Approach to Rheumatological emergencies in the ED

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Objectives

- To briefly discuss common rheumatological emergencies and their clinical presentation in the emergency department
- To discuss the approach to initial clinical evaluation and investigations for the most common rheumatological emergencies
- To discuss initial management and stabilization of patients presenting with rheumatological emergencies.
- To discuss the different disposition plans for patients with rheumatological emergencies.

Outline

- Definition of terms
- Key Rheumatological emergencies to note
- General approach to care
- Disposition plan
- Summary

Definition of terms

- Acute, life-threatening manifestations of systemic rheumatologic diseases.
- We will focus on major presentations in the ED

Septic arthritis

- Occurs when a joint space is invaded by micro-organisms mostly bacteria.
- 2-5 cases per 100,000 p.a in ED visits.
- Mortality of up to ≈11%
- Risk factors include; old age ≥ 60y, DM, prosthetics, joint surgeries etc
- Majorly caused by bacteria; Staph. Aureus being the most common culprit
- Usually mono-articular

Clinical presentation

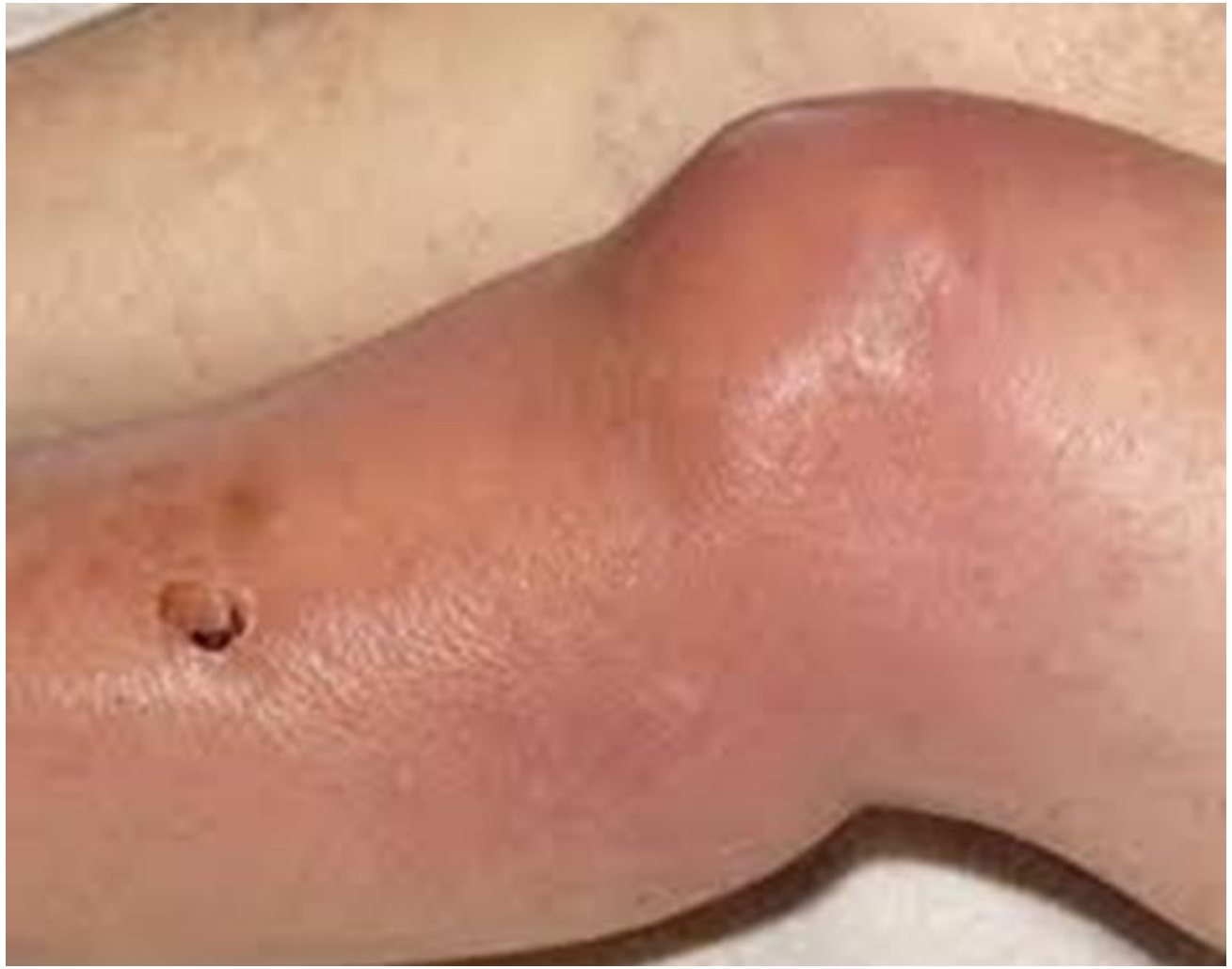
Joint pain, swelling and warmth

Fever

Joint effusion

Decreased range of motion

