

# Pathology of enthesitis and dactylitis

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# Enthesitis – Definition

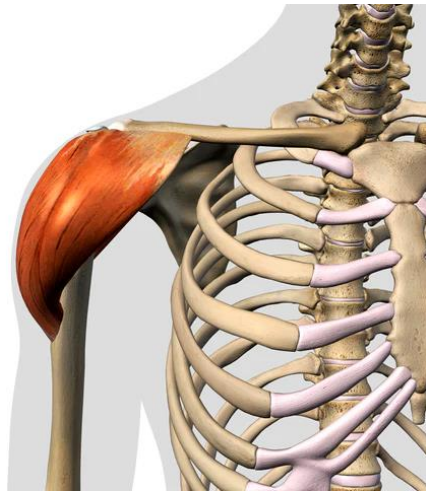
Enthesitis: Inflammation where soft tissues insert to bone (entheses)  
Enthesopathies: Pathologies affecting the entheses

## Fibrous entheses

Dense tissues (mineralised collagen fibres) that connect directly to bone or

Common at the diaphyses of long bones

Less prone to injury



## Fibrocartilagenous entheses

4 zones of tissue

Common at apophyses e.g. Achilles tendon insertion

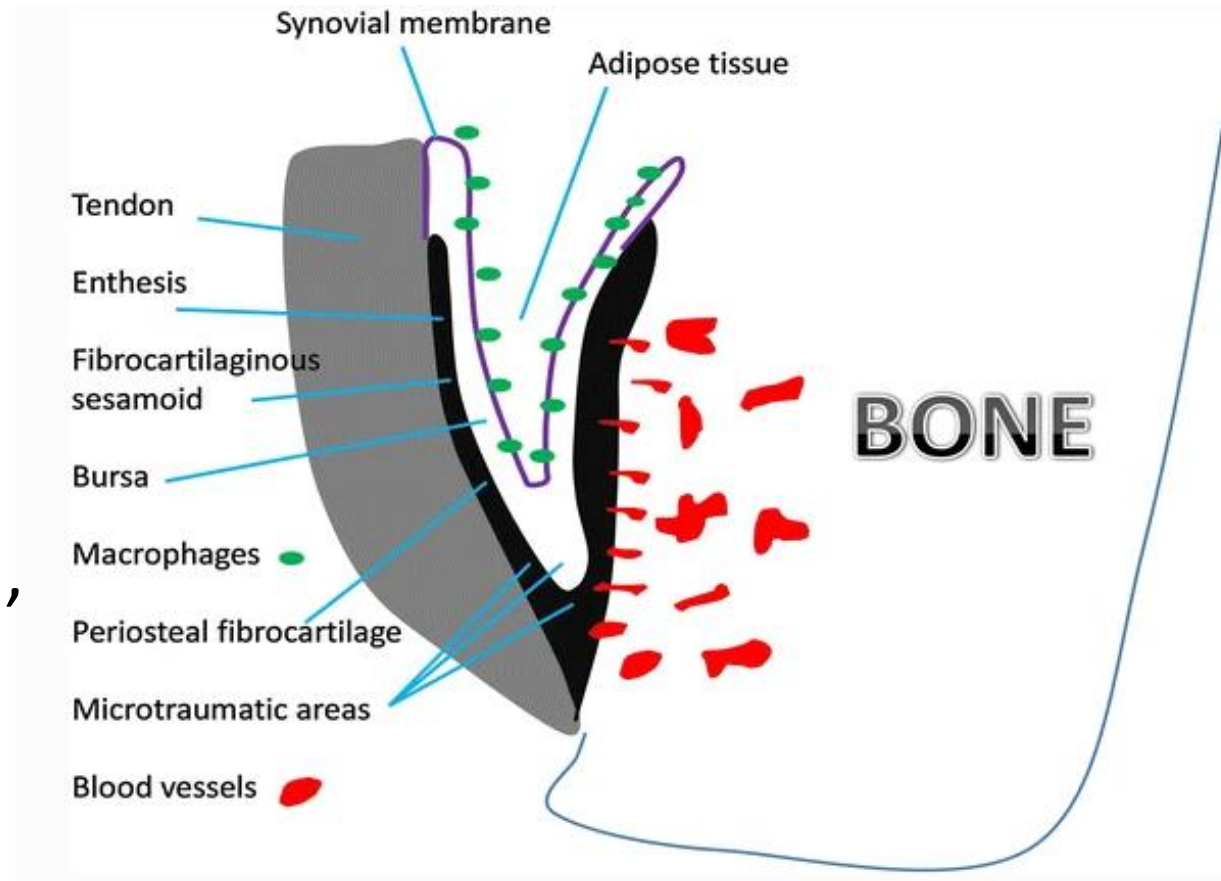
Prone to overuse injury



# Enthesitis - Pathophysiology

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- Spondyloarthropathies e.g. psoriatic arthritis, ankylosing spondylitis etc.
- ‘Synovio-entheseal complex’
- Blood vessels in the enthesis had originated from the Kager’s fat pad, fibrocartilage usually avascular
- Infiltration of blood + cytokines = damage to the cortical bone



