Approach to the patient with peripheral joint pain

Amanda Steiman, MD, MSc, FRCPC

Rheumatologist, Project ECHO Co-Lead

October 14, 2021

Disclosures

- Relationship with commercial interests:
  - **Speakers Bureau/Honoraria:** Jannsen
  - **Research funding:** Pfizer
  - **Other:** Employee of Sinai Health System/University Health Network;
  - Project ECHO is fully funded by the Ministry of Health and Long Term Care (Ontario)

Mitigating Potential Bias

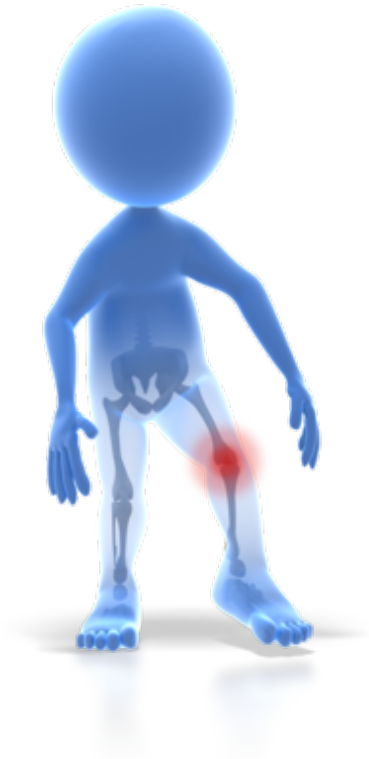
This presentation was peer-reviewed to ensure recommendations are based on evidence that is accepted within the profession and referenced in this presentation.

Learning objectives

- By the end of the session, participants will apply a framework to peripheral joint pain to:
  - Identify and utilize **high-yield features** to distinguish inflammatory from non-inflammatory processes
  - Recognize that **patterns of joint involvement** provide important clues to diagnosis
  - Identify **red flags** suggestive of inflammatory arthritis
  - Identify extra-articular features that help to distinguish between various forms of inflammatory joint disease.

The Ps of peripheral arthritis

- **Pain** characteristics
- **Patterns** of joint involvement
- **Physical** exam clues
- **Pertinent** lab findings



MSK-specific historic features

1. Is the process articular or non-articular?

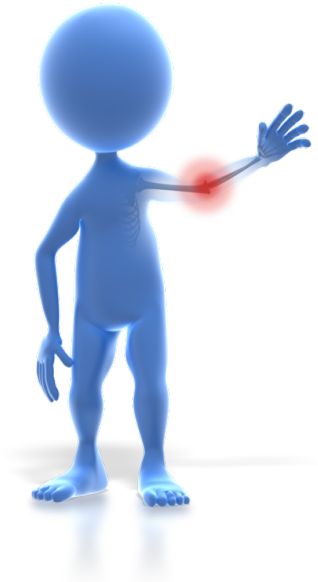
2. Is the process inflammatory or non-inflammatory

3. Are there any other clues that can assist in making the diagnosis?

Articular vs non-articular

Articular

- Pain through whole range of motion
- Active AND passive



Non-articular

- Periarticular:
  - Pain with some movements
  - Active > passive
- Non-articular:
  - Pain unrelated to joint movement

Inflammatory vs. non-inflammatory

Inflammatory

- Pain
- Swelling
- Warmth
- Erythema
- Morning stiffness > 60 min
- Pain improves with movement

Non-inflammatory

- Pain
- No obvious swelling
- Cool joint
- No erythema
- Minimal/fleeting morning stiffness
- Pain worsens with movement

