

Introduction to SPA



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- Introduction
- SpA disease information
- Pathogenesis
- Clinical features



Miss diagnosed

We must (early diagnose)

AS Patient with Disappearance of the Lordosis of the Lumbar Spine

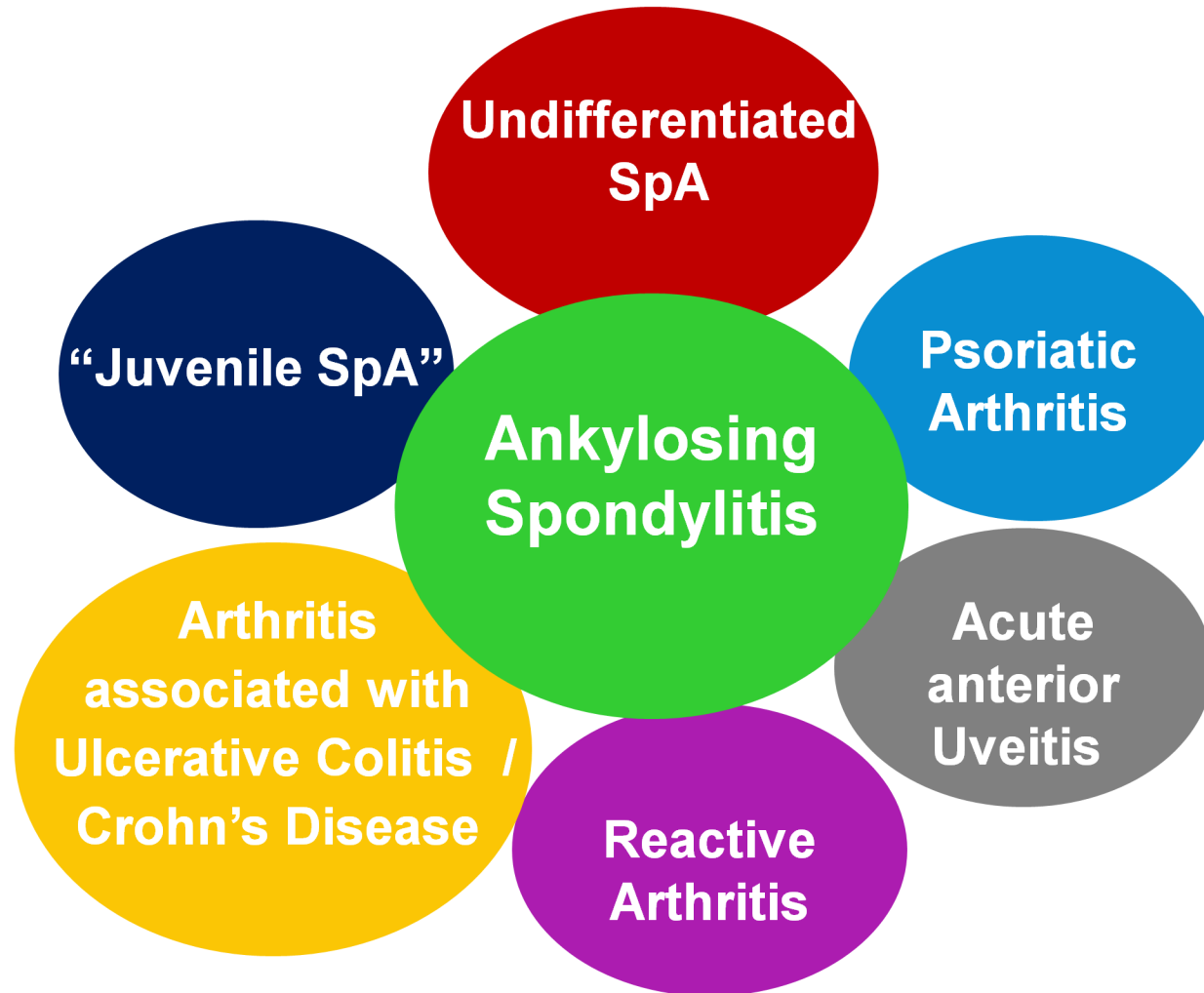


Final Stage of AS with Severe Kyphosis of Thoracic and Cervical Spine

Unable to look ahead while walking
(,patient cannot see the sun')



Spondyloarthritides (SpA)



Reactive Arthritis

- Preceding enteric infection (i.e. diarrhea)
 - Salmonella of various serovars
 - Shigella, especially *Shigella flexneri*, but also *Shigella dysenteriae* and *sonnei*
 - Yersinia including *Yersinia enterocolitica* 0:3 and 0:9 and *Yersinia pseudotuberculosis*
 - Campylobacter especially *Campylobacter jejuni*
 - *Clostridium difficile*
- Preceding genitourinary infection (i.e. urethritis)
 - *Chlamydia trachomatis*

Ankylosing Spondylitis - Prevalence

Country	AS Prevalence	HLA-B27 Prevalence
US ^{1, 2}	0.52%	6%
The Netherlands ³	0.1%	8%
Germany ⁴	0.55%	9%
Norway ⁵	1.1 – 1.4%	14%
Haida Indians ⁶	6.1%	50%