- If systemic dissemination, patient may be haemodynamically unstable ± in septic shock



Management

Investigations

a. Laboratory

Arthrocentesis (C&S), CBC, ESR, CRP

b. Radiological

POCUS, Plain X-ray, CT-scans

Treatment

- Primary survey in the first 5 min.
- Treat **sepsis** in the usual manner as needed.
- Treat pain
  - Administer analgesics as needed.
  - Immobilize and elevate the involved joint.
- Administer intravenous broad-spectrum antibiotic
- Consult orthopedic surgery for possible joint irrigation and debridement in the operating room.

Synovial Fluid Interpretation

	Normal	Non-inflammatory	Inflammatory	Septic			Hemarthrosis
Conditions	Normal	Osteoarthritis	Gout, pseudogout, RA, SLE, Lyme	Non-gonococcal	Gonococcal	Prosthetic	Trauma, hemophilia, joint neoplasm
Appearance	Transparent, yellow	Transparent, yellow	Cloudy	Cloudy, opaque	Cloudy, opaque	Cloudy, opaque	Bloody
Viscosity	High	High	Low	Low	Low	Low	Variable
WBC	<200	<2,000	2,000-50,000	>50,000*	>25,000	>11,000	Variable
Neutrophils %	<25%		>50%	>90%		>64%	Variable
Gram Stain	Negative	Negative	Negative	Positive (<⅔)	Positive	Positive	Negative
Culture	Negative	Negative	Negative	Positive (70%-90%)	Positive	Positive	Negative
Crystals	Negative	Negative	Positive	Negative	Negative	Negative	Negative
Lactate				>10 mmol/L			

- Radiographs of the involved joint should be obtained to evaluate for concurrent joint