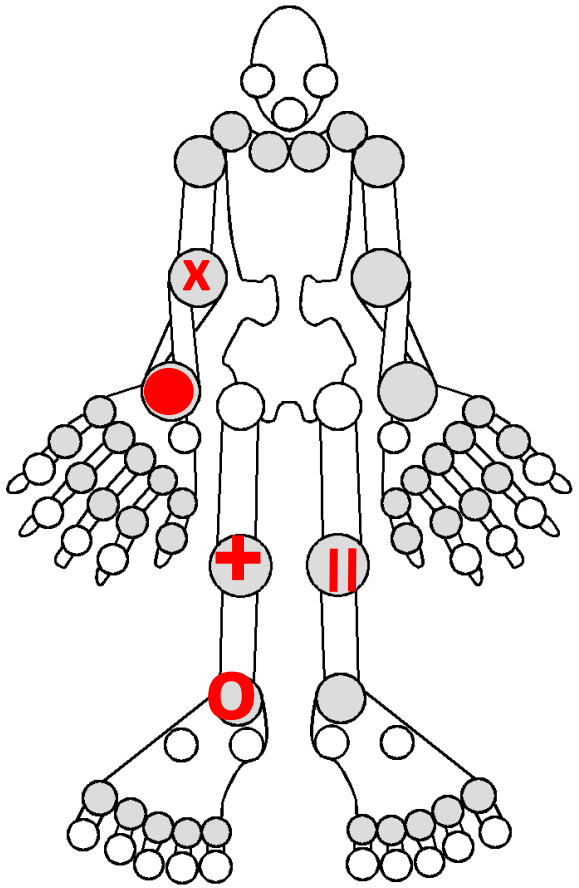
Further clues…

- Demographics
- Acuity/chronicity
- Pattern of onset and progression
- Presence/absence of spinal (axial) involvement
- Presence of extra-articular manifestations

Patterns of joint involvement

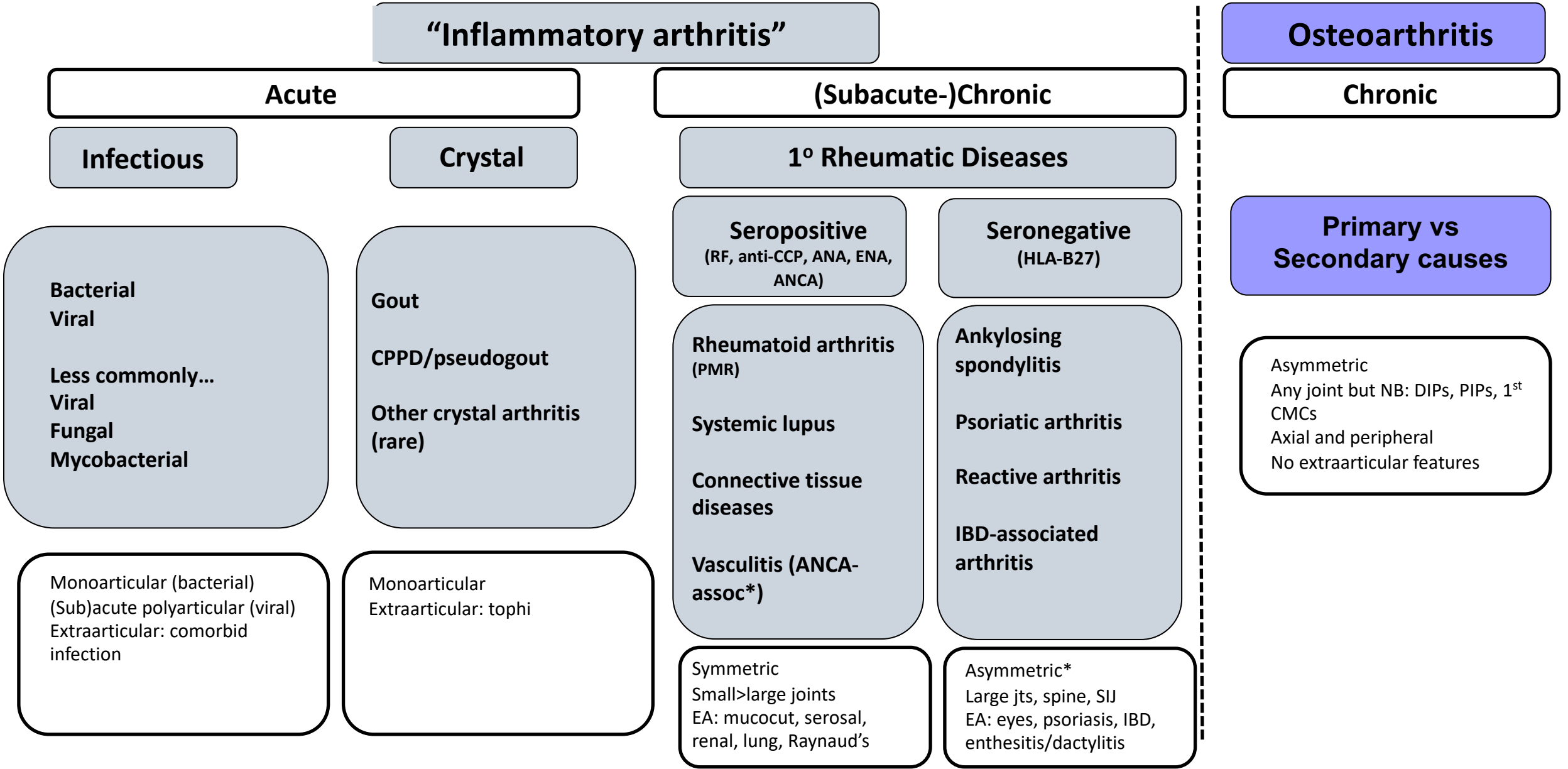
- Symmetric vs. asymmetric
- Mono vs. oligo vs. polyarticular
- Small vs. large
- Proximal vs. distal
- Upper vs. lower extremity