¹Helmick CG et al. Arthritis Rheum 2008;58:15-25; ²Reveille JD et al. Arthritis Rheum 2012;64:1407-11;
³van der Linden S et al. Arthritis Rheum.1984;27:241-9; ⁴Braun J et al. Arthritis Rheum 2005;52:4049-50;
⁵Gran T et al. Ann Rheum Dis 1985;44:359-67; ⁶Gofton JP et al. Ann Rheum Dis 1966;25:525-7



The Prevalence of HLA-B27 in the Normal Population and in Patients with Axial Spondyloarthritis in Saudi Arabia

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ASAS Classification Criteria for Axial Spondyloarthritis (SpA)

In patients with ≥ 3 months back pain and age at onset < 45 years

Sacroiliitis on imaging*
plus
 ≥ 1 SpA feature#

OR

HLA-B27
plus
 ≥ 2 other SpA features#

#SpA features

- inflammatory back pain
- arthritis
- enthesitis (heel)
- uveitis
- dactylitis
- psoriasis
- Crohn's/colitis
- good response to NSAIDs
- family history for SpA
- HLA-B27
- elevated CRP

*Sacroiliitis on imaging

- active (acute) inflammation on MRI highly suggestive of sacroiliitis associated with SpA
- definite radiographic sacroiliitis according to mod NY criteria

n=649 patients with back pain;
Sensitivity: 82.9%, Specificity: 84.4%
Imaging alone: Sensitivity: 66.2%, Specificity: 97.3%

ASAS Classification Criteria for Spondyloarthritis (SpA)

In patients with ≥ 3 months back pain and age at onset < 45 years

Sacroiliitis on imaging plus ≥ 1 SpA feature

OR

HLA-B27 plus ≥ 2 other SpA features

SpA features

- inflammatory back pain (IBP)
- arthritis
- enthesitis (heel)
- uveitis
- dactylitis
- psoriasis
- Crohn's/colitis
- good response to NSAIDs
- family history for SpA
- HLA-B27
- elevated CRP

In patients with peripheral symptoms **ONLY**

Arthritis or enthesitis or dactylitis plus

≥ 1 SpA feature

- uveitis
- psoriasis
- Crohn's/colitis
- preceding infection
- HLA-B27
- sacroiliitis on imaging

OR

≥ 2 other SpA features

- arthritis
- enthesitis
- dactylitis
- IBP ever
- family history for SpA

Sensitivity: 79.5%, Specificity: 83.3%; n=975

Pathogenesis of spondyloarthritis

Pathogenic mechanisms of new bone formation

- Genetic influences
- Microbes effects
- Biomechanical stress

Pathogenic mechanisms of new bone formation

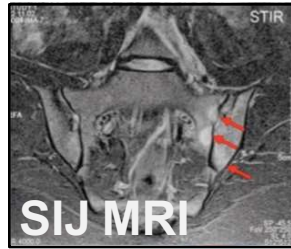
- The cause of AS is **not completely understood**
- Theory → **genetic mechanisms** → major role in to AS.
- **Genome-wide studies** have **NOT** revealed strong insights on the pathogenesis of new bone formation in AS

Genetic influences

- The major gene product associated with AS and the other forms of SpA is **human leukocyte antigen (HLA)-B27**.
- (HLA)-B27 gene was recognized in 1973.
- HLA-B27 is present in about 80 to 95 percent of patients with AS in most ethnic groups.
- 6 percent of the general population.
- Fewer than 5 %of HLA-B27 carriers in the general population develop disease

Genetic influences

- Many genes **other than HLA-B27**.
- First-, second-, and third-degree relatives of patients with AS have markedly increased risks of developing the disease (relative risks of 94, 25, and 4, respectively)



SIJ MRI

Axial-SpA Features



Neck Stiffness



Inflammatory Back Pain (IBP)



Good response to NSAIDs

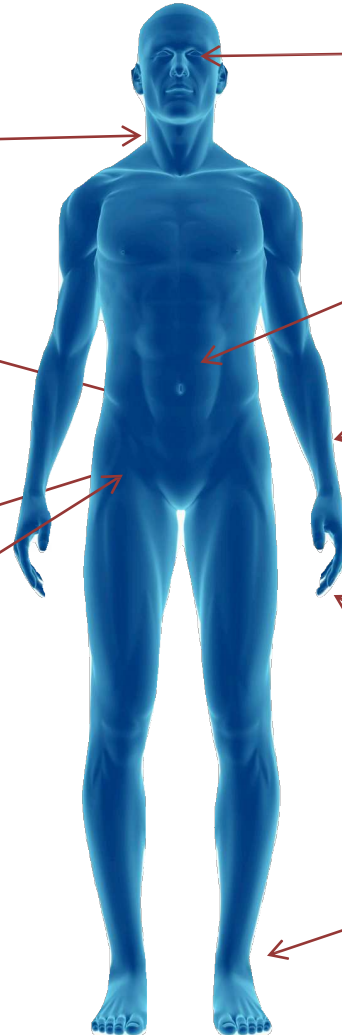
Alternative Buttock Pain



X-Ray - Sacroiliitis



- **Age at onset < 45 years**
- Family History of SpA
- Elevated CRP levels
- +ve HLA-B27



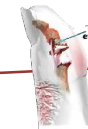
Eye inflammation



Crohn's/Colitis



Psoriasis



Peripheral Arthritis



Dactylitis



Enthesitis



ASAS Inflammatory Back Pain Criteria by Experts (Chronic Back Pain; n=648)

- age at onset < 40 years
- insidious onset
- improvement with exercise
- no improvement with rest
- pain at night (with improvement upon getting up)

Sensitivity: 79.6%; Specificity: 72.4%

Inflammatory back pain present if at least 4 out of 5 parameters are fulfilled.

