


A Categorical Approach to Inflammatory Joint Disorders for the USMLE Step One Exam

MSU
CPPD

Septic

Reactive

 Acute
No fever
No bells and whistles

Acute
(+) *Fever*
Predisposing 'demographic'

Subacute joint
Inflammatory LBP
Guilty with explanation

Fix these in your mind's eye



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Inflammatory Joint Disorders (for USMLE Step One): the Cast of Characters

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Quick Overview

MS
CPI

1. Review the Lay of the Land
2. Highlight the *Key Associations/Standout* Features
3. Use Questions to Reinforce the Above

Inflammatory Joint Disorders (for USMLE Step One):
the Cast of Characters

Crystals

Infection

SpA
Spondyloarthritis

Rheumatoid
Arthritis

MSU
CPPD

Septic

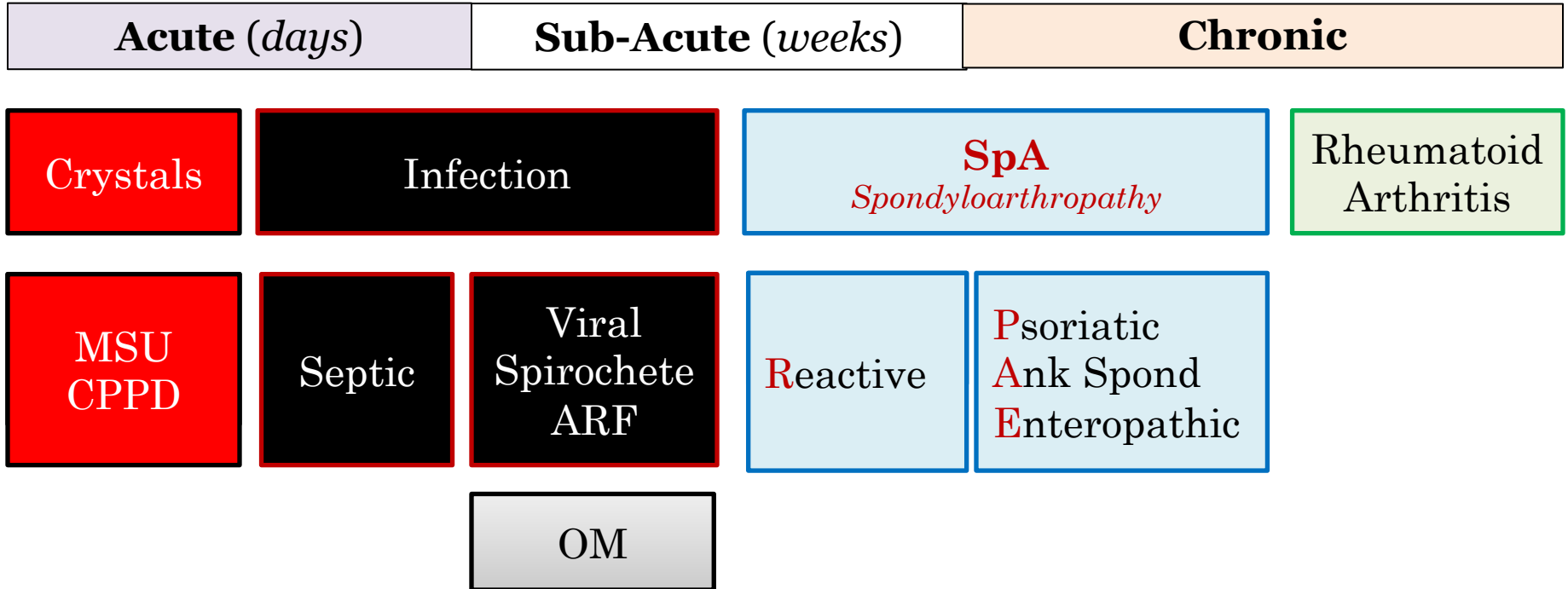
Viral
Spirochete
ARF

Reactive

Psoriatic
Ank Spond
Enteropathic

OM

Inflammatory Joint Disorders (for USMLE Step One):
the Cast of Characters



Initial Thoughts...

