



SERONEGATIVE SPONDYLOARTHROPATHIES

LEARNING OBJECTIVES

- Classify and explain Spondyloarthropathies
- Discuss pathogenesis and clinical features of Ankylosing Spondylitis
- Discuss pathogenesis and clinical features of Reactive Arthritis
- Discuss pathogenesis and clinical features of Psoriatic Arthritis



GENERAL CHARACTERISTICS

- The spondyloarthropathies are also a heterogeneous group of disorders that have common following features.
- Pathologic changes in the ligamentous attachments rather than synovium.
- Involvement of sacroiliac joints, with or without other joints.
- Absence of rheumatoid factor
- Association with HLA-B27

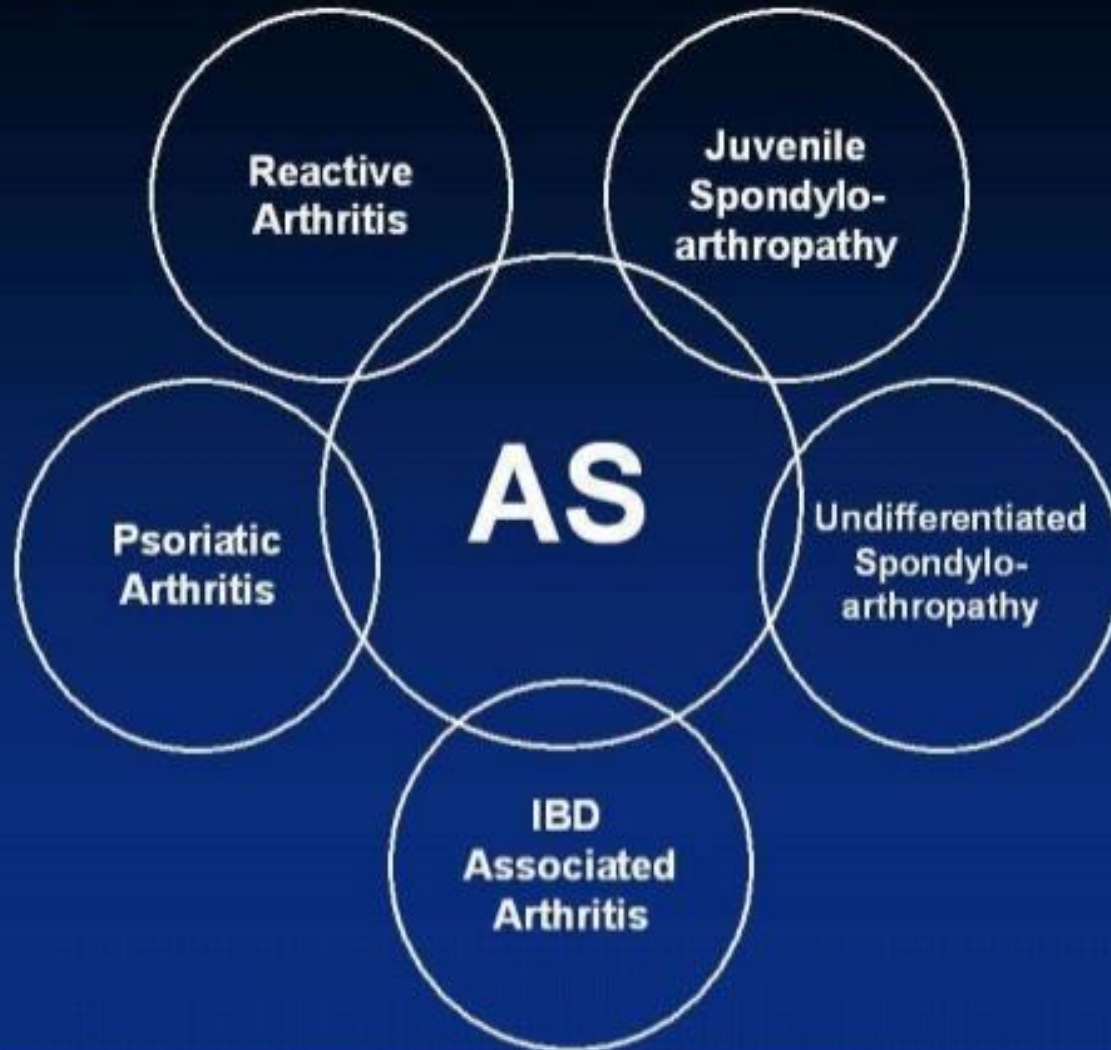


CONTD

- The manifestations are immune mediated and are triggered by a T-cell response probably directed against an undefined antigen, likely infectious, that may cross-react with native molecules of the musculoskeletal system.
- Clinical and genetic similarities suggest that they also share similar pathophysiologies. Rheumatoid factor (RF) is usually negative in the spondyloarthropathies (hence, why they are called seronegative spondyloarthropathies)