Achilles synovio-entheseal complex in spondyloarthritis  
De Cata et al, 2016

# Enthesitis – Clinical assessment

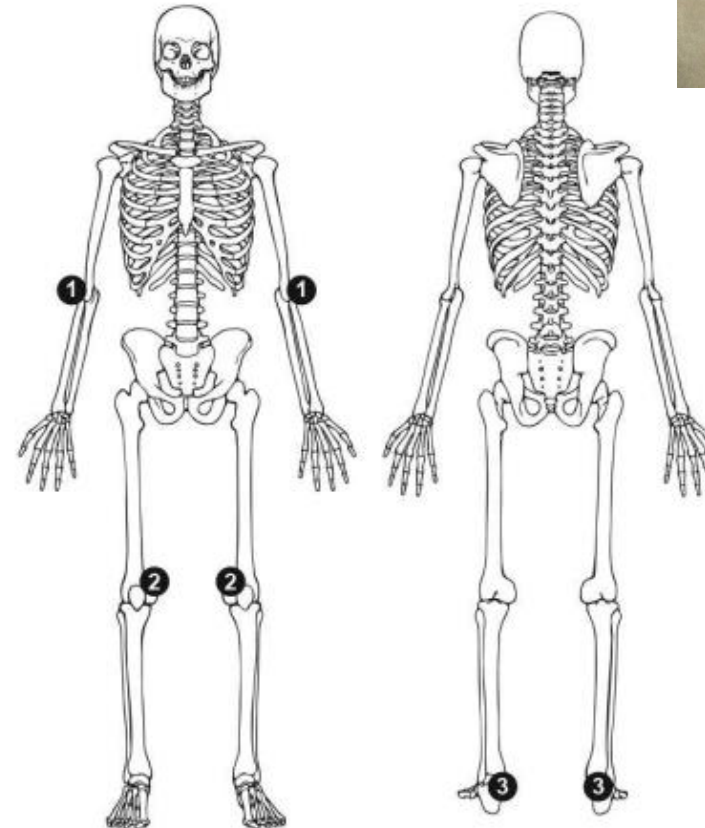
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Leeds Enthesitis Index (LEI)

- Bilateral Achilles tendons
- Lateral epicondyles of the elbow
- Medial femoral condyle

