

Rheumatoid arthritis and Spondyloarthropathies of the Spine

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Introduction

- ▶ RA is the predominant inflammatory arthropathy affecting the spine.
- ▶ There are a variety of other inflammatory spondyloarthropathies (SA) which are the sero negative conditions.
- ▶ It is very important to differentiate these from mechanical spinal pain

RA

Affects approximately 3% of women and 1% of men.
Diagnostic criteria developed by the American Rheumatism Association.

- ▶ Morning stiffness around the joint that lasts at least 1 hour
- ▶ Arthritis of three or more joints for at least 6 weeks
- ▶ Arthritis of hand joints for at least 6 weeks
- ▶ Arthritis on both sides of the body for at least 6 weeks
- ▶ Rheumatoid nodules under the skin
- ▶ Rheumatoid factor present in blood testing
- ▶ Evidence of rheumatoid arthritis on X-rays

Criteria for inflammatory SA

- ▶ inflammatory spinal pain or synovitis together with at least 1 of the following:
 - positive family history,
 - psoriasis,
 - inflammatory bowel disease,
 - urethritis or acute diarrhoea,
 - alternating buttock pain,
 - enthesopathy, or sacroiliitis.

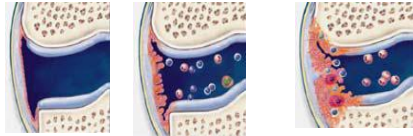
Pathogenesis

- ▶ T cell mediated immune response- how triggered?
- ▶ Inflammatory attack on soft tissues, joint cartilage and bone.
- ▶ Mononuclear cells cause the tissue destruction by release of IL-1, TNF-Alpha, phospholipase A2, PGE₂, plasminogen activators etc.

Pathogenesis

- ▶ Interaction between the class I MHC molecule HLA-B27 and the T cell response.
- ▶ Auto immunity
- ▶ HLA-B27-derived peptides presented by class II MHC molecules.
- ▶ Cross-reactivity to joint-specific structures such as type II collagen (79) and/or bacteria inside the joint

Pathogenesis



Choy and Panayi. *N Engl J Med.*
2001;344:907.
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Clinical Features

- ▶ Morning stiffness and pain
- ▶ Deformity of the spine
- ▶ Progressive stiffness of neck
- ▶ Instability causing dynamic neural compression
- ▶ Stenosis due to pannus and instability
- ▶ Progressive myelopathy

Investigations

- ▶ Plain radiographs- Flexion/extension views
- ▶ CT
- ▶ MRI
- ▶ DEXA

Natural history

- ▶ Progressive disease
- ▶ Now the course of the disease is being changed by the DMARD
- ▶ Debate on the cause of the cervical disease
- ▶ Do steroids help or hinder?

Natural history

Clinical Course of Conservatively Managed
Rheumatoid Arthritis Patients With Myelopathy-
Sunahara et al

Spine: 15 December 1997 - Volume 22 - Issue 22 - pp
2603-2607

The patients showed no neural improvement, and deterioration was found in 16 (76%) cases during follow-up. All patients became bedridden within 3 years of the onset of myelopathy. Seven of the 21 patients died suddenly for unknown reasons, 3 died of pneumonia, and 1 died of multiple organ failure. The three sudden-death cases showed progressive upward migration of the odontoid process. The cumulative probability of survival was 0% in the first 7 years after the onset of myelopathy.

Cervical spine

- ▶ Up to 90% involvement
- ▶ Pain and decreased ROM
- ▶ Occipital headaches
- ▶ Crepitation
- ▶ Gradual neurological deterioration
- ▶ Patients should have flexion/extension views prior to GA for any surgery

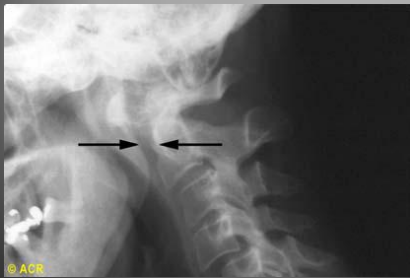
Atlanto-Axial subluxation

- ▶ Most common (50-80%)
- ▶ Destruction of the transverse ligament, dens or both
- ▶ Assess ADI, PADI/SAC
- ▶ Surgery if symptomatic or impending neurology
- ▶ Dubious results after surgery with established neurology

Ramawat classification

- I : Subjective paresthesias and pain
- II : Subjective weakness, upper motor neuron findings
- III : Objective weakness, upper motor neuron findings
- A: Ambulatory B: Non ambulatory

Atlanto-Axial subluxation



C1-2 disease



C1-C2 fusion



Cranial settling/basilar invagination(40%)

- ▶ This is another type of C1-2 instability where the odontoid peg migrates cranially causing compression on the brainstem
- ▶ Treatment is by Occipitocervical fusion occasionally after a period of traction.

Sub Axial Instability (20%)

- ▶ Facet joints and joints of Luschka affected.
- ▶ This can result in various symptoms and is treated on the basis of the pathology
- ▶ Could cause radiculopathy or stenosis or both.
- ▶ Symptomatic instability alone may be treated with fusion
- ▶ Decompression and fusion required in the case of stenosis and progressive subluxation

Ankylosing Spondylitis

- ▶ Disease of predominantly men in the 3rd decade–HLA B27
- ▶ Presents as insidious onset pain and stiffness
- ▶ Progressive kyphotic deformity
- ▶ Marginal syndesmophytes
- ▶ Bamboo spine on radiographs
- ▶ Low velocity fracture
- ▶ Corrective osteotomy

Psoriatic SA

- ▶ 50% may be HLA b27 positive
- ▶ Presents with stiffness and pain
- ▶ Restriction of spinal movements

DISH

- ▶ Forestier's disease
- ▶ Severe ossification of the spine
- ▶ Stiffness and pain
- ▶ Presents as dysphagia, stridor in the neck

Enteropathic SA

- ▶ Spinal pain
- ▶ Tenderness
- ▶ Stiffness
- ▶ Preceding enteritis

Questions?

Summary

- › Rheumatoid arthritis
- › Ankylosing spondylitis
- › Red flags
- › Inflammatory Vs. Mechanical pain