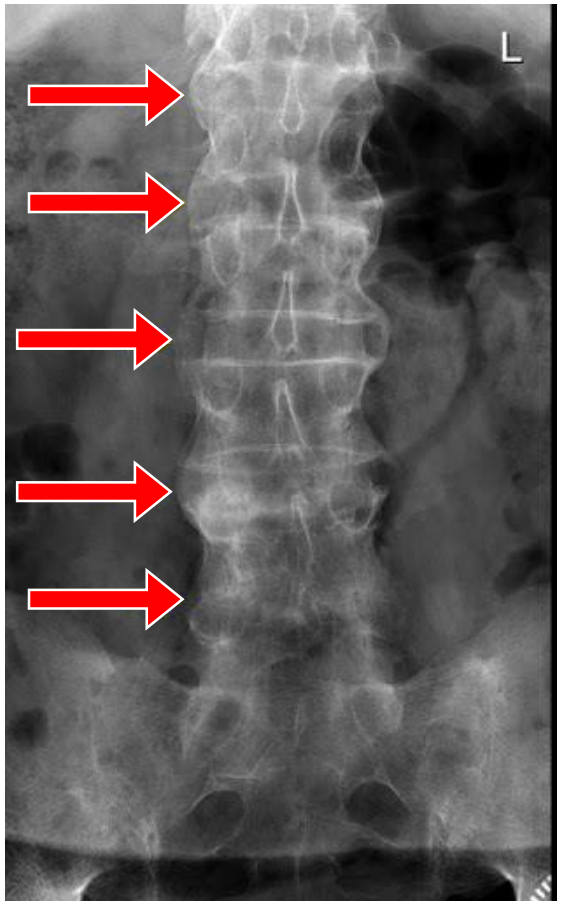
Retention of the lumbar lordosis during spinal Flexion-an early sign. Later, paraspinal
muscle wasting develops.

Clinical Features

- Costochondral junction inflammation causes anterior chest pain.
- Peripheral joint involvement is asymmetrical and affects a few, predominantly large, joints.(Hip)
- Acute anterior uveitis occurs in approximately 30% of patients.(Severe eye pain,photophobia and blurred vision are an emergency)

X-Ray





Bamboo Spine of Ankylosing Spondylitis

Other Extra-articular Features

- **Cardiovascular disease** – Aortic incompetence, cardiac conduction abnormalities.
- **Respiratory disease** – rarely, chest wall rigidity is associated with interstitial lung disease.
- **Renal impairment-** linked to chronic NSAID use
- **Axial osteoporosis-** vertebral fracture in 10%.

Back Pain Criteria For Diagnosing Axial/Ankylosing Spondylitis

- Age of onset <45 years.
- Insidious onset.
- Improvement of back pain with exercise.
- No improvement of back pain with rest.
- Pain at night with improvement on getting up.

The presence of four of the five criteria suggests ankylosing spondylitis with 80% sensitivity.

Investigations

- **Blood** - **ESR** and **CRP** are usually raised.
- **HLA testing** - Rarely of value because of the high frequency of HLA-B27 in the population.
- **X-rays** - The medial and lateral cortical margins of both sacroiliac joints lose definition and eventually become sclerotic. Calcification of the intervertebral ligaments and fusion of the spinal facet joints('bamboo' spine)

Investigations

- **MRI** - Can detect in early stages (MRI with gadolinium demonstrates sacroiliitis before it is seen on X-rays, as well as persistent enthesitis.)
- **USS** - can be useful

Management

- The key to effective management of AS is early diagnosis so that a regimen of preventative exercises is started.
- Morning exercises aim to maintain spinal mobility, posture and chest expansion. (regular NSAIDs to improve symptoms and signs of spondyloarthritis are often required to achieve this goal)

Management

- When the inflammation is active and the morning pain and stiffness are too severe to permit effective exercise, an evening dose of a long-acting or slow-release **NSAID or an NSAID suppository** improves sleep, pain control and exercise compliance.
- Failure to control pain and to encourage regular spinal and chest exercises leads to an irreversible dorsal kyphosis and wasted paraspinal muscles.

Management

- Sulfasalazine, methotrexate and leflunomide may help peripheral arthritis but not spinal disease.

- When NSAIDs have failed, the TNF-α-blocking drugs **adalimumab, etanercept, golimumab, certolizumab** and **infliximab** have all been shown to reduce symptoms of spinal and peripheral joint inflammation s and to improve function, as well as quality of life

Management

Surgical management-

- Around 10% of patients require **total hip replacement**.
- Occasionally a **corrective osteotomy** of the kyphosis is needed to allow forward vision.
- The stiff spine makes patients susceptible to unstable spinal fractures.

Management

- Conservative management - Physiotherapy

Prognosis

- With exercise and pain relief, the prognosis is excellent and over 80% of patients are fully employed.
- Anti-TNF therapies are likely to reduce the morbidity of severe disease, lowering the risk of permanent spinal stiffness and progressive peripheral joint disease.