Enough pressure to blanch a fingernail

Scores /6 for tenderness and swelling



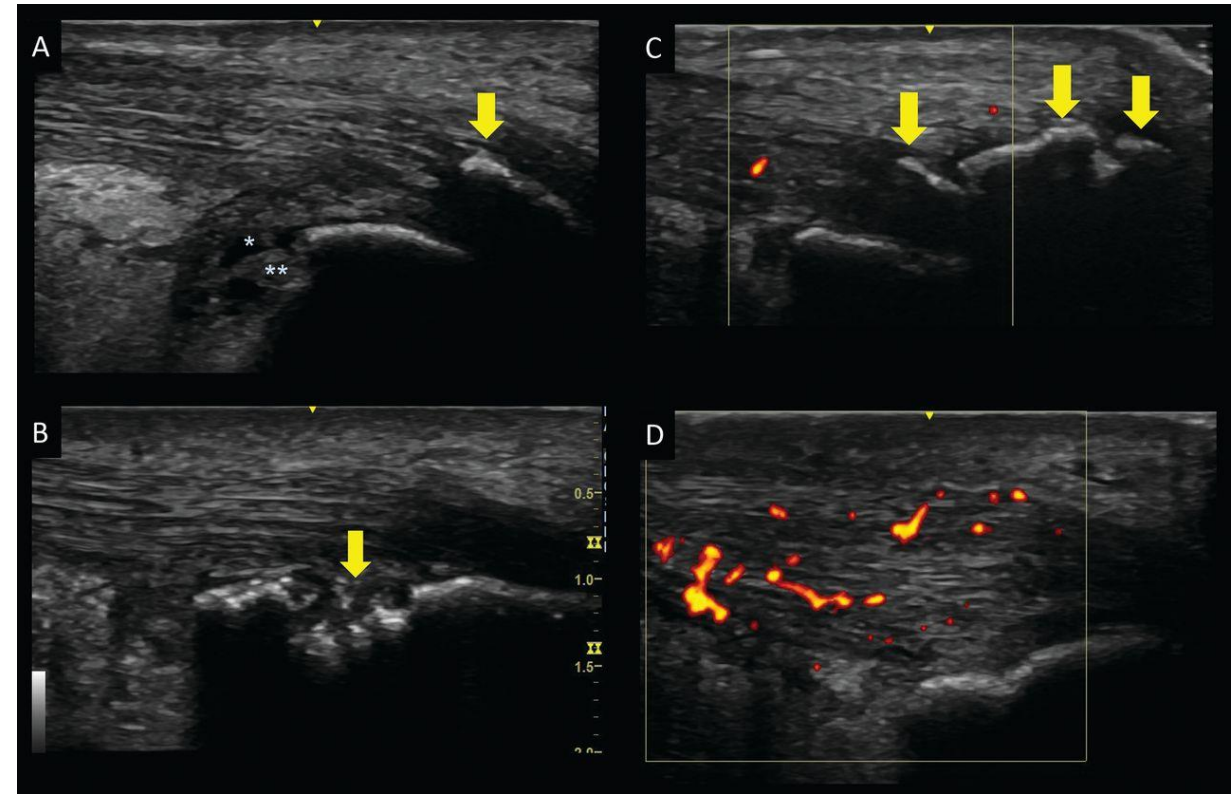
# Enthesitis – Imaging

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- **Ultrasound, MRI, PET and CT**
- X-ray – chronic changes e.g. erosion or new bone
- Ultrasound – cheap, portable, can detect neovascularity
- MRI – soft tissue changes and bone marrow oedema

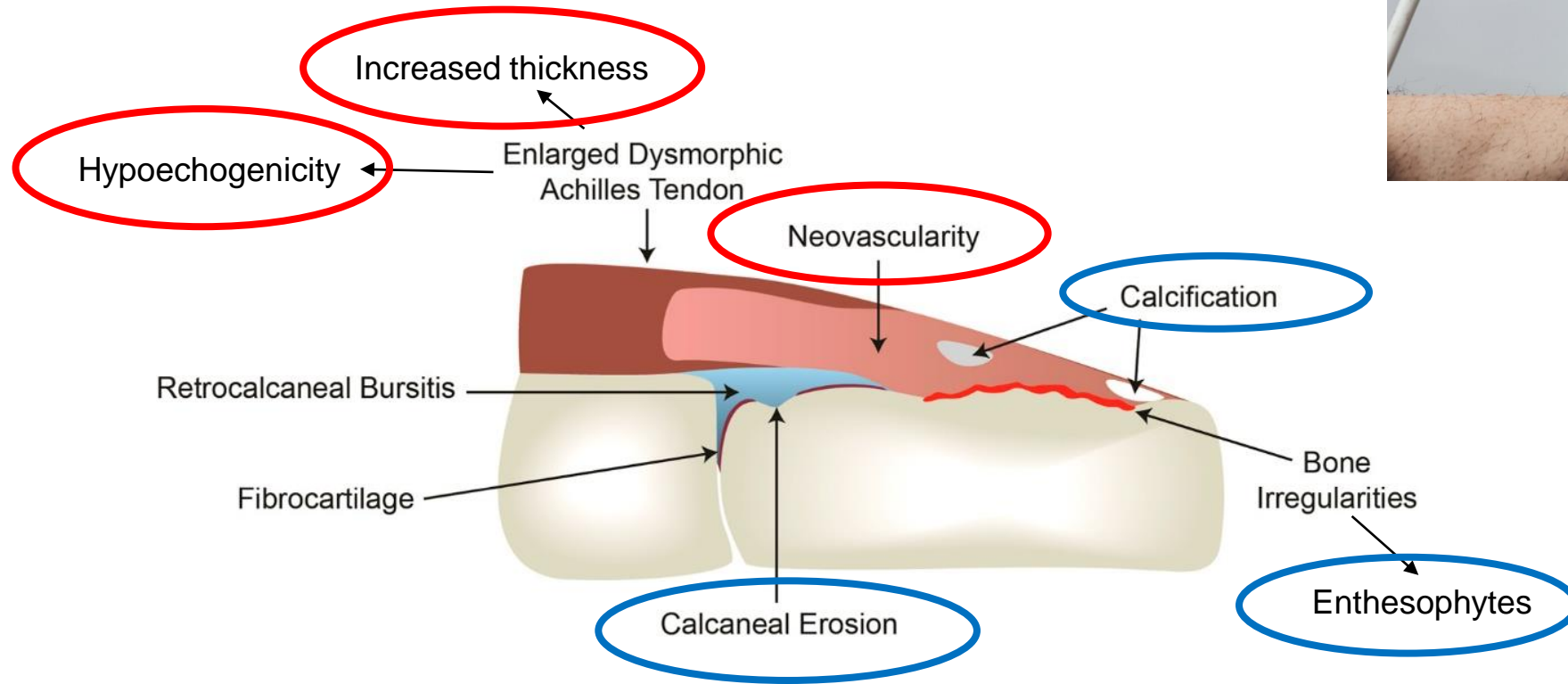
Pre-clinical?