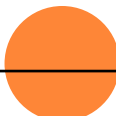


Family of Spondyloarthropathies

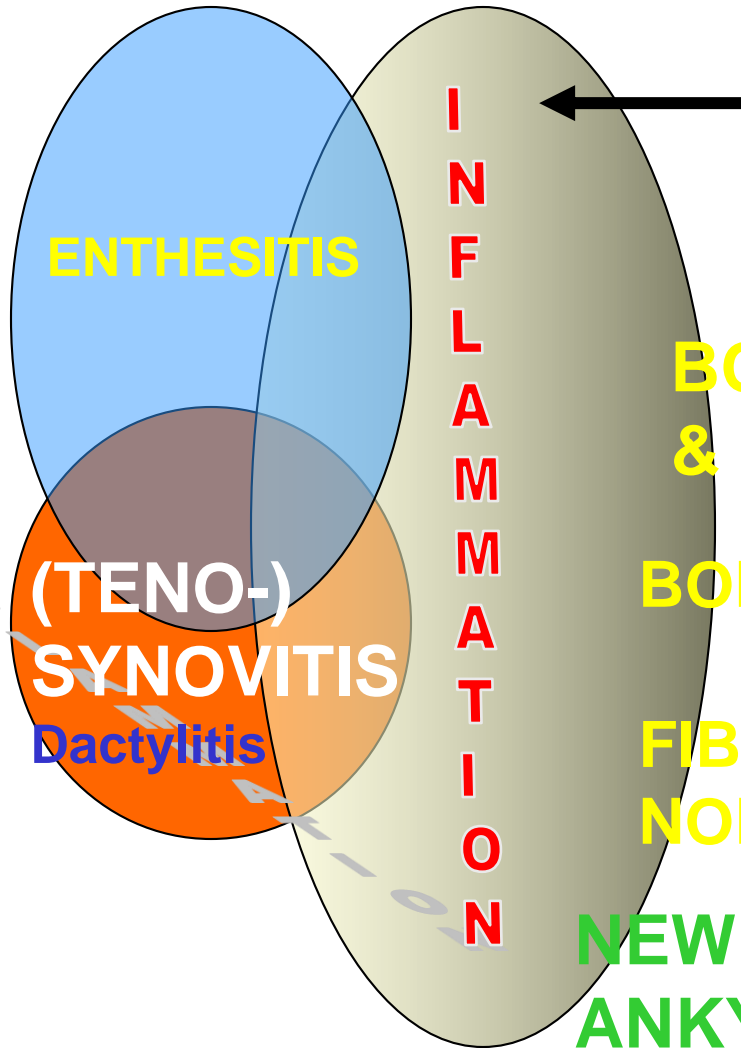


FREQUENCY OF HLA-B27

Disease	HLA-B27 frequency (%)
Ankylosing spondylitis	95
Undifferentiated spondyloarthropathy	70
Reactive arthritis	40-80
Colitis associated spondyloarthropathy	35-75
Psoriatic spondylarthritis	40-50
Psoriatic peripheral disease	25
Iritis	50
Cardiac conduction defects	80



PATHOLOGY OF SPONDYLOARTHRITIS



Subchondral tissue become granulomatous and infiltrated by inflammatory cells

BONE REACTIVE SCLEROSIS & RESORPTION (EROSIONS)

BONE REMODELING

FIBROCARTILAGE REPLACES NORMAL TISSUE

NEW BONE FORMATION & ANKYLOSIS



ANKYLOSING SPONDALYTIS

- It is a member of the group of the spondyloarthropathies with a strong genetic predisposition. Complete fusion results in a complete rigidity of the spine, a condition known as "bamboo spine".
- There is no cure for AS, although treatments and medications can reduce symptoms and pain.