Inflammatory Joint Disorders (for USMLE Step One): the Cast of Characters

Acute (*days*)

Sub-Acute (*weeks*)

MSU
CPPD

Septic

Reactive

- *Chlamydia*
- *Infectious diarrhea*

Initial Thoughts...

Rheumatoid Arthritis

1. **Classic Joints and How Many?**
2. **Acute or Chronic?**
3. **Diagnostics?**

Take Less Notes...

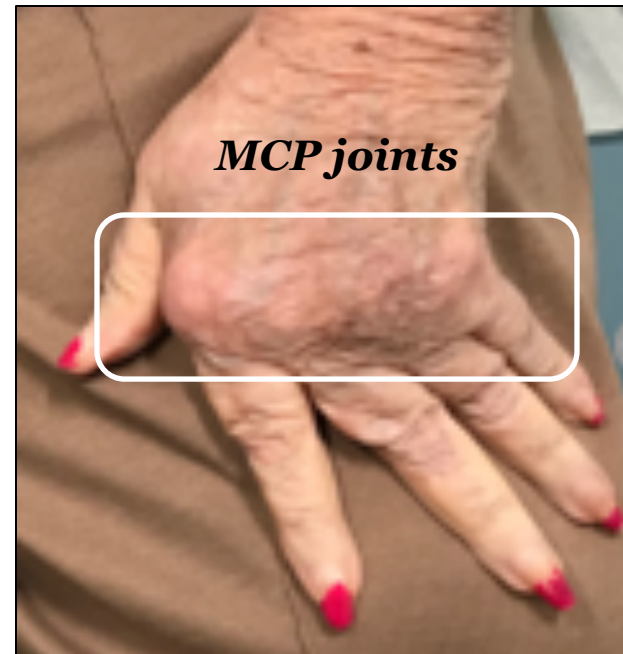
Rheumatoid Arthritis: Diagnostic Criteria

1. Classic Joints (**MCP/wrist**) and How Many (**Polyarticular**)?
2. ~~Acute~~ or **Chronic** (*i.e. it isn't crystals, infection, etc*)?
3. Diagnostics
 - a) Inflammatory markers (APR): **ESR/CRP**
 - b) Autoantibodies: **RF/CCP** (*anti-cyclic citrullinated peptide*)

ACR/EULAR 2010 criteria *Too much to remember*

1. Joint involvement (0–5)
 - One medium-to-large joint (0)
 - Two to ten medium-to-large joints (1)
 - One to three small joints (large joints not counted) (2)
 - Four to ten small joints (large joints not counted) (3)
 - More than ten joints (at least one small joint) (5)
2. Serology (0–3)
 - Negative RF and negative ACPA (0)
 - Low positive RF or low positive ACPA (2)
 - High positive RF or high positive ACPA (3)
3. Acute-phase reactants (0–1)
 - Normal CRP and normal ESR (0)
 - Abnormal CRP or abnormal ESR (1)
4. Duration of symptoms (0–1)
 - Less than 6 weeks (0)
 - 6 weeks or more (1)

Points are shown in parentheses. Cutpoint for rheumatoid arthritis 6 points or more. Patients can also be classified as having rheumatoid arthritis if they have: (a) typical erosions; (b) long-standing disease previously satisfying the classification criteria





SpA
P
Ank Spond
R
E
Enteropathic



Inflammatory Back Pain



Insidious



Persistent



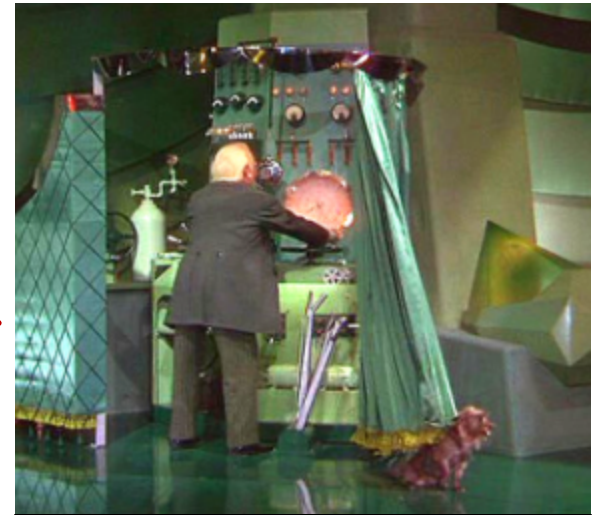
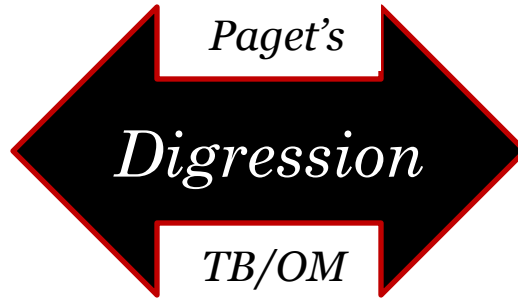
*Young male
Worse in AM*