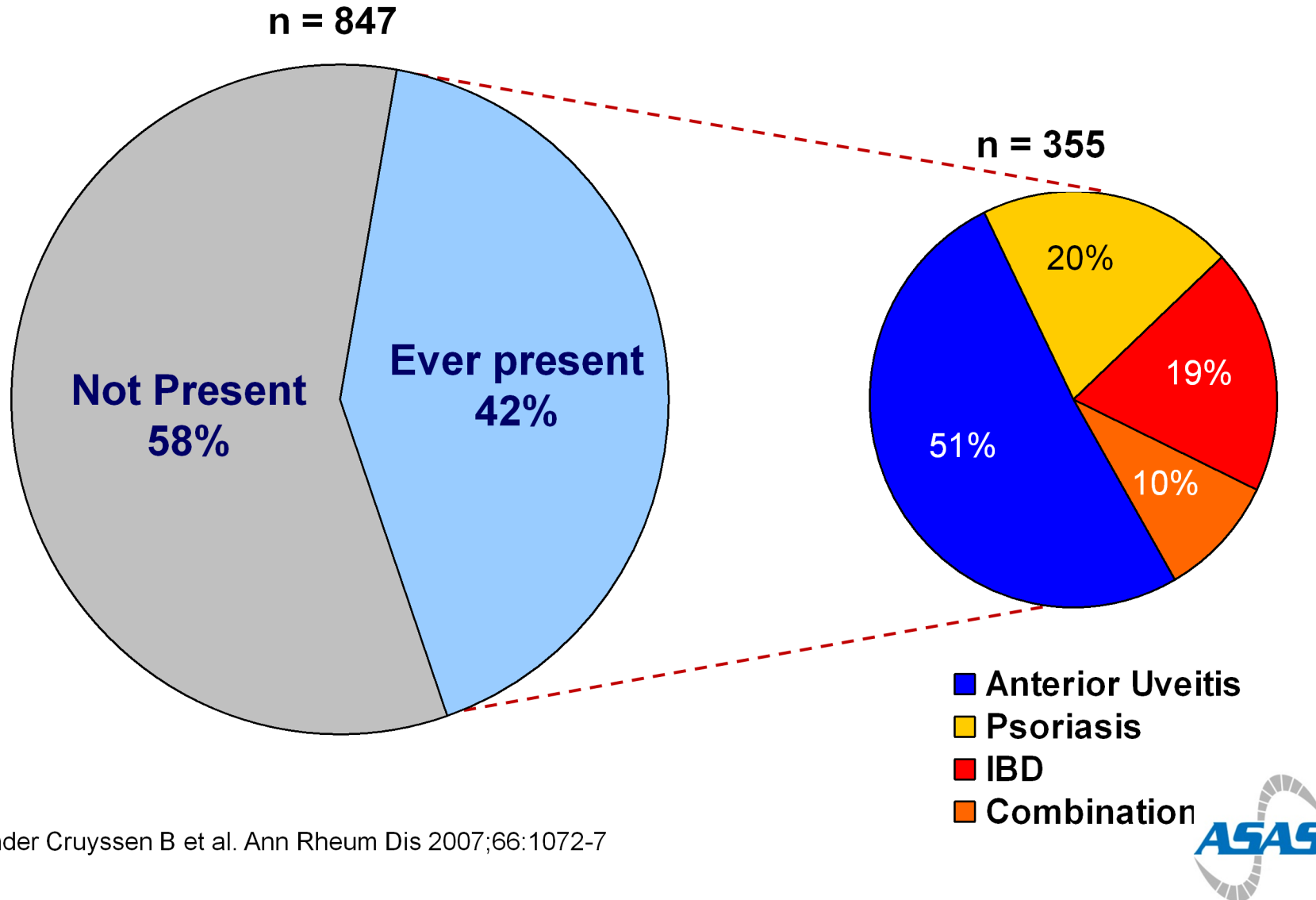
Acute Arthritis of the Right Knee in a Patient with Peripheral Spondyloarthritis