Rheumatologist “shorthand”



- Used to summarize findings on joint exam
- Effectively summarizes
  - Tender joints x
  - Swollen joints O
  - Tender and swollen joints ●
  - Damaged joints II
  - Arthroplasty +

Framework


"Inflammatory arthritis"
Acute
(Subacute-)Chronic
Infectious
Crystal
1º Rheumatic Diseases
Seropositive
(RF, anti-CCP, ANA, ENA, ANCA)
Seronegative
(HLA-B27)
Bacterial
Viral
Less commonly…
Viral
Fungal
Mycobacterial
Gout
CPPD/pseudogout
Other crystal arthritis (rare)
Rheumatoid arthritis
(PMR)
Systemic lupus
Connective tissue diseases
Vasculitis (ANCA-assoc*)
Ankylosing spondylitis
Psoriatic arthritis
Reactive arthritis
IBD-associated arthritis
Monoarticular (bacterial)
(Sub)acute polyarticular (viral)
Extraarticular: comorbid infection
Monoarticular
Extraarticular: tophi
Symmetric
Small>large joints
EA: mucocut, serosal, renal, lung, Raynaud's
Asymmetric*
Large jts, spine, SIJ
EA: eyes, psoriasis, IBD, enthesitis/dactylitis
Osteoarthritis
Chronic
Primary vs Secondary causes
Asymmetric
Any joint but NB: DIPs, PIPs, 1st CMCs
Axial and peripheral
No extraarticular features

The case

- 37 year old woman presents to your office with arthralgias…

What do you want to know?

- Host factors
- Inflammatory vs non-inflammatory:
- Acuity
- Joint distribution
  - Symmetric vs asymmetric
  - Upper vs lower extremity
  - Axial vs peripheral vs both
- Extraarticular features

- Host factors: otherwise well, no fam hx
- Inflammatory vs non-inflammatory? AM stiffness x 60 min
- Acuity: 2-3 months
- Joint distribution: Wrists, MCPs, PIPs, knees, ankles, toes
- Extraarticular features: new rash (hands, face), sicca symptoms, longstanding Raynaud’s phenomenon

Framework

"Inflammatory arthritis"

Acute

Infectious

Bacterial
Viral

Less commonly…
Viral
Fungal
Mycobacterial

Monoarticular (bacterial)
(Sub)acute polyarticular (viral)
Extraarticular: comorbid infection

Crystal

Gout

CPPD/pseudogout

Other crystal arthritis (rare)

Monoarticular
Extraarticular: tophi

(Subacute-)Chronic

1º Rheumatic Diseases

Seropositive
(RF, anti-CCP, ANA, ENA, ANCA)