*Improves
with exercise*



Osteoporosis / Breast Ca



Multiple Myeloma / PrC

*Inflammatory **Back Pain***

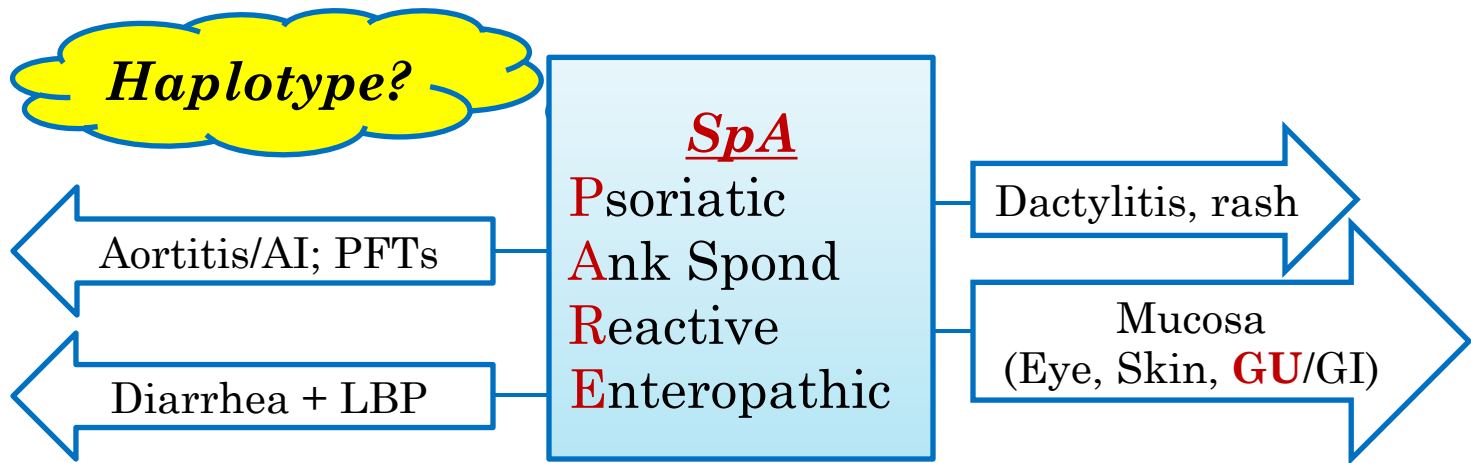


Insidious

Persistent

*Young male
Worse in AM*

*Improves
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*You will not be able to answer the derivatives,
without a diagnosis of: **Sacroiliitis/SpA***

Inflammatory Back Pain



Insidious



Persistent



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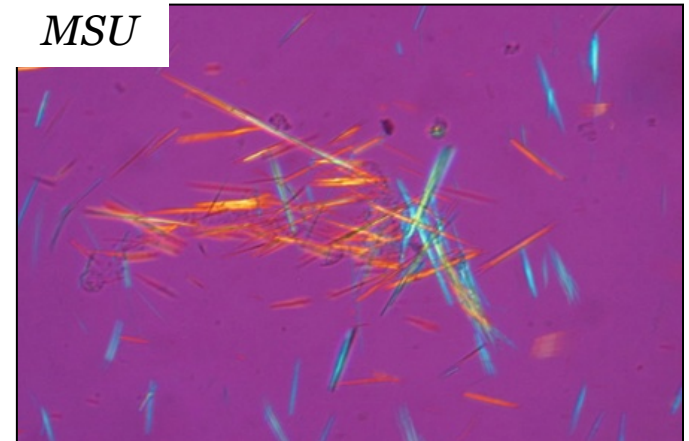
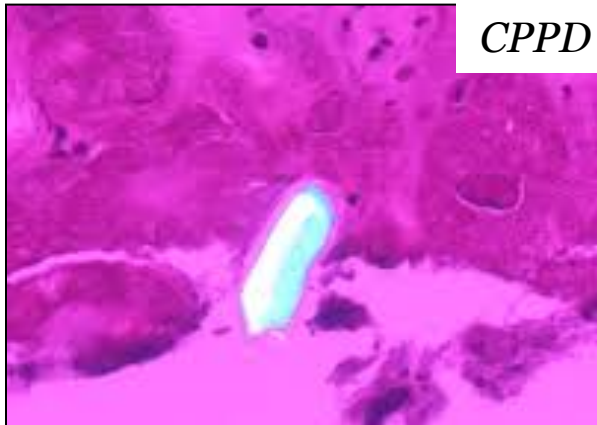