Peripheral arthritis

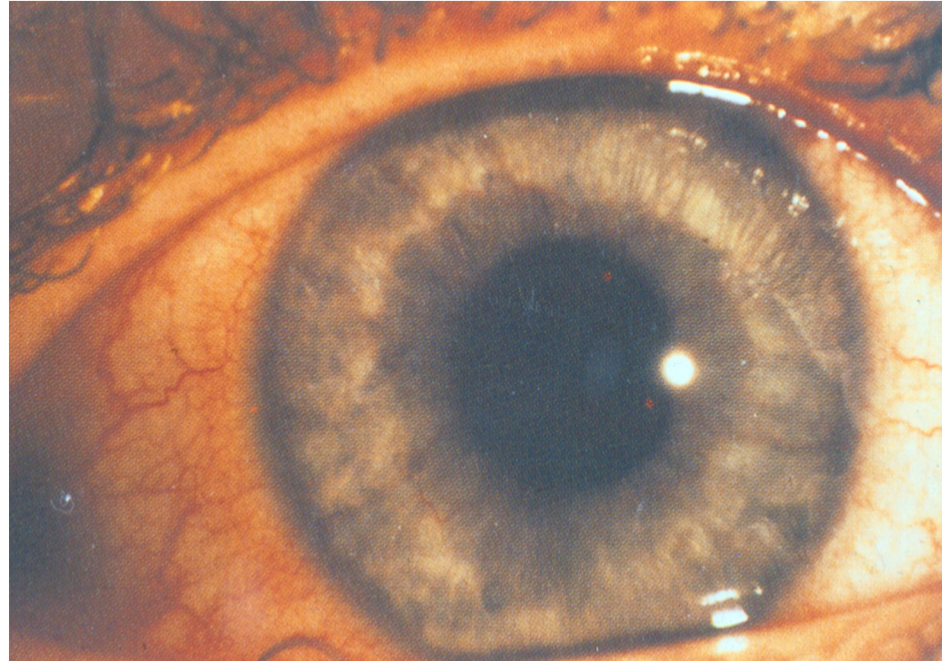
- Predominantly involves the lower extremities.
- Arthritis is frequently asymmetrical and often affects only one to three joints.
- The severity ranges from mild to disabling .
- The presence of asymmetrical oligoarthritis is very suggestive of SpA, but its absence would not be helpful in excluding this possibility.

Extra-Articular Manifestations in Ankylosing Spondylitis



Eye: Acute Anterior Uveitis in Spondyloarthritis

- Acute onset
- Unilateral
- Anterior
- Spontaneous remission
- Recurrent
- Related to HLA B27



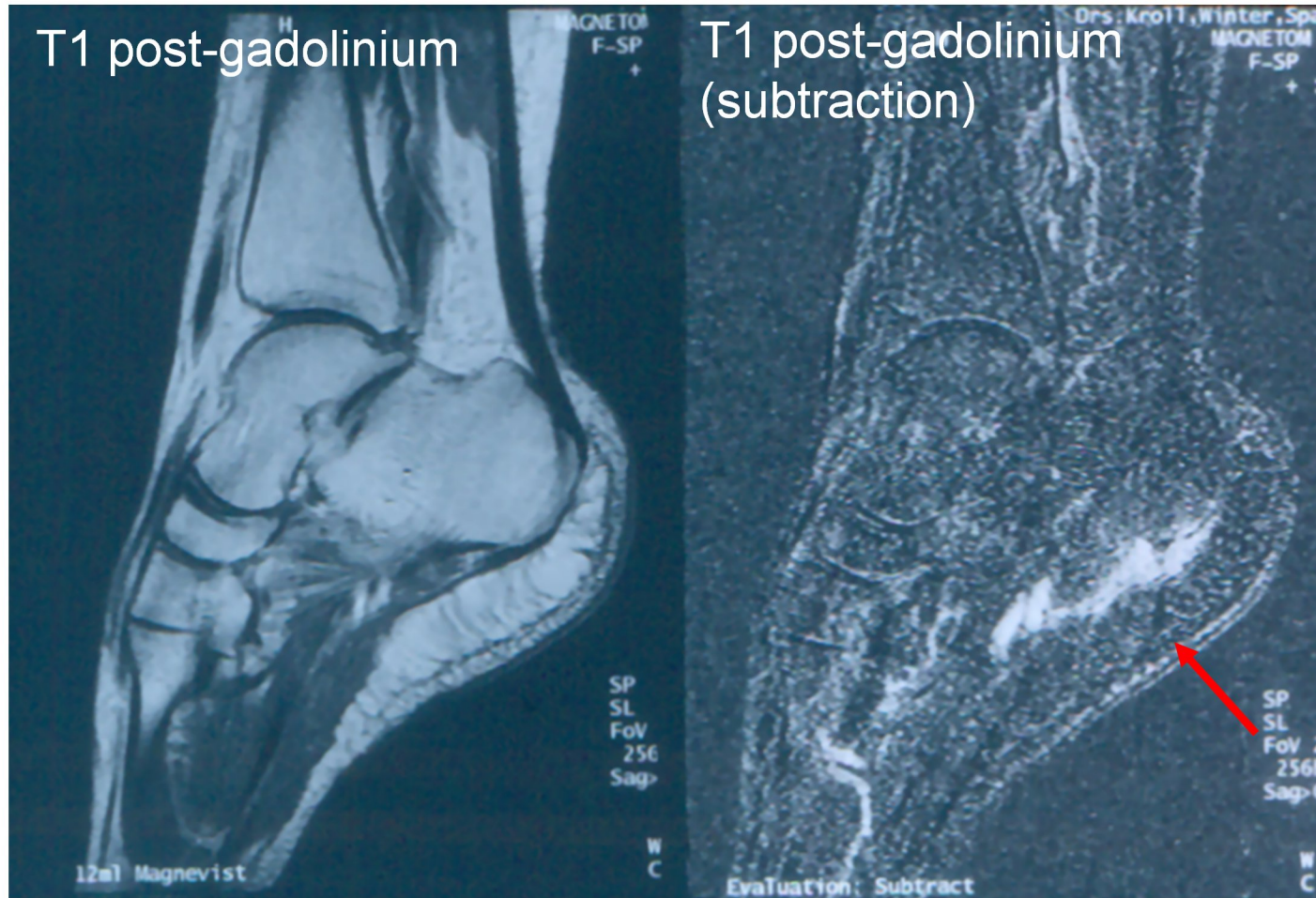
Enthesitis (Insertion of Achilles Tendon at Calcaneus) Right Heel