OVERVIEW

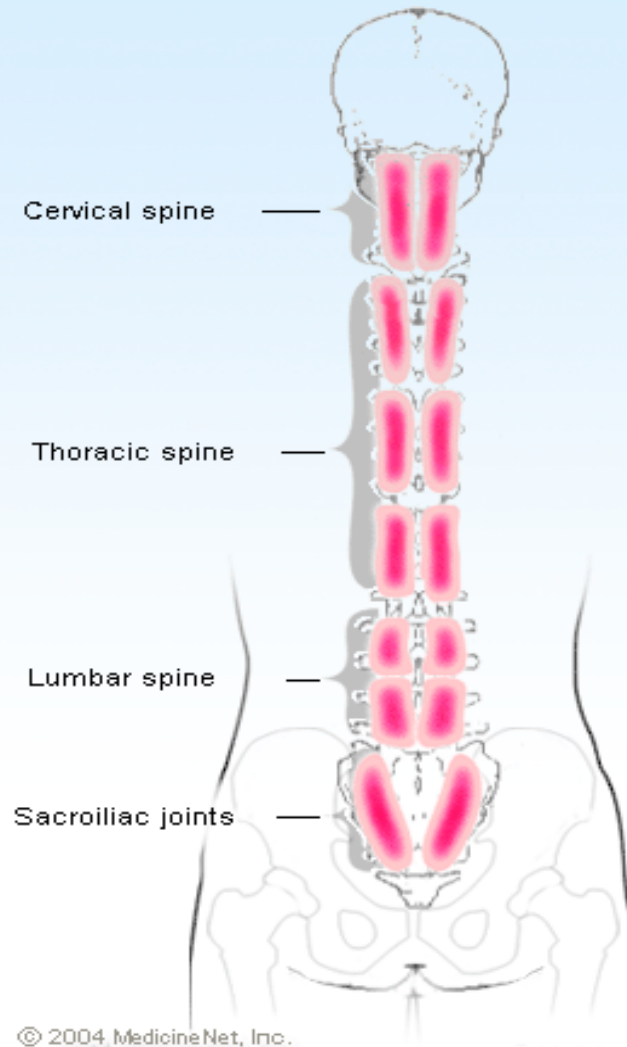
- Ankylosing Spondylitis is a form of chronic inflammation of the spine and the sacroiliac joints.
- Chronic inflammation in these areas causes pain and stiffness in and around the spine.
- Over time, chronic inflammation of the spine (spondylitis) can lead to a complete cementing together (fusion) of the vertebrae, a process referred to as ankylosis.
- Ankylosis leads to loss of mobility of the spine.
- Ankylosing spondylitis is also a systemic disease, meaning it can affect other tissues throughout the body.
- Accordingly, it can cause inflammation in or injury to other joints away from the spine, as well as to other organs, such as the eyes, heart, lungs, and kidneys.



- Ankylosing spondylitis shares many features with several other conditions, such as psoriatic arthritis, reactive arthritis, and arthritis associated with Crohn's disease and ulcerative colitis.
- Each of these arthritic conditions can cause disease and inflammation in the spine, other joints, eyes, skin, mouth, and various organs.
- In view of their similarities and tendency to cause inflammation of the spine, these conditions are collectively referred to as "spondyloarthropathies."