Rheumatoid arthritis
(PMR)

Systemic lupus

Connective tissue diseases

Vasculitis (ANCA-assoc*)

Symmetric
Small>large joints
EA: mucocut, serosal, renal, lung, Raynaud's

Seronegative
(HLA-B27)

Ankylosing spondylitis

Psoriatic arthritis

Reactive arthritis

IBD-associated arthritis

Asymmetric*
Large jts, spine, SIJ
EA: eyes, psoriasis, IBD, enthesitis/dactylitis

Osteoarthritis

Chronic

Primary vs Secondary causes

Asymmetric
Any joint but NB: DIPs, PIPs, 1st CMCs
Axial and peripheral
No extraarticular features

Arthritis + rash

- Malar rash
  - Spares nasolabial folds
  - Ranges from subtle to pronounced

ACR Rheumatology Image Library

Emedicine.Medscape.com/article/332244-clinical

Arthritis + rash

ACR Rheumatology Image Library

Arthritis + rash

Source: Fauci AS, Kasper DL, Braunvald E, Hauser SL, Longo DL, Jameson JL, Loscalzo J:
Harrison's Principles of Internal Medicine, 17th Edition: http://www.accessmedicine.com

Arthritis + rash

ACR Rheumatology Image Library

Arthritis + rash

ACR Rheumatology Image Library

Arthritis + rash

Scleroderma/CREST

- Sclerodactyly
- Telangiectasias
- Pathologic Raynaud's phenomenon

Emedicine image

ACR Rheumatology Image Library

Brief sidebar about Raynaud's

Primary vs Secondary RP

- No pits, ulcers, infarcts
- No interepisodic pain
- Age of onset in first three decades
- CTD-associated Raynaud's may result in skin damage, ischemia, digital amputation

ACR Rheumatology Image Library

The case

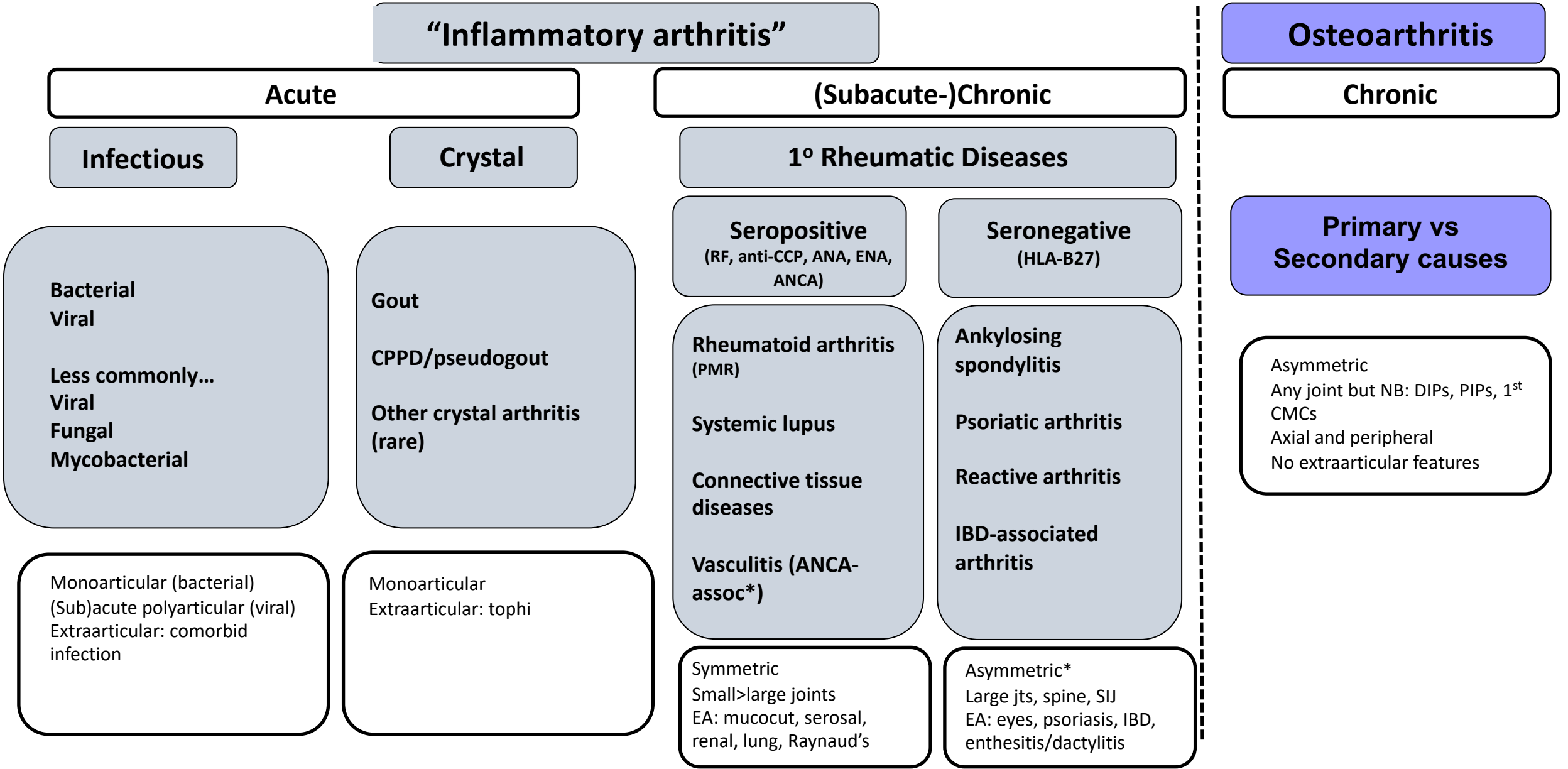
- 37 year old man presents to your office with arthralgias…