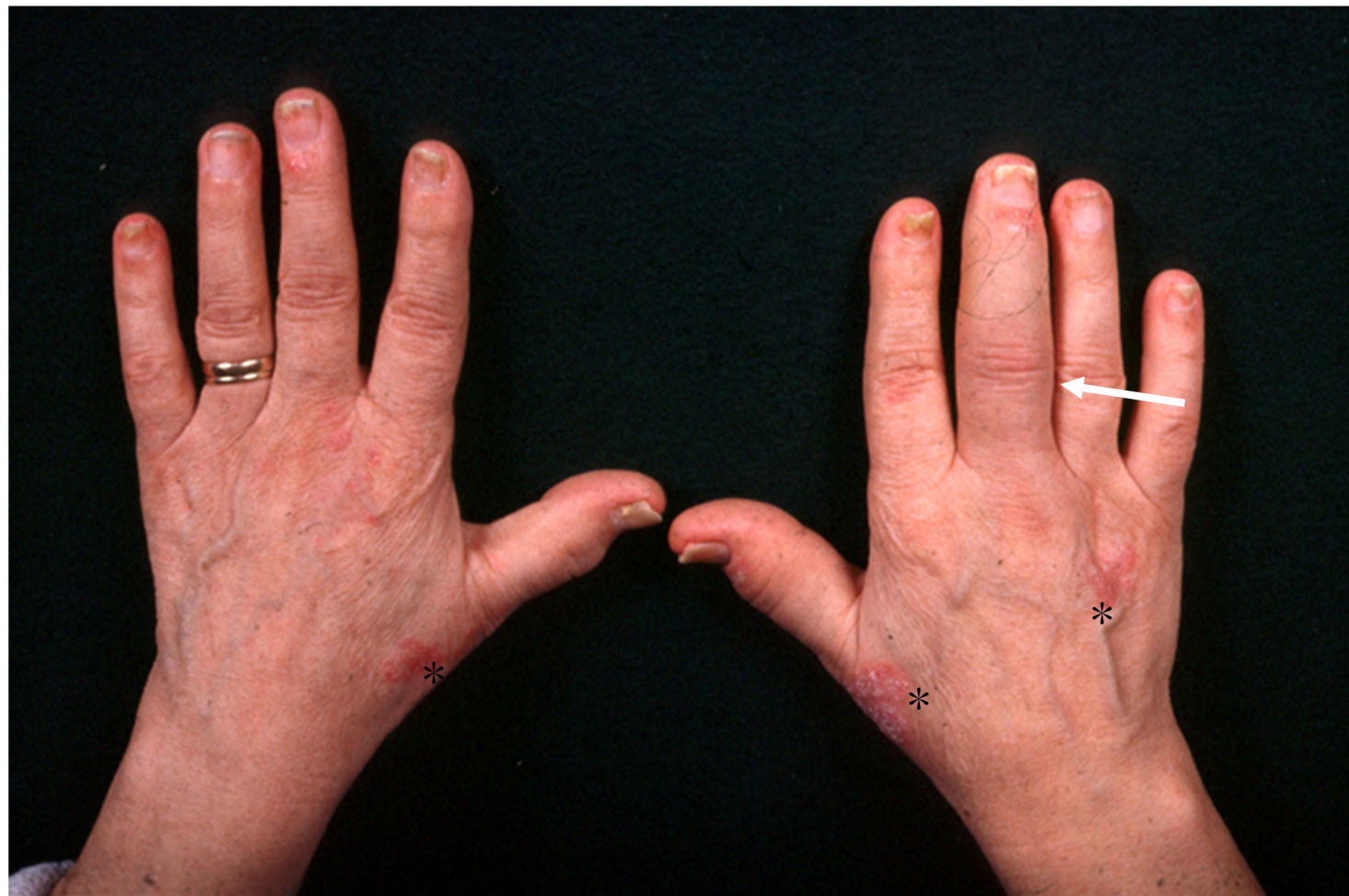
Enthesitis

- Relatively specific to SpA
- The most common → at the insertion of the Achilles tendon
- Plantar fascia ligament into the calcaneus
- severe pain and tenderness