Classic Areas of Inflammation of Spondyloarthropathy



PATHOPHYSIOLOGY

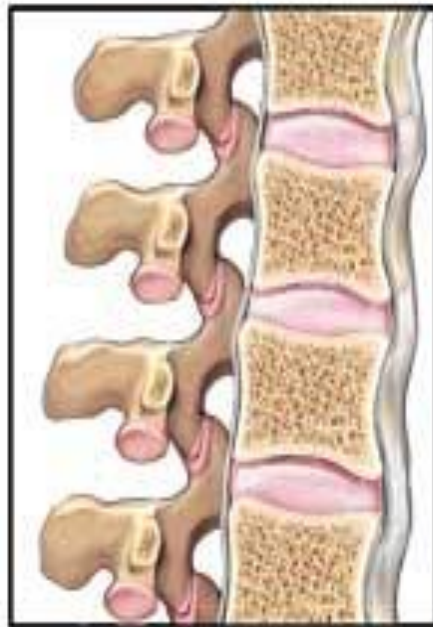
- (AS) is a systemic disease, meaning it affects the entire body.
- Approximately 90% of AS patients express the HLA-B27 genotype, meaning there is a strong genetic association.
- However, only 5% of individuals with the HLA-B27 genotype contract the disease.
- Tumor necrosis factor-alpha (TNF α) and IL-1 are also implicated in ankylosing spondylitis.
- Autoantibodies specific for AS have not been identified.
- Antineutrophil cytoplasmic antibodies ANCA are associated with AS, but do not correlate with disease severity.



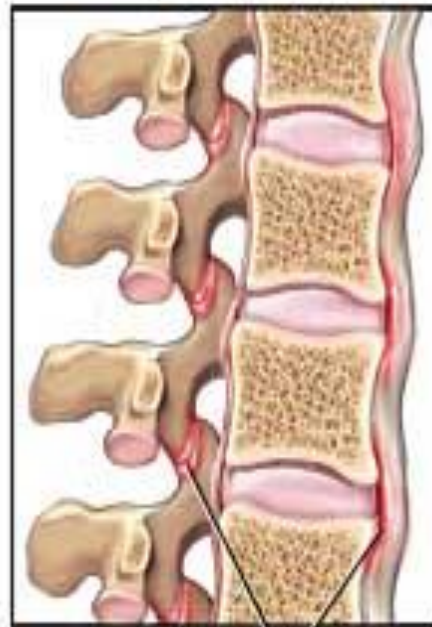
- .Analogous to RA, this immunogenetic phenotype may predispose to the activation of T cells and antibodies that react with joint elements
- The association of AS with **HLA-B27** suggests the condition involves **CD8 T cells**, which interact with HLA-B. Histologically, there is a chronic synovitis with destruction of articular cartilage and bony ankylosis, especially in the sacroiliac and apophyseal joints (between tuberosities and processes). Inflammation of tendinoligamentous insertion sites leads to their ossification, producing bony outgrowths, which enhances the fibrous and bony ankylosis, and results in severe spinal immobility.



Normal spine

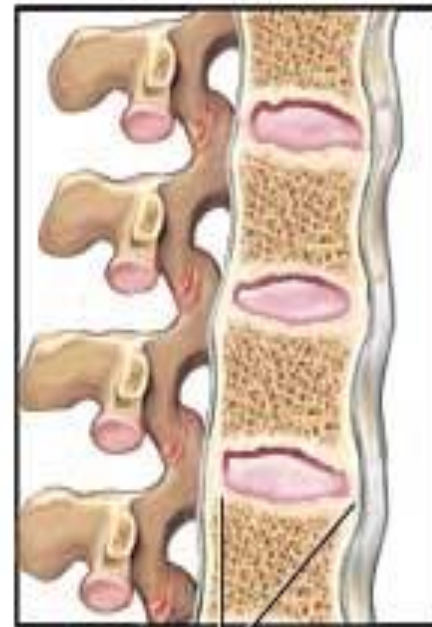


Early ankylosing spondylitis



Inflammation

Advanced ankylosing spondylitis



Fusion



CLINICAL FEATURES AND COMPLICATIONS

- chronic pain and stiffness in the middle part of the spine or sometimes the entire spine,
- pain referred to one or other buttock or the back of thigh from the **sacroiliac joint**.
- The patients characteristically present with low back pain, which frequently follows a chronic progressive course. Involvement of peripheral joints, such as the hips, knees, and shoulders, occurs in at least one third of patients. Fracture of the spine, uveitis, iritis aortitis, and amyloidosis, apical lung fibrosis are other recognized complications.