What do you want to know?

- Host factors
- Inflammatory vs non-inflammatory
- Acuity
- Joint distribution
  - Symmetric vs asymmetric
  - Upper vs lower extremity
  - Axial vs peripheral vs both
- Extraarticular features

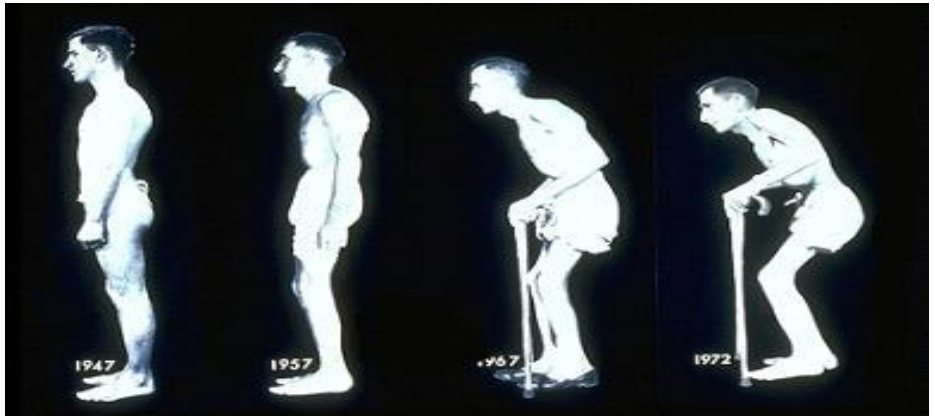
- Host factors: Otherwise well. Brother has Crohn’s disease
- Inflammatory vs non-inflammatory? Am stiffness x hours, wakes from sleep, improves with activity, worsens with rest
- Acuity: 3-6 months
- Joint distribution: buttock pain, right shoulder, left Achilles tendon/heel
- Extraarticular features: None (?family history thereof)