Reactive → proactive

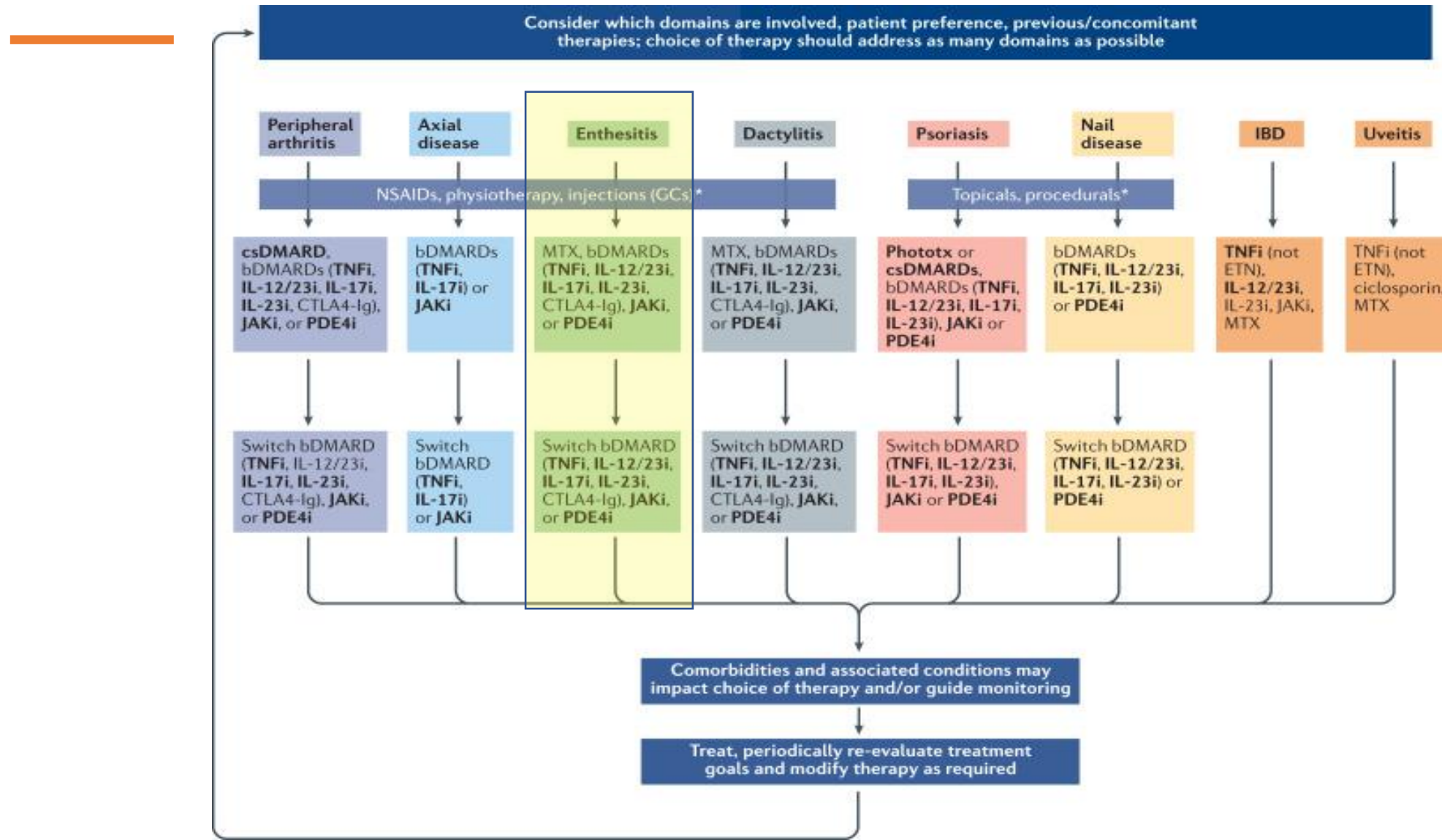


Bakewell et al, 2020

# Enthesitis – Ultrasound assessment



# Enthesitis – Management guidelines



# Enthesitis – Management guidelines

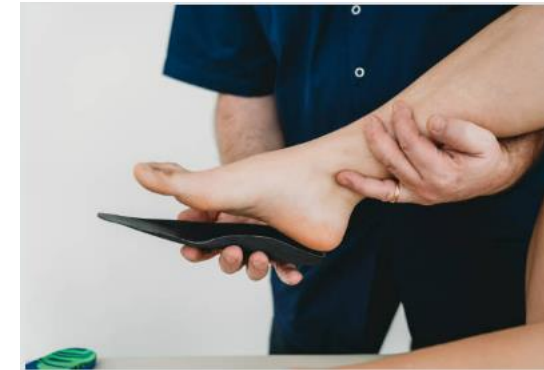
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## Evidence-base

