Psoriatic Arthritis

- Etiology
  - Unknown: likely combination of environmental and hereditary factors
- Inflammatory arthritis, usually developing after or coincident with skin changes of psoriasis
  - Arthritis precedes skin changes by 2 years in 15%
- Assess for periosteal reaction along metaphyses and shafts of digits; may be subtle
  - May be seen on either radiograph or MR
  - Differentiates from RA and erosive osteoarthritis
- Synovial inflammation leading to bony proliferation at joint margins
- Inflammation at the ligamentous attachments: enthesopathy

Demograhpics

- Age
  - Peak onset of psoriasis: 5-15 years
  - Peak onset of PsA: 30-35 years
- Sex
  - M = F for peripheral PsA
  - M > F (M:F = 2-3:1) for psoriatic spondylitis
- Epidemiology
  - 0.1% prevalence in USA
  - PsA in 5-20% of patients with psoriasis

Asscocations

- Skin changes of psoriasis
  - Rapid development of skin disease may be sign of HIV
- Nail changes: pitting, ridging, onycholysis
- Ocular disease in up to 1/3
- Other rare associations
  - Aortic insufficiency
  - Pulmonary fibrosis
  - Amyloidosis
- Consider
  - Because both psoriasis and PsA may be presenting features of HIV, this disease should be excluded

Imaging

- Diagnosis most frequently made on radiographs
- Peripheral arthropathy in hands/feet
  - Row pattern
    - » Interphalangeal (IP) joints predominate
    - » Erosive; may progress to arthritis mutilans
    - » "Pencil-in-cup" deformities, "telescoping" fingers
  - Ray pattern
    - » Productive, with enthesopathy, periosteal reaction
    - » Dactylitis: "sausage" digit
- Sacroiliitis: 35% of patients
  - Usually begins asymmetrically but bilaterally
  - At any time in course, may appear symmetric
- Spondylitis: 30% of patients
  - Bulky paravertebral ossifications
  - More prominently seen on AP than lateral view
  - Asymmetric with skipped levels
- Ankylosis is common feature
- Normal bone density
- Bilaterality and symmetry less frequent than in rheumatoid arthritis (RA)
- In early disease, MR shows abnormalities
  - Synovitis in peripheral joints nonspecific
  - Enthesitis, periosteal reaction, extensive marrow edema
  - Soft tissue edema/inflammation: pericapsular, peritendinous, periligamentous

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PA radiograph shows severe IP erosions, qualifying for the term arthritis mutilans, which is most typically seen in PsA but can be present in RA as well. Clinically, these shortened digits are "telescoping," as they can be pulled out to length. The 2nd and 5th DIPs show pencil-in-cup changes.

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PA radiograph in a young adult shows joint space narrowing (JSN) and mild erosion at the 2nd PIP → but more severe erosion along with soft tissue swelling and enthesopathy ↗ at the 3rd PIP. Note the normal MCP joints and normal bone density. This is typical psoriatic arthritis (PsA).

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PA radiograph in the same patient, 9 years later, shows advanced mixed erosive and productive disease of the DIP → and PIP ↗ joints. This is now more convincingly a typical row pattern of PsA.

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PA radiograph shows an example of the single ray pattern of involvement in a patient with PsA. There is tremendous soft tissue swelling ⇨ overlapping the other digits. There is JSN, and periosteal reaction along the shafts is prominent →.

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Radiograph of the great toe shows periarticular erosions at the base of the distal phalanx → with adjacent fuzzy bone proliferation →. Findings are typical for PsA with the characteristic erosions likened to mouse ears.

Psoriatic Arthritis

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sausage digit

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AP radiograph of the foot shows disease involving only the great toe. There is diffuse soft tissue edema → ("sausage" digit), mild acroosteolysis ⇨, and distinct fuzzy periostitis ↗. The remaining joints are normal. This appearance is classic for the ray pattern of PsA.