REACTIVE ARTHRITIS

- Reactive arthritis is defined by a triad of arthritis, nongonococcal urethritis or cervicitis, and conjunctivitis.



REACTIVE ARTHRITIS

- Acute inflammatory arthritis occurring 1-4 weeks after infectious event (GU, GI, idiopathic)
- Usually asymmetric oligoarticular
 - Arthritis recurrence is 15-30%, more in chlamydia associated arthritis
 - HLA-B27+ in 75-80% Caucasians
- **Post-venereal onset:** more common
- **Sex** 5:1 M:F
- **Post-dysenteric:** less, equal M=F
- **Course:** self limiting (< 6 months), chronic, intermittent
- **Complications:** Acute anterior uveitis 5%, carditis, fasciitis

PATHOGENESIS

- Most affected individuals are men in their 20s or 30s,.
- This form of arthritis also affects individuals infected with the human immunodeficiency virus (HIV).
- The disease is probably caused by an autoimmune reaction initiated by prior infection of the genitourinary system (*Chlamydia*) or the gastrointestinal tract (*Shigella*, *Salmonella*, *Yersinia*, *Campylobacter*).



CLINICAL FEATURES

- Arthritic symptoms develop within several weeks of the inciting bout of urethritis or diarrhea.
- Joint stiffness
- Low back pain is common early symptom.
- Synovitis of a digital tendon sheath produces the sausage finger or toe.
- Ossification of tendoligamentous insertion sites leads to calcaneal spurs and bony outgrowths.
- Severe chronic disease have involvement of the spine.



- Extra articular involvement manifests as Inflammatory balanitis
- Conjunctivitis,
- Cardiac conduction abnormalities,
- Aortic regurgitation.
- Urinary discomfort or pain
 - usually appears within days or weeks of infection
- inflammation or dryness of the eye
- joint pain
 - may develop within weeks of initial infection and urinary symptoms
- other non-specific pain symptoms including
 - heel pain (Achilles tendon pain)
 - low back pain



PSORIATIC ARTHRITIS

- It is a type of inflammatory arthritis that will develop in up to 30 percent of people who have the chronic skin condition psoriasis.
- Arthritis generally occurs in the fourth and fifth decades of life. Males and females are affected equally. The skin disease (psoriasis) and the joint disease (arthritis) often appear separately.



CAUSE

- The cause of psoriatic arthritis is currently unknown. A combination of genetic, immune, and environmental factors is likely involved. In patients with psoriatic arthritis who have arthritis of the spine, a gene marker named HLA-B27 is found in about 50% of cases.



CLASSIFICATION OF PSORIATIC ARTHRITIS

Type	Key Clinical Features	Incidence
Asymmetric polyarthritis or oligoarthritis	Morning stiffness, DIP and PIP involvement, nail disease, ≤ 4 joints involved	40%
Symmetric polyarthritis	Symmetric polyarthritis, RA-like distribution, but RF negative	25%
Spondylitis	Inflammatory low back pain, sacroilitis, axial involvement, 50% HLA-B27+	20%
Distal interphalangeal joint disease	Nail changes, often bilateral joint involvement	15%
Arthritis mutilans	Destructive form of arthritis, telescoping digits, joint lysis, typically in phalanges and metacarpals	<5%

PSORIATIC ARTHRITIS CHARACTERISTICS

- Sausage-shaped DIP joints (finger or toe)
- Radiographs show erosive joint disease.
 - "Pencil-in-cup" deformity
- Extensive nail pitting



Pencil and Cup Deformity



The “SERONEGATIVE” in Seronegative Spondyloarthritis refers to the absence of:

a. Rheumatoid factor

b. HLA-B27

c. ESR

d. ANA

e. choices a+b

f. choices a+b+d



○ Thanks