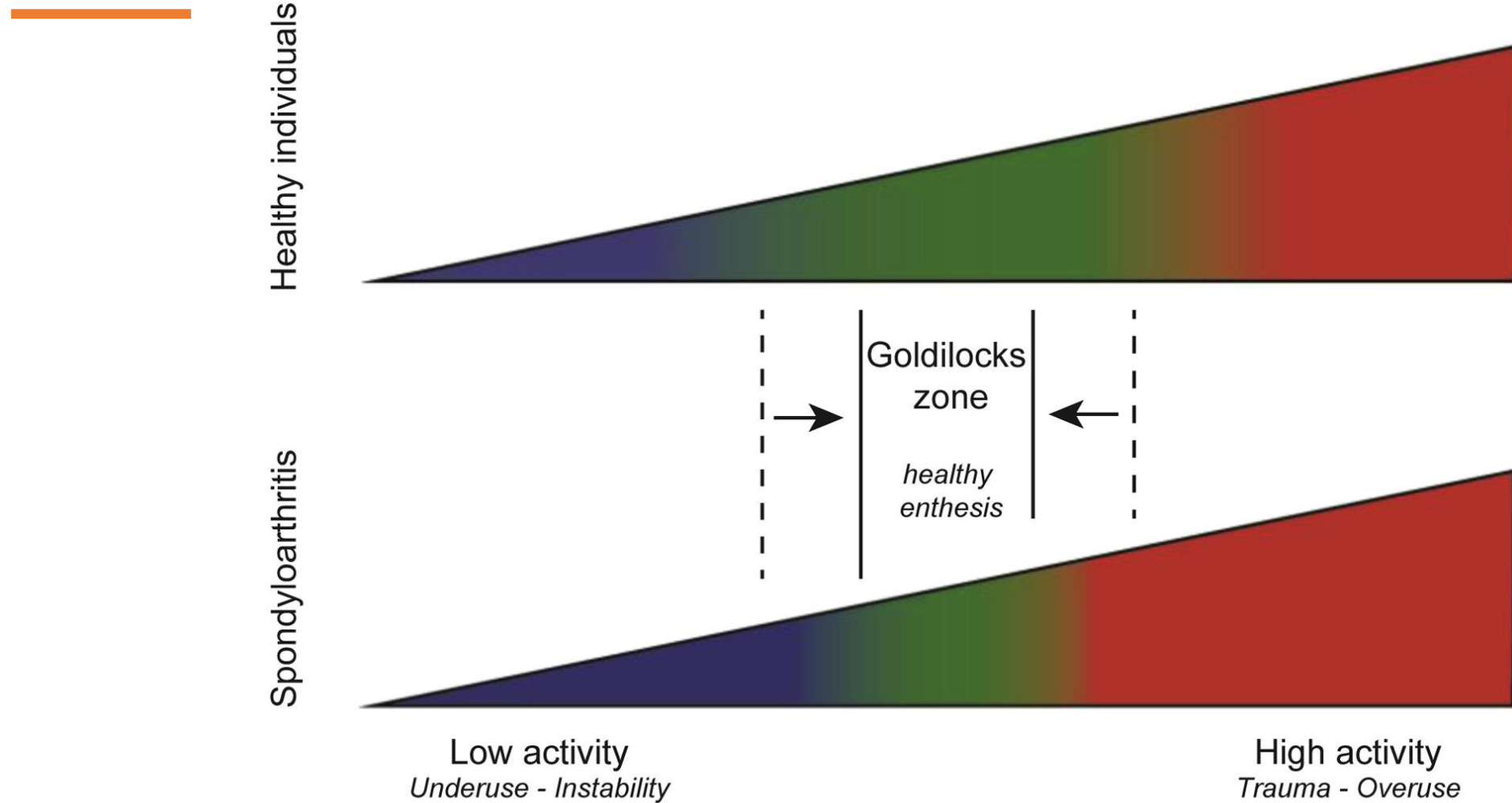
**X** csDMARDs e.g. methotrexate

**✓** TNFi, IL-12/23i, IL-17i, JAKi and PDE-4i

? NSAIDs, local CSI (extreme caution),  
physiotherapy



# Enthesitis – Management guidelines



# Dactylitis – Definition and clinical presentation

‘Sausage digit’