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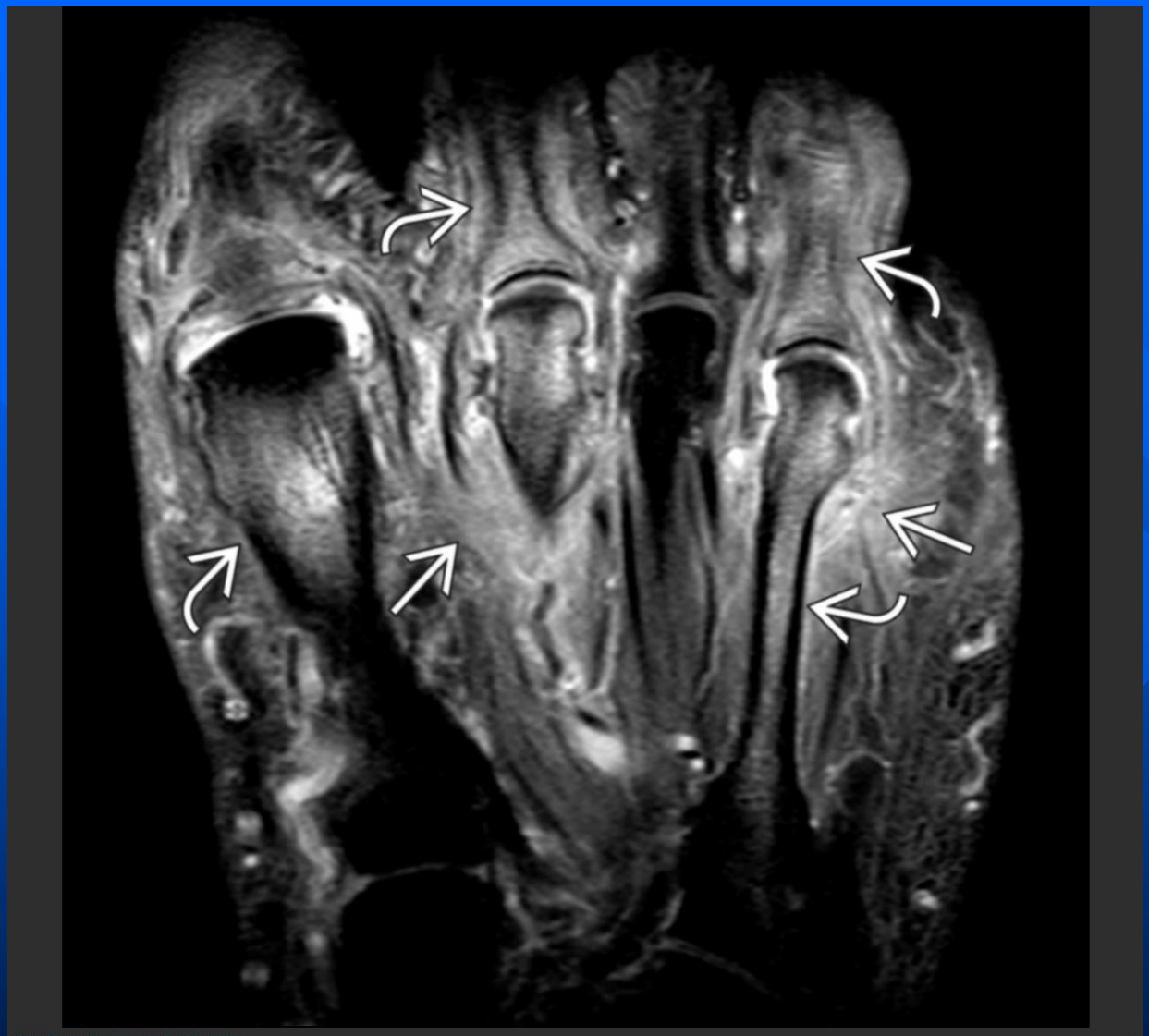
Oblique radiograph in the same patient, 9 years later, shows the disease remains monoarticular but that periostitis has resolved while the IP joint has developed severe erosions →. The character may have changed, but the disease remains PsA.



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Long-axis T1 C+ FS MR shows significant synovitis and pericapsular and peritendinous enhancement involving the 1st, 2nd, and 4th MTP joints → with extensive osseous edema ↗, all typical findings of PsA. First IP joint is not included, but the radiograph was typical for PsA.

Psoriatic Arthritis

‘Ivory Phalanx Sign” bony proliferation as an exaggerated healing response to injured bone in patients with seronegative spondyloarthropathy

Psoriatic Arthritis

Psoriatic arthritis may involve calcaneus but not as frequently as chronic reactive arthritis

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Lateral radiograph of the heel shows large plantar and dorsal enthesophytes with osseous proliferative changes and erosions at the Achilles and plantar aponeurosis entheses →. This is characteristics of a seronegative spondyloarthropathy, in this case, PsA.