Enthesitis of the Plantar Fascia by MRI



Dactylitis



* Psoriasis plaque lesions

Dactylitis

- known sausage toe or sausage finger
 - Psoriatic arthritis
 - Occasionally reactive arthritis
- Unlike synovitis, in which swelling is confined to the joints, with dactylitis, the entire digit is swollen.
- Dactylitis is not specific for SpA and may also be seen
 - tuberculosis
 - syphilis
 - sarcoidosis
 - sickle cell disease
 - tophaceous gout

Skin Manifestations in Spondyloarthritis

- Psoriasis
- Erythema nodosum
- Pyoderma gangrenosum
- Keratoderma blenorrhagicum

Psoriasis



Typical psoriasis with scaly patches and plaques

Mild Nail Changes in Patient with Psoriasis



Moderate to Severe Nail Changes in Patient with Psoriasis



Psoriasis

- Psoriasis is associated with all forms of SpA.
- Psoriasis is present in up to approximately 10 percent of patients with AS.



Palatal erosion in reactive arthritis



A sharply demarcated erosion of the hard palate is shown. This is among the more common of the oral manifestations of reactive arthritis.

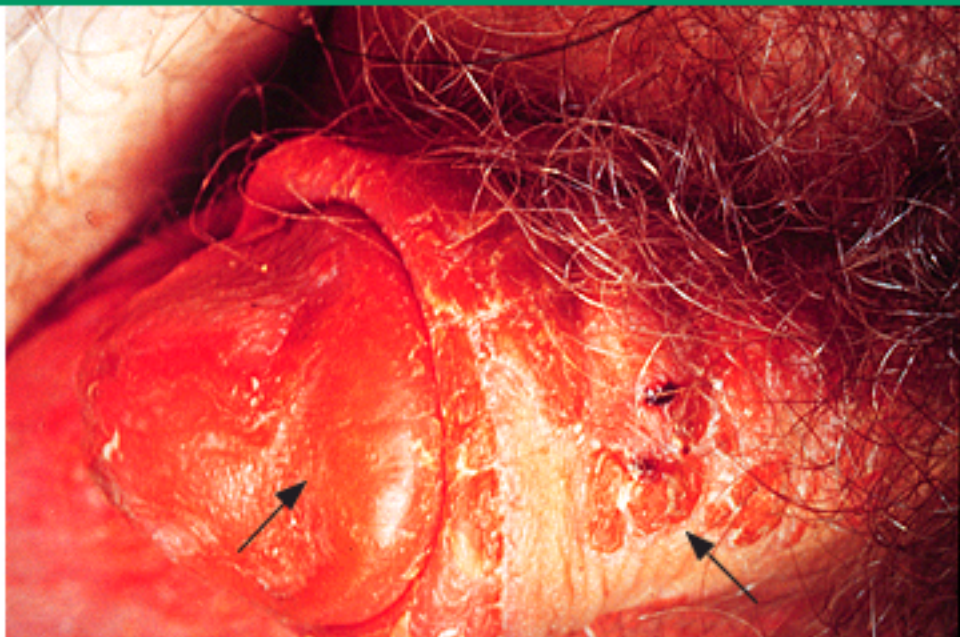
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Keratoderma Blenorrhagicum



Circinate balanitis



Circinate balanitis characterized by shallow ulcers on the glans penis and the shaft of the penis (arrows). The lesions are generally asymptomatic.

Courtesy of Professor Victor Newcomer, UCLA.

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SpA LAB

- **HLA-B27**

- 90 percent of patients with ankylosing spondylitis
- 50 to 70 percent of patients with other forms of SpA
- a positive HLA-B27 by itself is not diagnostic of SpA

- **Acute phase response**

- Erythrocyte sedimentation rate (ESR) and levels of C-reactive protein (CRP)
- increased in between 35 and 50 percent of patients with axial SpA
- Elevated levels of CRP are also a predictor of **radiographic progression** and for a good response to tumor necrosis factor (TNF)-blocker therapy

Sacroiliitis Grade 0 (Normal)