Definition: uniform swelling of soft tissues in a digit to the extent that the actual joint margins can no longer be identified

Typically asymmetrical, multi-digit, 75% in the foot



## **Inflammatory infectious**

Syphilis  
Tuberculosis

## **Inflammatory non-infectious**

Sarcoid  
Infection/osteomyelitis  
Gout  
Spondyloarthropathy

## **Non-inflammatory**

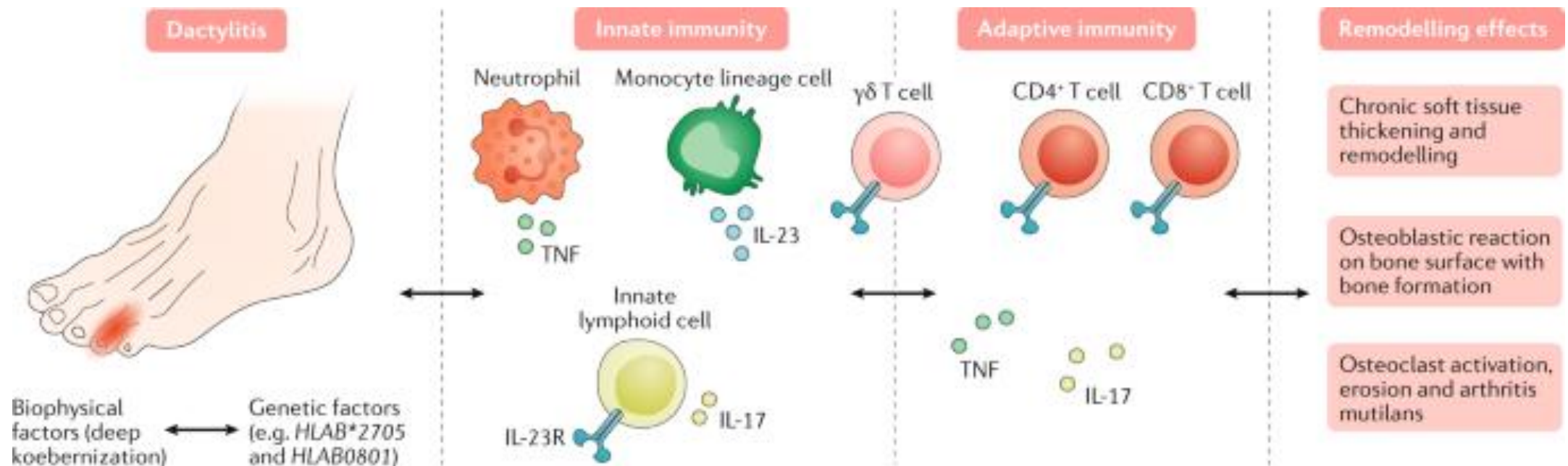
Sickle-cell disease  
Flexor tendon tenosynovitis

# Dactylitis - Pathophysiology

- Acute or chronic – marker of disease severity
- Synovitis, soft-tissue and bone marrow oedema, and erosive bone damage

## Plantar forefoot pressures in psoriatic arthritis-related dactylitis: an exploratory study

Richard A. Wilkins<sup>1,2</sup> · Heidi J. Siddle<sup>1,2</sup> · Anthony C. Redmond<sup>1</sup> · Philip S. Helliwell<sup>1,3</sup>



# Dactylitis – Assessment

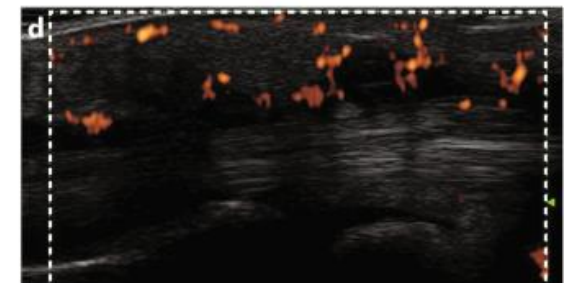
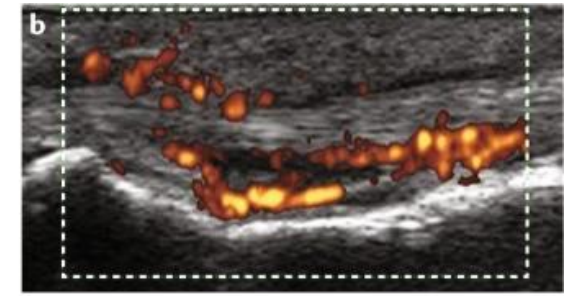
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## Clinical