*Improves
with exercise*

Classification of Synovial Effusions

	<u>Normal</u>	<u>Non-inflammatory</u>	<u>Inflammatory</u>	<u>Septic</u>
Color	Clear	Clear to yellow	Yellow	Variable
Clarity	Transparent	Transparent	Translucent	Opaque
WBC/mm ³	<200	200-2000	2000-75000	>100,000
PMNs	< 25%	<25%	>50%	>75%

Crystals (No bacteria)



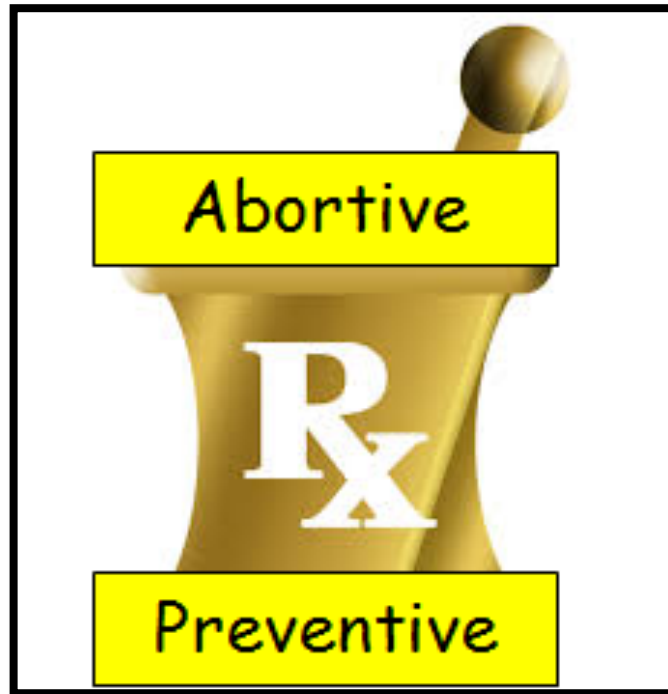
Abortive

NSAIDs

COX-2 inhibitors

Colchicine (MOA/AE)

Prednisone



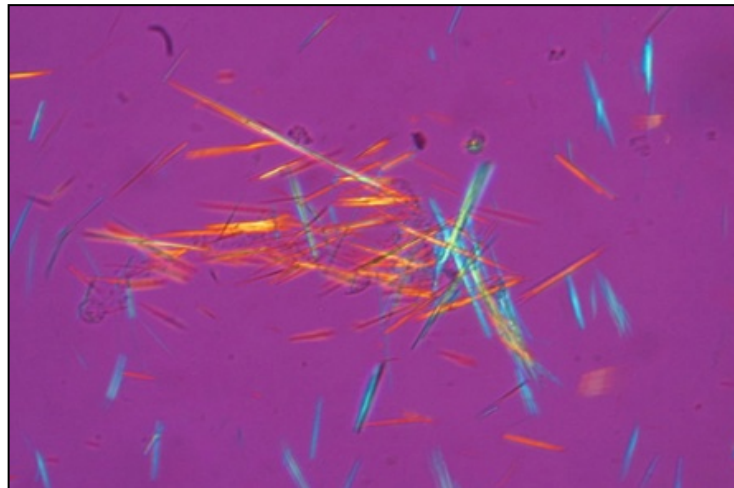
Prophylaxis

Uricosuric* agents →
Probenicid (USMLE)