Framework


"Inflammatory arthritis"
Acute
(Subacute-)Chronic
Infectious
Crystal
1º Rheumatic Diseases
Seropositive
(RF, anti-CCP, ANA, ENA, ANCA)
Seronegative
(HLA-B27)
Bacterial
Viral
Less commonly…
Viral
Fungal
Mycobacterial
Gout
CPPD/pseudogout
Other crystal arthritis (rare)
Rheumatoid arthritis
(PMR)
Systemic lupus
Connective tissue diseases
Vasculitis (ANCA-assoc*)
Ankylosing spondylitis
Psoriatic arthritis
Reactive arthritis
IBD-associated arthritis
Monoarticular (bacterial)
(Sub)acute polyarticular (viral)
Extraarticular: comorbid infection
Monoarticular
Extraarticular: tophi
Symmetric
Small>large joints
EA: mucocut, serosal, renal, lung, Raynaud's
Asymmetric*
Large jts, spine, SIJ
EA: eyes, psoriasis, IBD, enthesitis/dactylitis
Osteoarthritis
Chronic
Primary vs Secondary causes
Asymmetric
Any joint but NB: DIPs, PIPs, 1st CMCs
Axial and peripheral
No extraarticular features

Ankylosing spondylitis (seronegative SpA)

- M > F
- Onset before age 40
- Axial + peripheral
- Enthesitis, dactylitis
- Uveitis



ACR Rheumatology Image Library

Psoriatic arthritis

- Distal predominant
- Polyarthritis
- Oligoarthritis
- Spondyloarthritis
- **Mutilans**

Extraarticular manifestations

Psoriatic nail changes:

Nail pitting

Onycholysis

Oil drop dyschromia

ACR Rheumatology Image Library

Extraarticular manifestations

Psoriasis:

ACR Rheumatology Image Library

The case

- 73 year old man presents to your office with arthralgias…

What do you want to know?

- Host factors
- Inflammatory vs non-inflammatory
- Acuity
- Joint distribution
  - Symmetric vs asymmetric
  - Upper vs lower extremity
  - Axial vs peripheral vs both
- Extraarticular features

What do you want to know?

- Host factors: HTN
- Inflammatory vs non-inflammatory: Stiffness lasts until lunch
- Acuity: 1 month
- Joint distribution: shoulders and hips
- Extraarticular features: Weight loss, drenching sweats

Framework

"Inflammatory arthritis"

Acute

Infectious

Bacterial
Viral

Less commonly…
Viral
Fungal
Mycobacterial

Monoarticular (bacterial)
(Sub)acute polyarticular (viral)
Extraarticular: comorbid infection

Crystal

Gout

CPPD/pseudogout

Other crystal arthritis (rare)

Monoarticular
Extraarticular: tophi

(Subacute-)Chronic

1º Rheumatic Diseases

Seropositive
(RF, anti-CCP, ANA, ENA, ANCA)

Rheumatoid arthritis
(PMR)

Systemic lupus

Connective tissue diseases

Vasculitis (ANCA-assoc*)

Symmetric
Small>large joints
EA: mucocut, serosal, renal, lung, Raynaud's

Seronegative
(HLA-B27)

Ankylosing spondylitis

Psoriatic arthritis

Reactive arthritis

IBD-associated arthritis

Asymmetric*
Large jts, spine, SIJ
EA: eyes, psoriasis, IBD, enthesitis/dactylitis

Osteoarthritis

Chronic

Primary vs Secondary causes

Asymmetric
Any joint but NB: DIPs, PIPs, 1st CMCs
Axial and peripheral
No extraarticular features

Polymyalgia rheumatica

- Consider in patients age 50+
- Proximal aching, inflammatory features
- Constitutional symptoms
- Seronegative, but has seropositive “flavour”
- NB: falls on a spectrum with giant cell/temporal arteritis

The case

- 73 year old man presents to your office with arthralgias…

What do you want to know?

- Host factors
- Inflammatory vs non-inflammatory
- Acuity
- Joint distribution
  - Symmetric vs asymmetric
  - Upper vs lower extremity
  - Axial vs peripheral vs both
- Extraarticular features

What do you want to know?