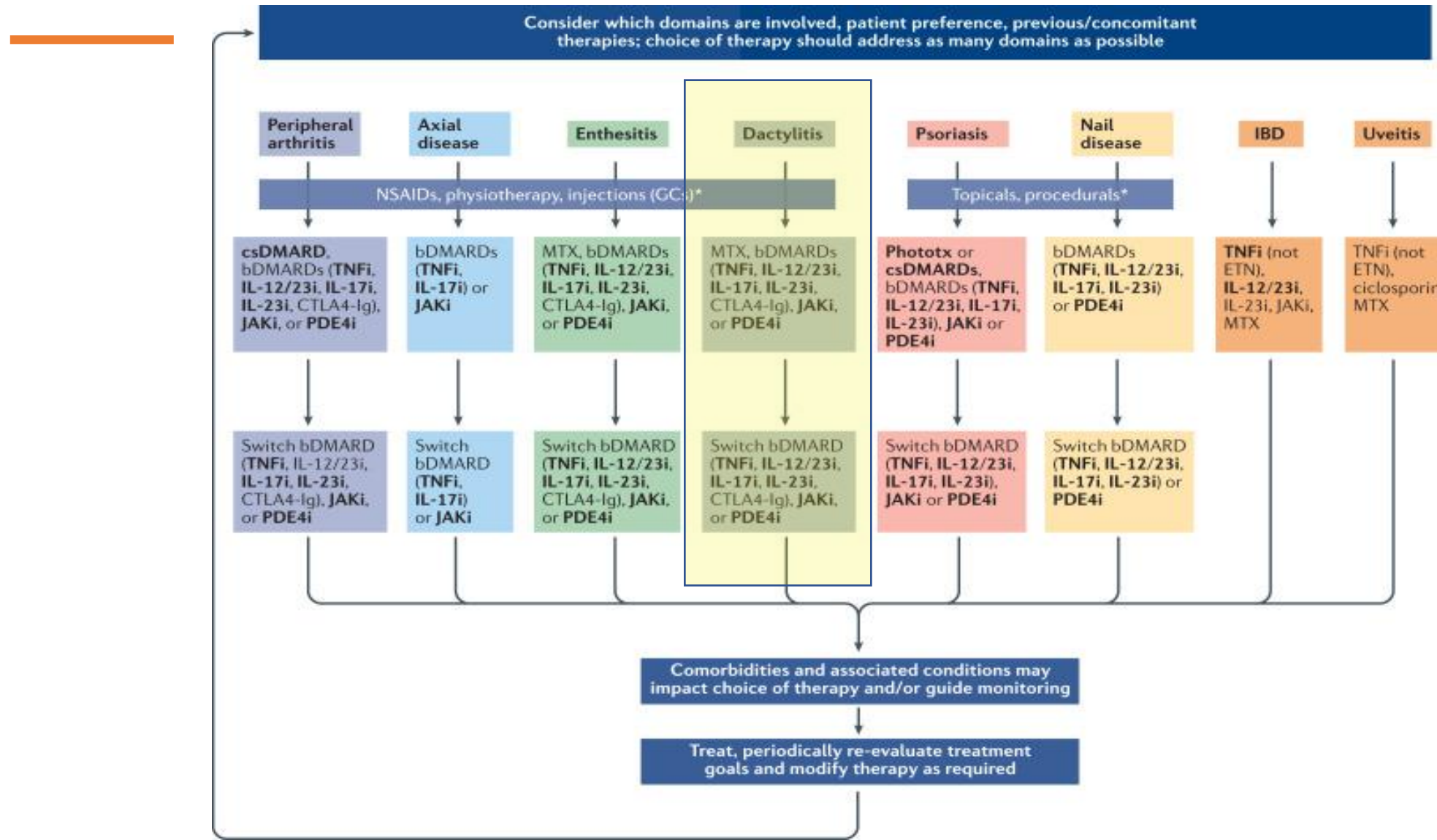
- Inflamed, red, hot, uniformly-swollen digit(s)
- Nail disease  $\leftrightarrow$  enthesitis  $\leftrightarrow$  dactylitis
- Leeds Dactylitis Index (dactylometer)

## Imaging

- Ultrasound and MRI
- Subcutaneous soft tissue oedema, tenosynovitis, adjacent synovitis, neovascularisation, periarticular inflammation (MRI), bone marrow oedema (MRI)



# Dactylitis – Management guidelines



# Dactylitis – Management guidelines

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✓ TNFi, IL-12/23i, IL-17i, JAKi and PDE-4i

? csSMARDs (methotrexate), NSAIDs, local CSI (extreme caution), physiotherapy(?)