In the foot, the great toe interphalangeal and MTP joints are most commonly affected. An *ivory phalanx* represents osteosclerosis and is relatively specific for psoriatic arthritis. Psoriatic arthritis produces a plantar calcaneal spur with periosteal reaction. In contrast, a degenerative calcaneal spur will not feature reactive new bone.

Psoriatic Arthritis

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Lateral radiograph shows an erosion ↗ with mild periostitis → as well as a heel spur. Though this could represent the changes of chronic reactive arthritis, in this case the diagnosis is psoriatic arthritis, the patient had skin changes as well as arthritis involving the hand.

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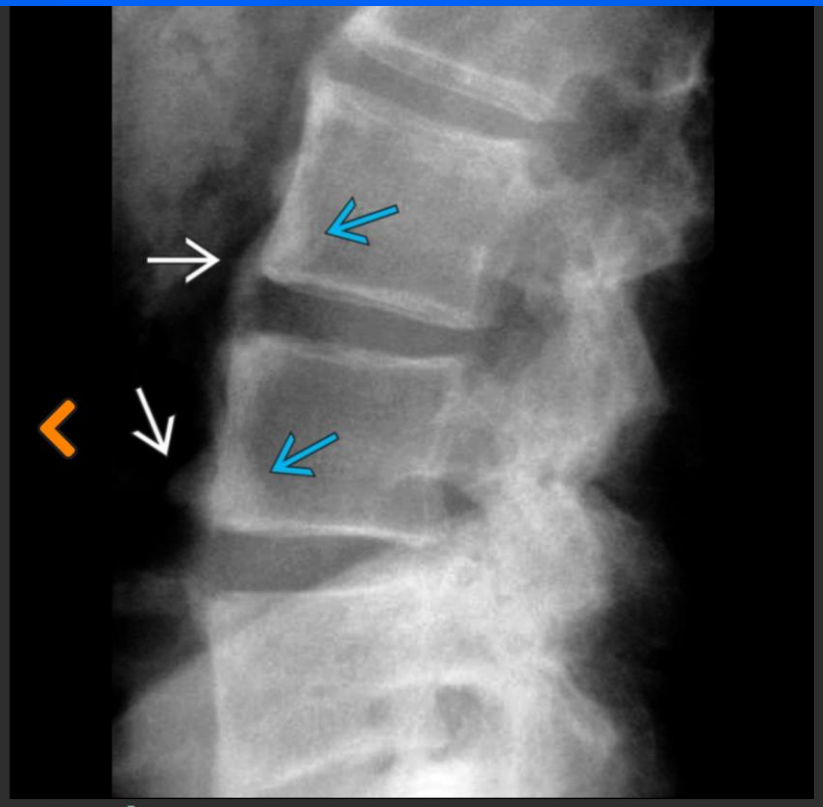
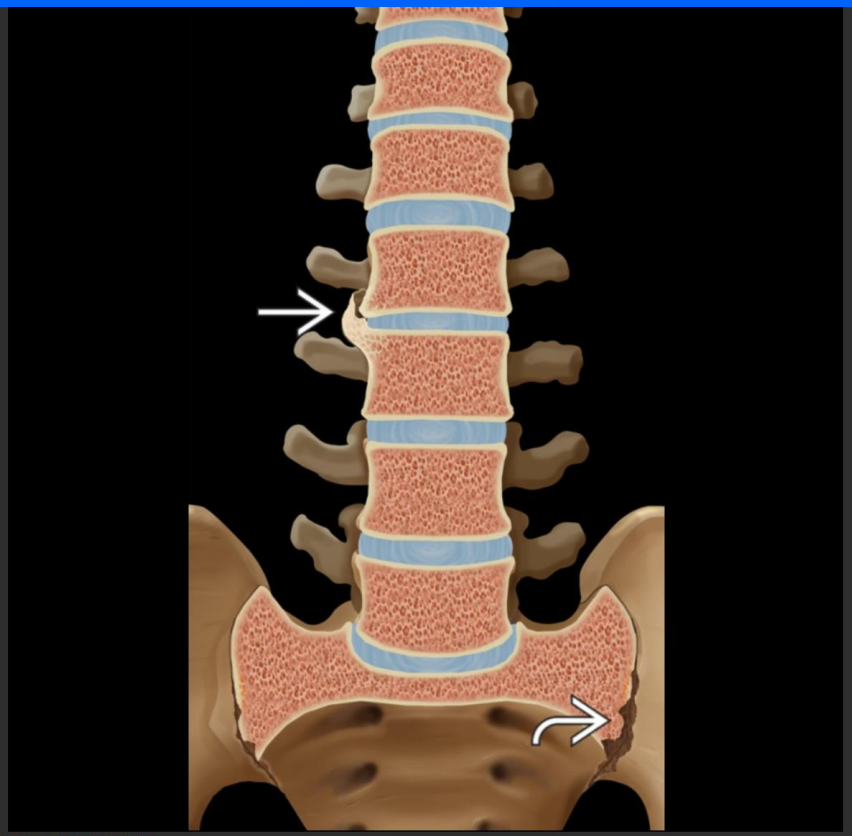
Lateral radiograph shows a single level of paravertebral ossification →, along with complete ankylosis of the cervical spine facets ⇨. It is uncommon, but not unheard of, to have such a long segment of ankylosis in PsA.