Xanthine Oxidase
Inhibitors

Uricases

Crystals, Monosodium Urate



**lesinurad*

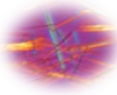

Key Differential Diagnosis of Acute Monoarthritis*

* can present with polyarthritis

MSU
CPPD

Septic

Reactive

 Acute
No fever#
(+) Crystals 

No bells and whistles:

- No bugs
- No high risk demographics
- Inflammatory LBP
- Tick exposure

Acute
(+) Fever
Predisposing 'demographic'

Subacute joint
Inflammatory LBP
Guilty with explanation

Clinically, crystal-induced arthropathy may have low grade fever but it is not a hallmark


Key Differential Diagnosis of Acute Monoarthritis*

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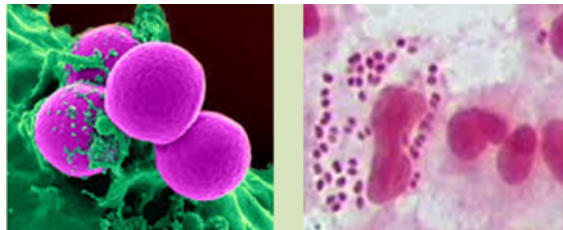
Reactive

- 
- Acute
No fever
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No bells and whistles:
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 - No high risk demographics
 - Inflammatory LBP
 - Tick exposure

- Acute + Urethritis
(+) Fever
Predisposing 'demographic'
Synovial fluid analysis:
- Purulent (>75% PMN)
 - Bugs (*Gram stain*)
 - No crystals
- Symptom Triad

Subacute joint
Inflammatory LBP
Guilty with explanation

#1 unless
information to
the contrary →



S. aureus

N. gonorrhoea

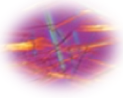

Key Differential Diagnosis of Acute Monoarthritis*

* can be polyarthritis but this is more exceptional

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CPPD

Septic

Reactive

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- 
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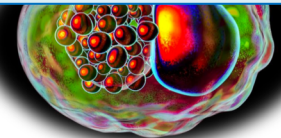
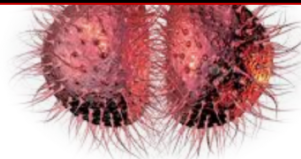
- Acute + **Urethritis**
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Subacute joint
Inflammatory LBP
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Urethritis Timing???

Concurrent

Two weeks ago



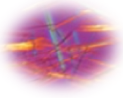

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Subacute joint
Inflammatory LBP
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Key Differential Diagnosis of Acute Monoarthritis*

* can present with **polyarthritis**

Monoarthritis



Septic

Sub-Acute + Urethritis

(+) Fever

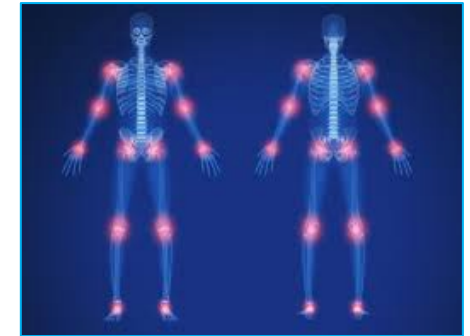
Predisposing 'demographic'

Synovial fluid analysis:

- Purulent (>75% PMN)
- Bugs (Gram stain)
- No crystals

Symptom Triad (DGI*)

1. *Migratory polyarthralgia*
2. *Tenosynovitis, multiple*
3. *Sterile pustules*



*DGI: **Disseminated** gonococcal infection

Key Differential Diagnosis of Acute Monoarthritis*

* can present with **polyarthritis**

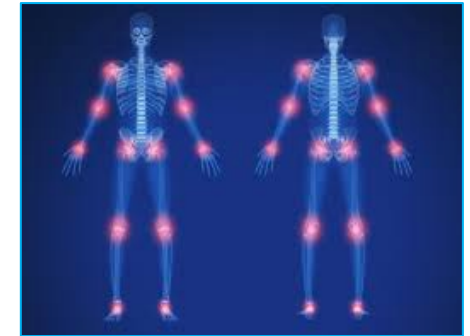
Septic

Arthritis-Dermatitis syndrome

Chlamydia does not have the derm or tendon manifestations

Symptom Triad (DGI*)