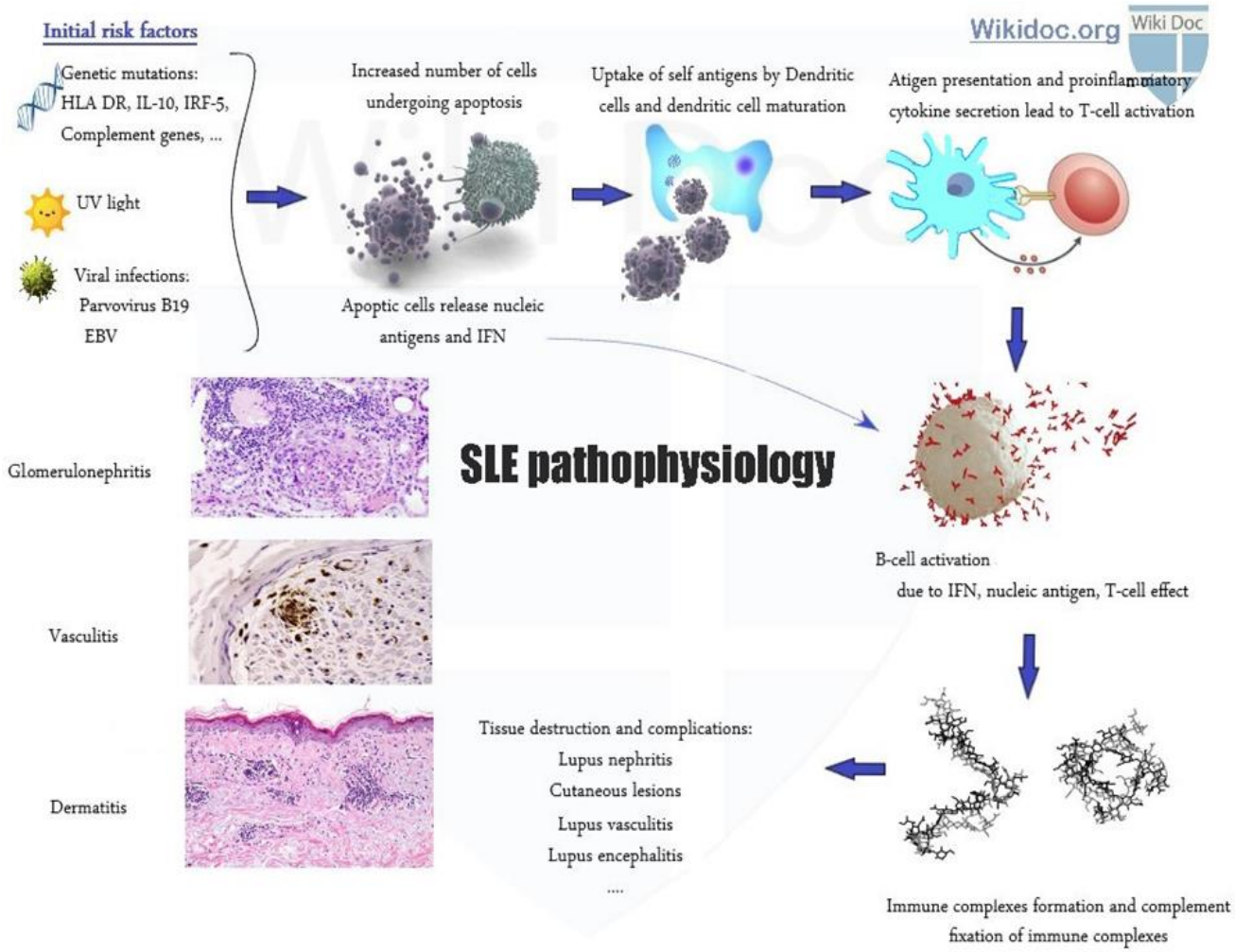
Disposition plan

- If in sepsis, consider ICU
- Orthopaedics and rheumatology consult

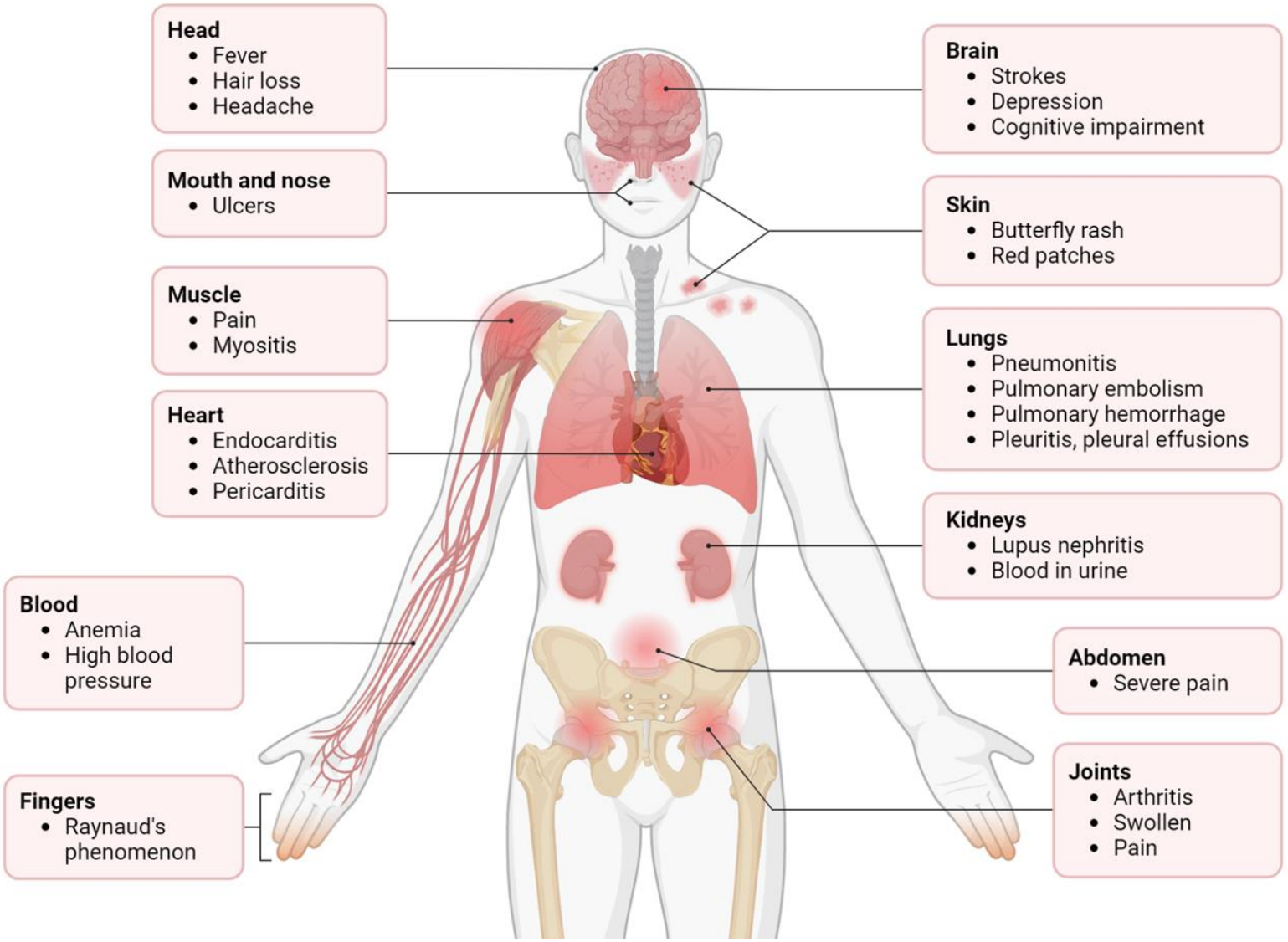
Systemic lupus erythematosus (SLE) Flare

Systemic lupus erythematosus (SLE) is a chronic autoimmune disease of unknown cause that can affect virtually any organ of the body.

Usually present to the ED following flare ups.



Clinical presentation



Complications of SLE

- Airway obstruction
- Pulmonary: Acute respiratory distress syndrome (ARDS) respiratory failure and arrest, alveolar haemorrhage
- Cardiovascular: cardiac tamponade, heart failure, arrhythmias, pulmonary embolism,
- Neurologic: Stroke, acute renal failure, Guillain-Barré–like syndrome, transverse myelitis, seizures.
- G.I: Bowel ischemia and perforation, GI bleeding, acute pancreatitis.
- Blood: Haemolytic anaemia, thrombotic microangiopathic

Approach to care in the ED

In the first five minutes, perform a thorough primary survey, taking note of the following;

- A: airway obstruction due to polyarthritis
- B: acute respiratory failure, ARDS
- C: Hemodynamic instability due to; ACS, arrythmias, tamponade, P.E
- D: Decreased LOC due to strokes, seizures
- E: rashes, fevers, urine out put, pain

Then a thorough secondary exam

Investigations and treatment

Investigations

<u>Laboratory</u>

CBC, urinalysis, CRP, ESR, Procalcitonin, Cultures, ABG, ANA, anti-dsDNA,C3/C4.