- Host factors: Hospitalized. CHF (on diuretic), HTN, obesity, DM2 (neuropathy). Recent trip and fall
- Inflammatory vs non-inflammatory: hot, red, swollen
- Acuity: 1 day
- Joint distribution: Right knee
- Extraarticular features: Abrasion on right calf post-fall

Framework

"Inflammatory arthritis"

Acute

Infectious

Bacterial
Viral

Less commonly…
Viral
Fungal
Mycobacterial

Monoarticular (bacterial)
(Sub)acute polyarticular (viral)
Extraarticular: comorbid infection

Crystal

Gout

CPPD/pseudogout

Other crystal arthritis (rare)

Monoarticular
Extraarticular: tophi

(Subacute-)Chronic

1º Rheumatic Diseases

Seropositive
(RF, anti-CCP, ANA, ENA, ANCA)

Rheumatoid arthritis
(PMR)

Systemic lupus

Connective tissue diseases

Vasculitis (ANCA-assoc*)

Symmetric
Small>large joints
EA: mucocut, serosal, renal, lung, Raynaud's

Seronegative
(HLA-B27)

Ankylosing spondylitis

Psoriatic arthritis

Reactive arthritis

IBD-associated arthritis

Asymmetric*
Large jts, spine, SIJ
EA: eyes, psoriasis, IBD, enthesitis/dactylitis

Osteoarthritis

Chronic

Primary vs Secondary causes

Asymmetric
Any joint but NB: DIPs, PIPs, 1st CMCs
Axial and peripheral
No extraarticular features

Gout

- Most commonly lower extremity, mono- or oligoarticular
- Podagra
- Extraarticular features:
  - Desquamation with acute flare
  - Tophi
- **NB septic arthritis top of DDx!**

ACR Rheumatology Image Library

The case

- 73 year old woman presents to your office with arthralgias…

What do you want to know?

- Host factors
- Inflammatory vs non-inflammatory
- Acuity
- Joint distribution
  - Symmetric vs asymmetric
  - Upper vs lower extremity
  - Axial vs peripheral vs both
- Extraarticular features

What do you want to know?

- Host factors: Hypothyroidism, HTN, BMI 28
- Inflammatory vs non-inflammatory: Worsens as day progresses, gelling on rising from seated position
- Acuity: Years, worsening
- Joint distribution: Right knee, left hip, low back
- Extraarticular features: None

Framework

"Inflammatory arthritis"

Acute

Infectious

Bacterial
Viral

Less commonly…
Viral
Fungal
Mycobacterial

Monoarticular (bacterial)
(Sub)acute polyarticular (viral)
Extraarticular: comorbid infection

Crystal

Gout

CPPD/pseudogout

Other crystal arthritis (rare)

Monoarticular
Extraarticular: tophi

(Subacute-)Chronic

1º Rheumatic Diseases

Seropositive
(RF, anti-CCP, ANA, ENA, ANCA)

Rheumatoid arthritis
(PMR)

Systemic lupus

Connective tissue diseases

Vasculitis (ANCA-assoc*)

Symmetric
Small>large joints
EA: mucocut, serosal, renal, lung, Raynaud's

Seronegative
(HLA-B27)

Ankylosing spondylitis

Psoriatic arthritis

Reactive arthritis

IBD-associated arthritis

Asymmetric*
Large jts, spine, SIJ
EA: eyes, psoriasis, IBD, enthesitis/dactylitis

Osteoarthritis

Chronic

Primary vs Secondary causes

Asymmetric
Any joint but NB: DIPs, PIPs, 1st CMCs
Axial and peripheral
No extraarticular features

Osteoarthritis

- Virtually any distribution
- Bouchard's and Heberden's nodes
- No extra-articular features
- "Almond" not "grape"

medscape.com

Summary

- Rheumatic diseases present with characteristic patterns of joint involvement
- Many can be accompanied by extraarticular features
- The recognition of “arthritis +” may be instructive in diagnosis

What is ECHO?

Virtual Medical Education program, connecting primary care them with inter-professional specialist teams for interactive, case-based learning.

Why join?

- Open to all health care providers
- No cost (*fully funded by the MOHLTC*)
- Accredited
- Gain support for your patient cases
- Develop a community of practice
- Each session includes a didactic and case base discussions
- Over 20 different disease focus areas, including Rheumatology

For more information and to register: echoontario.ca