1. *Migratory polyarthralgia*
2. *Tenosynovitis, multiple*
3. *Sterile pustules*



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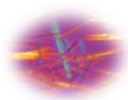
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Predisposing 'demographic'

Synovial fluid analysis:

- Purulent (>75% PMN)
- Bugs (Gram stain)
- No crystals

Symptom Triad (DGI)

Subacute joint

No *current* fever

Infectious trigger:

- Chlamydia
- Campylobacter/Shigella

Inflammatory LBP

Associations:

- Enthesopathy
- Waxy, vesicular rash

Inflammatory Back Pain

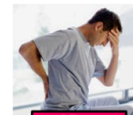


Insidious



PERSISTENCE

Persistent



<35 y.o.

*Young male
Worse in AM*



*Improves
with exercise*

Key Differential Diagnosis of Acute Monoarthritis*

Achilles tendonopathy



Enthesis (gk 'inserting'): site of attachment of tendon or ligament to bone



Keratoderma blenorrhagicum

Reactive

Subacute joint

No *current* fever

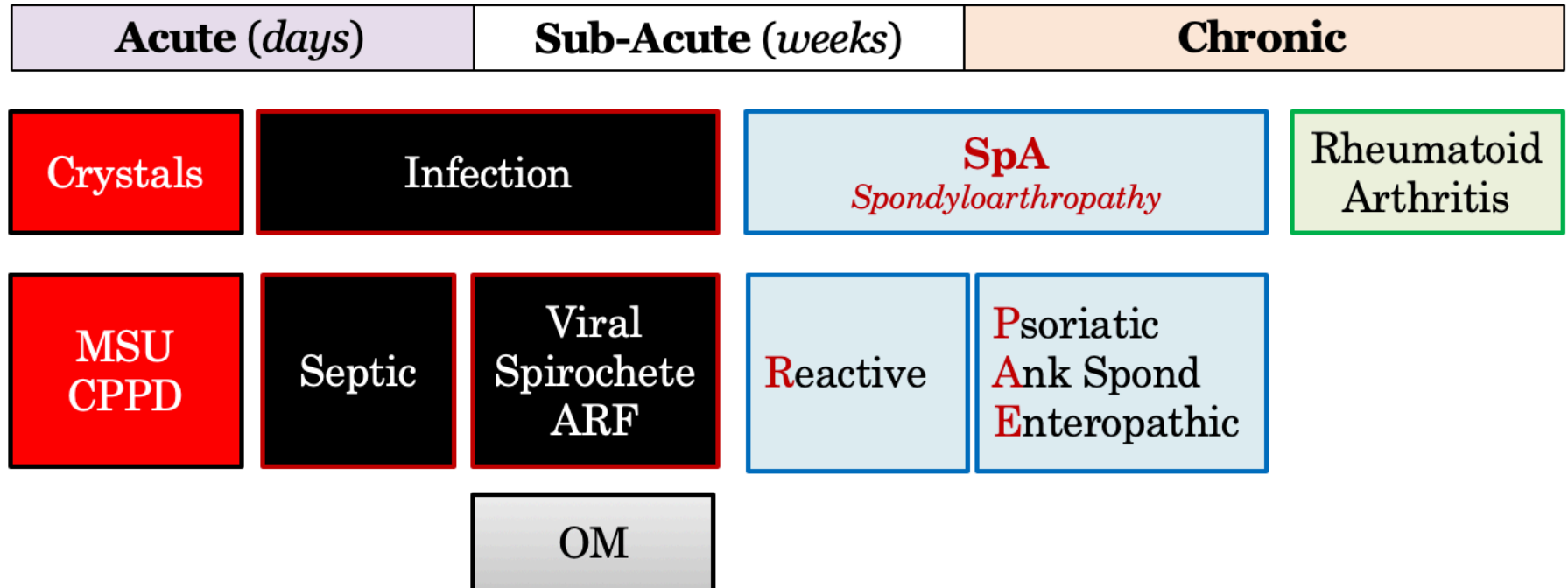
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- Chlamydia
 - Campylobacter/Shigella
- Inflammatory LBP

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- *Enthesopathy*
- *Waxy, vesicular rash*

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