Sacroiliitis Grade 2 Right, Grade 1 Left



Sacroiliitis Grade 3 Bilaterally

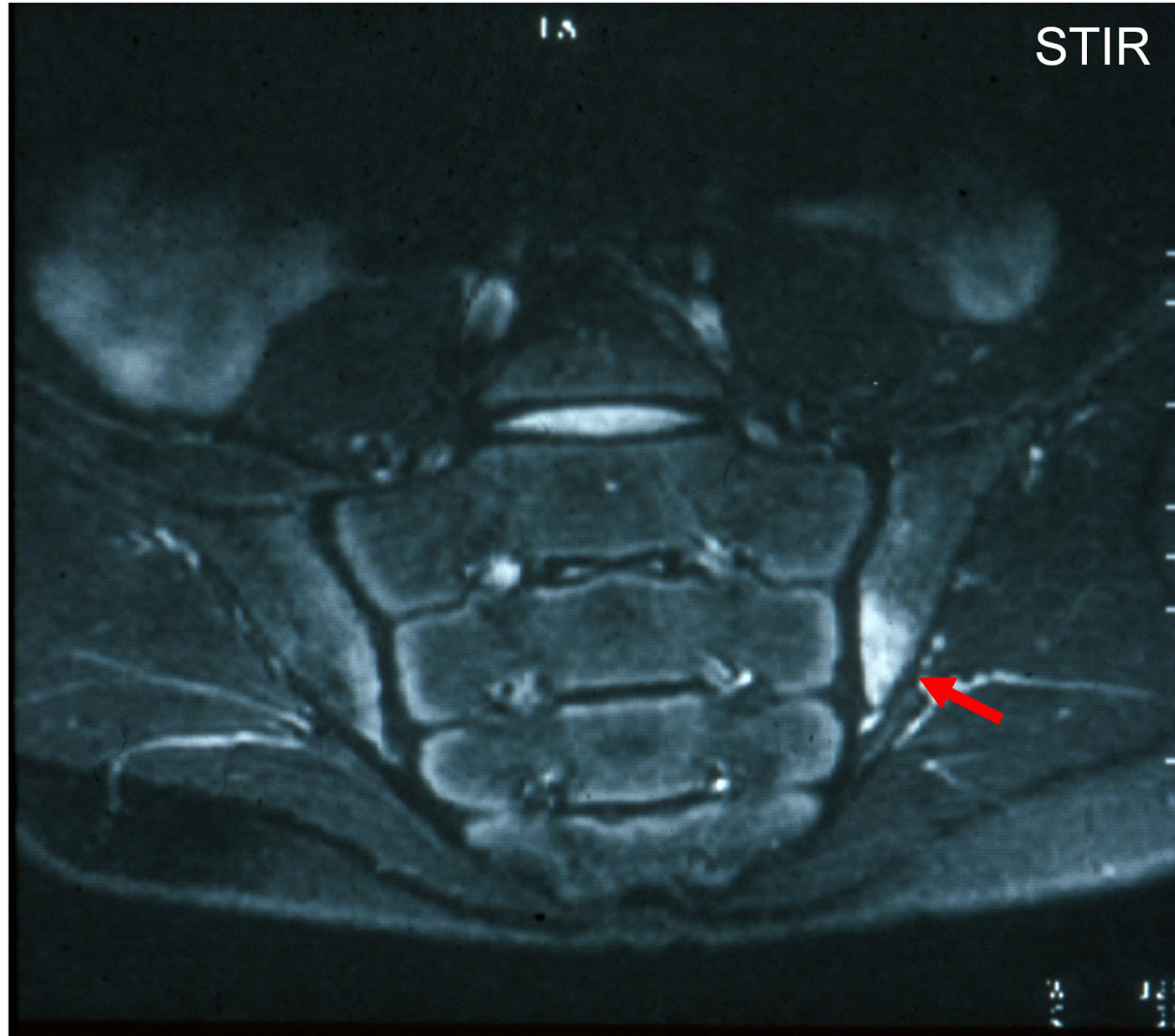


Sacroiliitis Grade 4 Bilaterally



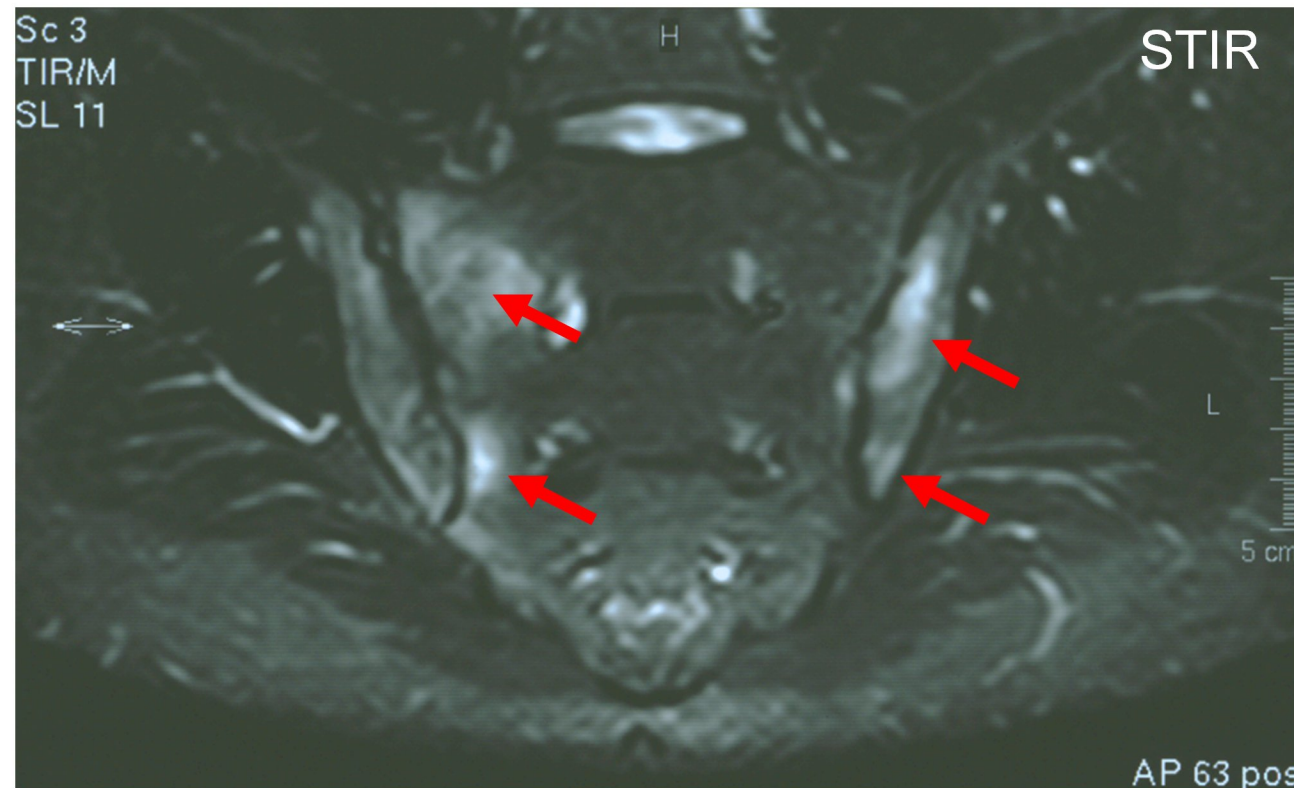
Early (limited) Sacroiliits

(Bone Marrow Edema)



Definition of Positive MRI-SI Joint

- subchondral bone marrow edema