Role of shear stress?

Load management

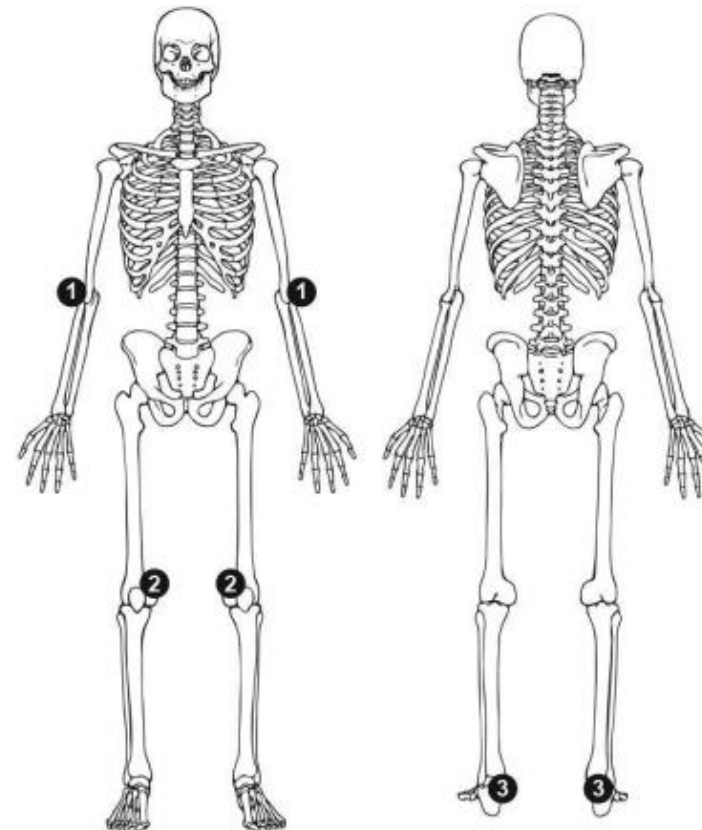


# Take-home messages

Podiatry = often first contact


Good referral to rheumatology:


- Pattern of pain
- Site of pain (body map)
- Bloods – inflam markers
- Imaging\*
- Family history
- Smoking status
- BMI
- Ease/aggravating factors





## SCREEND'EM BEFORE YOU TREAT'EM

A clinical tool to help identify spondyloarthritis (SpA) in patients with tendinopathy.


**SKIN** 6-42% of patients with psoriasis develop psoriatic arthritis. 


**COLITIS OR CHROHN'S**  Arthritis is one of the most common extra-intestinal manifestations of inflammatory bowel disease. The prevalence of SpA in patients with Crohn's is estimated to be 26% at 6 year follow up.


**RELATIVES**  There is a strong relationship between SpA and HLA-B27 positive patients. Family members of patients with SpA who are HLA-B27 positive have a 16-fold increase chance of developing ankylosing spondylitis if they are also HLA-B27 positive.


**EYES**  Acute anterior uveitis (AAU) can cause a painful, red eye with photophobia and blurred vision. 40% of patients presenting with idiopathic AAU have undiagnosed SpA. 50% of patients with AAU are HLA-B27 positive and >50% of these have SpA.



**EARLY MORNING STIFFNESS** Inactivity related stiffness that lasts for more than 30 minutes is suggestive of inflammatory disease.

**NAILS** Nail lesions occur in 87% of SpA patients and include:  
- small depressions in the nail (pitting)  
- thickening of the nails  
- painless detachment from the nail bed (onycholysis). 

**DACTYLITIS**  Sausage like swelling of the digits is a hallmark sign of psoriatic arthritis, occurring in 50% of cases.

**ENTHESITIS**  98% of SpA patients have at least one abnormal entheses. The most common sites are the Achilles tendon, plantar fascia and patellar tendon.

**MOVEMENT & MEDICATION EFFECT**  SpA patients report improvement with activity but not with rest, and a favourable response to NSAIDs.

Created by Paul Kirwan  @pdkirwan  THE KNEE RESOURCE  
ISBN/EAN: 978-90-75823-92-9, d18 page 32  
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\* Refer based on clinical suspicion if imaging clear

# Thank you!

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