<u>Radiological</u>

POCUS, ECG/ECHO, Plain CXR, CT-scans/MRI

Treatment

- Address issues found during primary survey
- Corticosteroid therapy
- Immuno-suppression therapy

Disposition plan

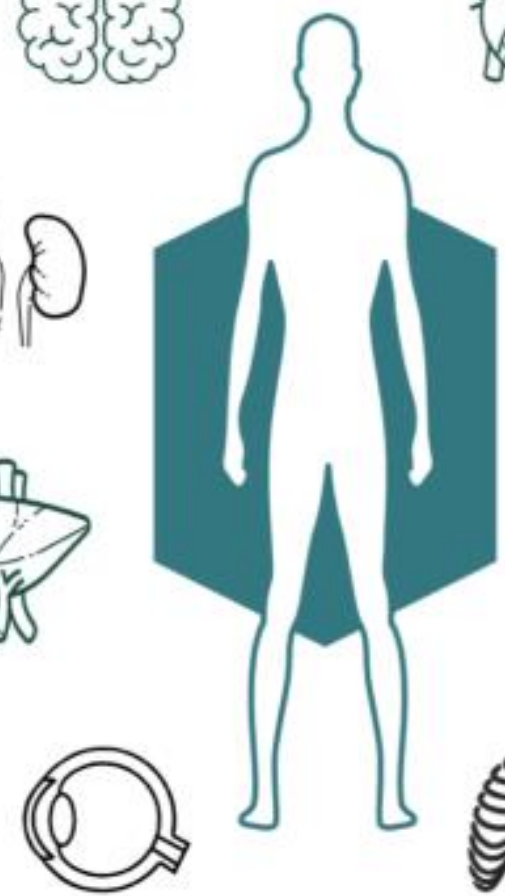
Depends on severity

- ICU if in flare with more than one deranged organ
- HDU if need for close monitoring
- Discharge through rheumatology

Scleroderma Renal crisis

- A rare, life-threatening complication of systemic sclerosis (scleroderma); a systemic autoimmune mediated connective tissue disease.
- The pathologic hallmarks; are diffuse fibrosis (*uncontrolled accumulation of collagen*) and widespread sclerosis (*thickening and narrowing) of small- and medium-sized vessels.*
- Characterized by; acute kidney injury (AKI), hypertension, ± microangiopathy.

Clinical manifestations of scleroderma renal crisis



Neurologic
Hypertensive encephalopathy
Cerebral hemorrhage
Headache/Altered mental status
Seizures

Renal
Acute kidney injury
Electrolyte abnormalities
Hematuria/Proteinuria
Decreased urine output

Gastrointestinal
Esophageal dysfunction
Elevated liver enzymes

Ophthalmologic
Hypertensive retinopathy
Altered vision

Cardiovascular
Congestive heart failure
Hypertension
Pericardial effusion
Pericarditis
Arrhythmias

Systemic
Thrombocytopenia
Microangiopathic hemolytic anemia
Fatigue
Weight loss

Pulmonary
Rapidly progressive dyspnea
Pulmonary edema
Pulmonary hemorrhage

Musculoskeletal
Skin thickening/Sclerodactyly
Swollen hands and lower extremities
Carpal tunnel syndrome
Tendon friction rubs
Polyarthritis
Raynaud's phenomenon

Approach to care in the ED

Investigations

<u>Laboratory</u>

CBC, Electrolytes, Urinalysis, RFTs, LFTs

<u>Radiological</u>

POCUS, ECHO, Plain CXR, CT-scans

- Primary survey and address any issues
- Specifically;

✓Circulation: aim to lower BP with in 72 hours max, ACE inhibitors choice meds. Add Nitroprusside if CNS involvement