- acute (bilateral) sacroiliitis

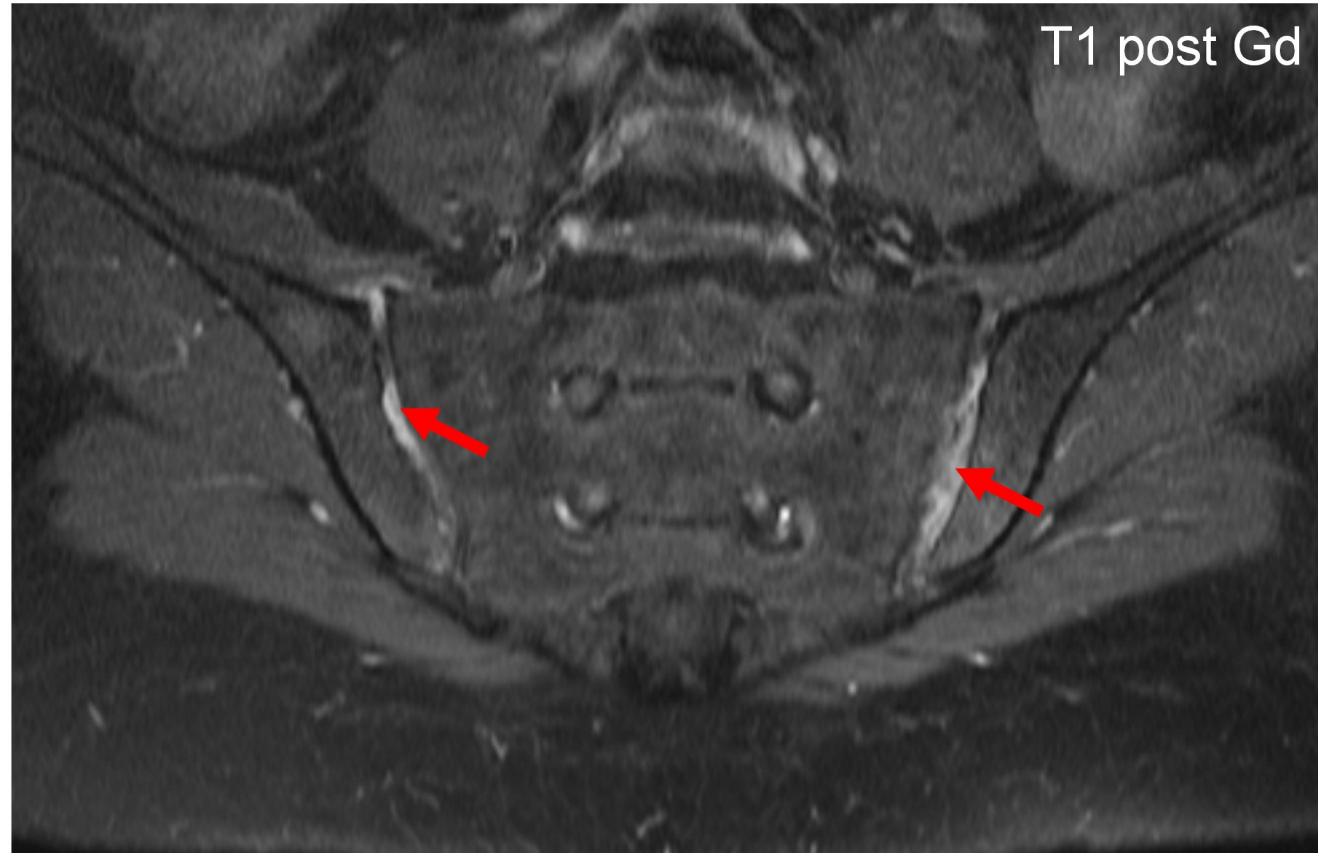


Bone Marrow Edema (BME) / Osteitis

Bone marrow edema may be associated with structural changes such as erosions.



Synovitis of Sacroiliac Joint



ASAS/EULAR Recommendations for the Management of Ankylosing Spondylitis

