Clinical Features and Assessment of Ankylosing Spondylitis

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Introduction

• Ankylo=fusion
• Spondylitis=inflammation of spine
• Affect 0.1-0.5% of population
• Male : female around 3-5:1
• Typically ascending from sacroiliac joint to cervical spine

Sacroiliac Joint

Natural Progression of AS

A

B

Normal
Osteophytes
Syndesmophytes
Nonmarginal syndesmophytes
**ESSG Criteria for Spondyloarthritis**

- Inflammatory spinal pain
  - Or
  - Synovitis: Asymmetric or predominantly in the lower limbs
  - And one or more of the following:
    - Alternating buttock pain
    - Sacroiliitis (radiological)
    - Enthesopathy
    - Positive family history
    - Psoriasis (PsA)
    - Inflammatory bowel disease (IBD)
    - Urethritis, cervicitis, or acute diarrhea occurring within one month before arthritis (ReA)

**Early Recognition → Early Treatment**

- Probability of AS/axial spondyloarthritis in patients with:
  - Chronic back pain
  - Inflammatory back pain
  - Patient with IBD and ≥ 1 of the clinical SpA features: eg, enthesitis, positive family history, uveitis, asymmetric arthritis, or positive response to NSAIDs
  - Physical examination: eg, limitation of spinal mobility
  - Imaging: if positive on radiography, then diagnosis confirmed; if radiographs are negative, then do CT or MRI (or HLA-B27)
Assessment of Back Pain

Classical Back pain in AS
- Onset before 45
- Insidious onset
- Improved by exercise
- Associated with morning stiffness
- At least 3 months

Tests for Sacroiliac Pain

1. Patrick’s test
2. Pelvic compression test

Tests for Sacroiliac Pain

1. Stretch test
2. Gaeslen test
Assessment of Spinal Mobility

Spinal assessment

• Occiput wall distance
  – Heels and, if possible, the back against the wall
  – Distance measured in cm to the nearest 0.1 cm from the occiput to the wall during maximal effort to touch the head to the wall
  – Without raising the chin above its usually carrying level
  – The best of two tries should be recorded

Pitfall of Occiput-to-wall distance

• Affected by the angulation of the head
Spinal assessment

• Tragus-wall distance
  – Same posture as in Occiput-wall distance
  – Head in neutral position
  – Chin Drawn in as far as possible
  – Ensure no cervical rotation, extension, flexion of side flexion
  – Measure the distance between the tragus and the wall to the nearest 0.1 cm

Spinal assessment

• Lumbar flexion (Schober test)
  – With patient standing upright and extending his lumbar spine in neutral position, the level of lumbosacral junction (dimple of Venus) is marked as the first point
  – The second point 10 cm directly above the first
  – The patient then flexes forward as far as possible
  – The distance between the 1st and 2nd points is measured
  – Normal: at least 5 cm
Spinal assessment

- Lumbar flexion (Modified Schober test)
  - First and Second point at as Schober test
  - The third point 5 cm directly below the first
  - The patient then flexes forward as far as possible
  - The distance between the 2nd and 3rd points is measured
  - Normal: at least 5 cm

Lumbar flexion (Modified Schober test)

Spinal assessment

Lateral spinal flexion
- fingertip to floor distance in full lateral flexion without flexing forward or bending the knees
- The patient should stand as close to the wall as possible with shoulders level
- The distance between patient’s middle fingertip and the floor is measured with a tape measure
- The patient is asked to bend sideways without bending his knees or lifting his heels and attempting to keep his shoulders in the same place
- A second reading is taken and the difference between the two is recorded
- The best of two tries is recorded for left and right
- The mean of left and right gives the final result for lateral spinal flexion (in cm to the nearest 0.1 cm)

Lateral Flexion

Lateral flexion = a - b
Spinal Assessment

• Intermalleolar Distance (hip)
  – The patient supine
  – the knees straight and the feet pointing straight up
  – The patient is asked to separate the legs as far as possible
  – the distance between the medial malleoli is measured (in cm to the nearest cm). The best of two tries should be recorded

Intermalleolar distance

Spinal Assessment

• Finger-floor distance
  – patient stands with knee straight
  – The patient then flexes forward as far as possible, keeping the knees straight
  – Measure the distance from the tip of middle fingers to the floor
  – The best of two tries is recorded

Spinal assessment

• Cervical rotation
  – measured with a gravity-action goniometer
  – patient lies supine in the neutral position
  – the goniometer is placed centrally on the forehead
  – The patient is then asked to turn the head as far as possible to the right and then to the left
  – The best of two tries for left and right should be recorded
  – The mean of left and right gives the final result in degrees
Chest expansion

- The difference in cm to the nearest 0.1 cm between full expiration and full inspiration
- Measured at the nipples
- The best of two tries should be recorded

Assessment of Synovitis

- Synovitis of limb joints present in 20-60% of AS patients
- Synovitis may be the initial presentation of AS

Joint counts
Shoulder Arthritis

Hip Arthritis

Enthesitis

- Inflammation of tendon insertion
- Common feature in AS but easily overlooked
- Sometimes misinterpreted as arthritis

Sites of Entheses

- C1/C2
- C7/T1
- Costochondral 1 R/L
- Costochondral 7 R/L
- T12/L1
- L5/S1
- Crista iliaca R/L
- Anterior Superior border of iliac crest R/L
- Symphysis pubis
- Pelvic adductor origin R/L
- Ischial tuberosities R/L
- Greater Trochanter R/L
- Spina iliaca posterior R/L
- Spina iliaca anterior superior R/L
- Medial femurcondyl R/L
- Lateral femurcondyl R/L
- Insertion Achilles tendon R/L
- Plantar fascia R/L
How common are the problems

According to a recent review of 80 AS patients in UCH
1. > 90% of them have back pain and stiffness
2. 38% of them have cervical spine involvement
3. 50-60% have limb arthritis, hip is the commonest
4. 20% of AS patients has anterior uveitis
5. 24% are unemployed

Other Associated Problems of AS

- Apical lung fibrosis
- Aortic Regurgitation
- Amyloidosis
- Colitis
- Microscopic haematuria/ IgA nephropathy

Assessment of Disease Activity

- Degree of spinal stiffness (BASDAI)
- Degree of Fatigue (BASDAI)
- Joint counts (if presence of peripheral arthritis)
- ESR, CRP

BASDAI score

- The patient marks a point on the 10cm line on each question which best describes his condition
- Measure the distance of the point from zero in cm (to the nearest 0.1cm)
- Take the mean of the scores for question 5 and 6 (5m)
- Add scores for questions 1-4 and 5m and divide the result by 5
- → BASDAI score
- BASDAI >4 → active disease
Assessment of Damage and Disability

- **BASFI**
- **BASMI**

**BASFI score**

- The patient marks a point on the 10cm line on each question which best describes his condition.
- Measure the distance of the point from zero in cm (to the nearest 0.1cm).
- The mean of the 10 questions are taken to provide the final BASFI score out of a maximum of 10.
- High score → severe disability.
Summary

- Ankylosing spondylitis is a disease of entheses, sacroiliac joints, limb joints and spine
- AS is closely related to psoriatic arthritis, reactive arthritis, IBD and uveitis
- Early recognition is essential
- Clinical assessment: Spinal mobility, Joint counts
- Imaging: MRI (for early disease), CT, Plain X-rays
- Validated outcome measures: BASDAI, BASFI