✓Disability: Take note of LOC, increased risk of encephalopathy

- Dialysis

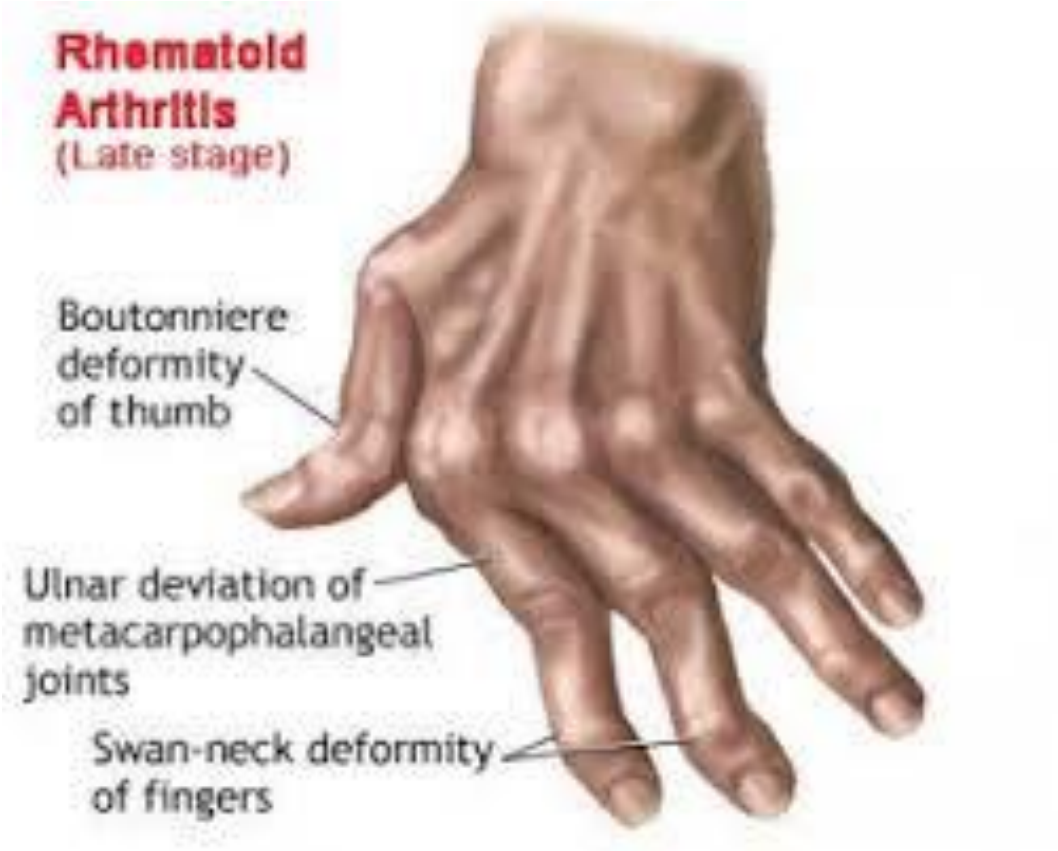
Disposition plan

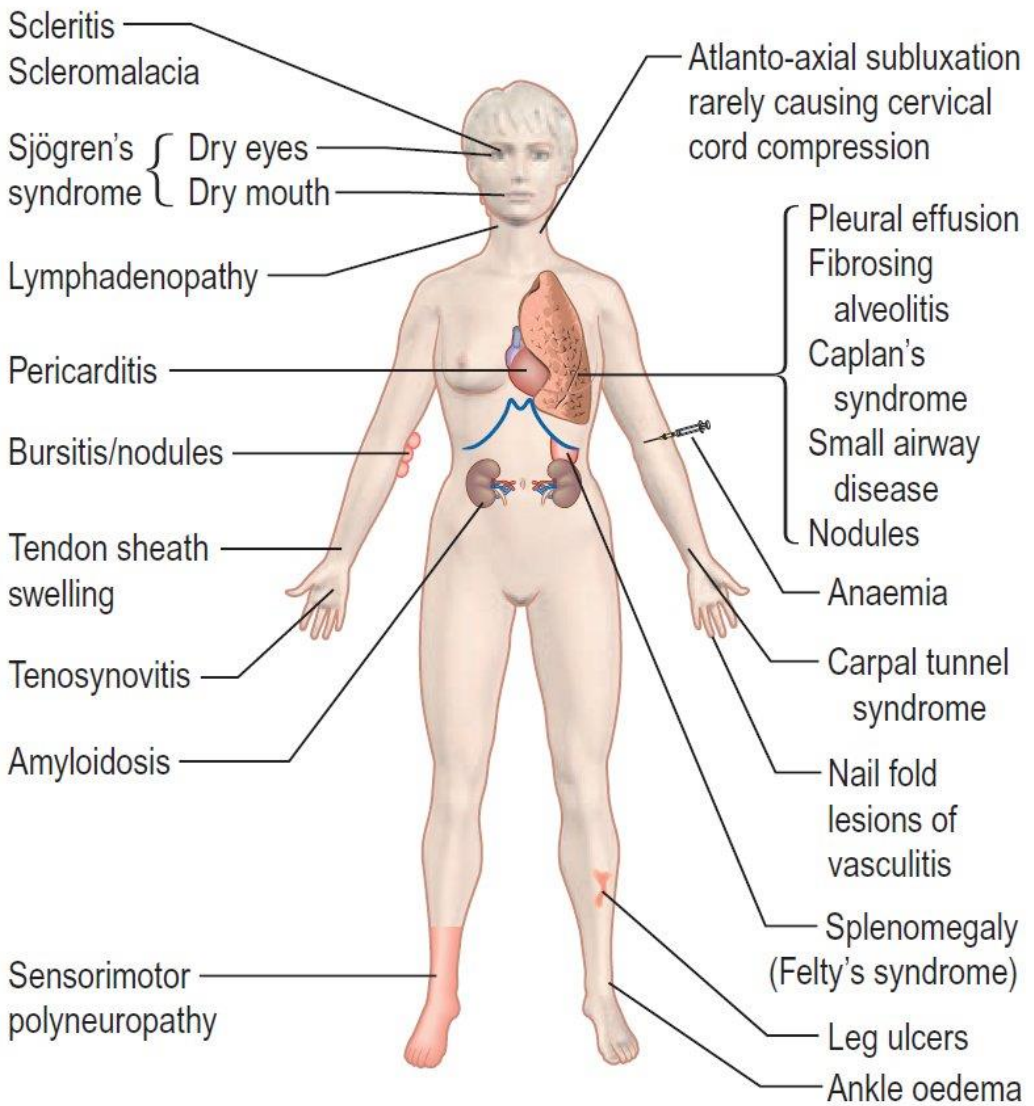
- HDU if only closer monitoring is needed
- ICU if there is need for closer monitoring and organ support
- Rheumatology

Rheumatoid arthritis

- A chronic, system autoimmune disorder that presents primarily as a polyarticular inflammatory arthritis but may also manifest with extraarticular features.
- If left uncontrolled, the disease leads to destruction of joints due to erosion of cartilage and bone, leading to joint deformities that begin in the periphery and progress to proximal joints.
- Diagnosis is clinical, and should be considered in patients with symmetrical polyarthralgia, joint stiffness, and/or synovitis lasting more than 6 weeks.

Clinical presentation





Non-articular manifestations of RA.

Complications of Rheumatoid arthritis

- Atlanto-axial subluxation,
- Cricoarytenoid arthritis
- Interstitial pulmonary fibrosis
- Accelerated coronary atherosclerosis
- Septic arthritis
- Renal failure

Summary

- Rheumatologic emergencies are rare but life-threatening.
- Early diagnosis and aggressive management improve outcomes.
- Multidisciplinary approach is often required.

References..

- Tintinalli's textbook of emergency medicine 9th edition
- Upto date
- EM:RAP
- Em.docs