Lateral radiograph of the lumbar spine in a patient with psoriatic spondyloarthropathy shows early paravertebral ossification →. At this early stage, the ossification appears fluffy and rather amorphous; later, it attains a mature bony appearance that may mimic DISH. However, note the osteitis in the vertebral corners →, indicative of an inflammatory cause, a finding not expected with DISH.



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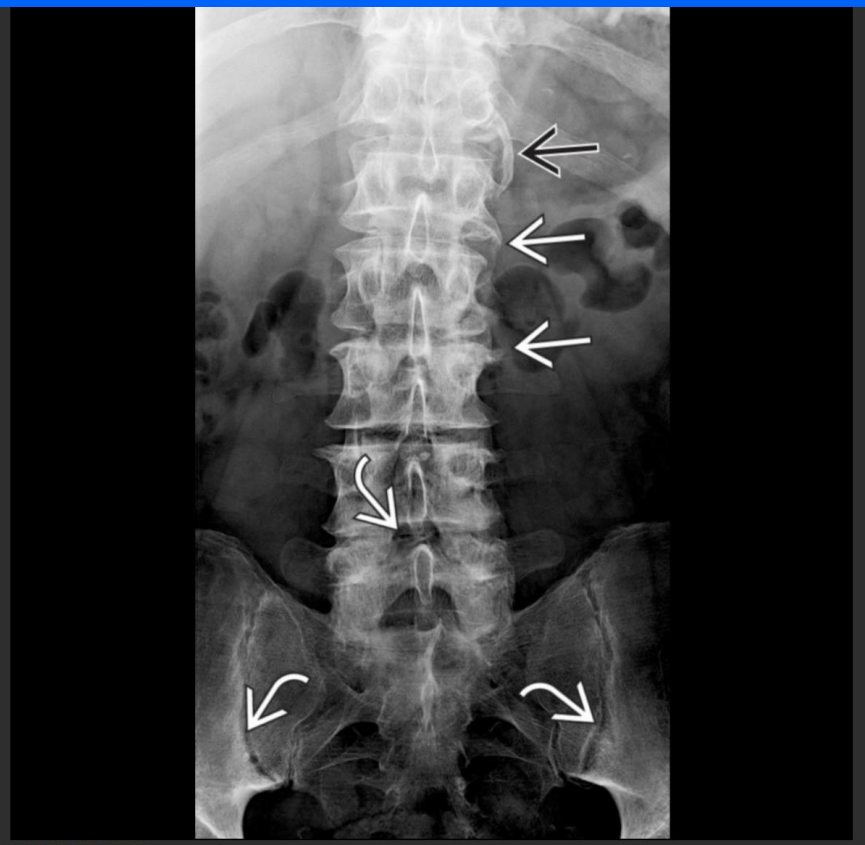
Graphic depicts the appearance of early PsA. The paravertebral ossification, best seen on the AP view, is bulky → and may eventually bridge the disc space. Erosive sacroiliitis is bilateral but usually asymmetric ↗ early in the disc space.



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AP radiograph of the lumbar spine in a patient with PsA shows vertically oriented nonmarginal paravertebral ossification at T12-L1 ⇒ and early ossification at L1-L2 and L2-L3 →. These are coarse and asymmetric. There is also sacroiliitis, mildly asymmetric ↗.