POLYMYALGIA RHEUMATICA (PMR)

BOTTOM LINE

PMR is a peri-arthritis of shoulders and hips presenting as subacute symmetrical morning stiffness in older adults usually around or above the age of 70 with a predilection for Caucasian women. Patients have a high ESR and CRP. Patients should be exquisitely responsive to 15-20mg of daily prednisone and clinically normalize within 24-72 hours; if not exquisitely responsive, consider other inflammatory arthritis or other diagnoses.

EPIDEMIOLOGY

- Age: 70-80 years; does not happen under age of 50. If presenting at younger ages (ex: 50-65), carefully consider other diagnoses like seronegative RA
- Sex: Female > Males, ~2:1
- Ethnicity: Highest incidence in northern European/Scandinavian descent. Uncommon in Asian, African, Latin descent.
- Annual incidence: ~13-113/100,000 people. Prevalence ~700-900/100,000 people

CLINICAL MANIFESTATIONS

History

- Patient: Old (mean age 70s) F > M ~2:1
- Onset: Subacute (<2 weeks)
- Pattern: symmetrical proximal shoulders (70-95%) and hip girdle (groin 50-70%)
- Local: AM stiffness in shoulders and hips. Shoulder impingement. No joint swelling.
- Systemic: Constitutional symptoms, GCA
- Treatment response: near ***resolution*** of symptoms withing 24-72 hours of prednisone 15-25mg daily

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- ***PMR does not cause "weakness"; muscles are normal in PMR.***
  - Formal strength testing on exam is normal (though patients give way due to pain)
  - CK is normal, muscle biopsies are normal
  - The "myalgia" term in PMR is an antiquated term
- **GCA**
  - PMR patients who get GCA: ~15%
  - GCA patients who present with PMR: 40-60%
  - Always screen PMR patients for GCA (ex: headache, scalp tenderness, vision changes, jaw/limb claudication)

Exam

- Painful ROM in shoulders and Hips; shoulder impingement.
- Neurological exam: normal strength (gives way due to pain)
- Screen for joint swelling and perform cardiac and peripheral vascular exam to screen for GCA (peripheral and temporal pulses, bilateral brachial blood pressures, auscultation for bruits in chest, neck, and abdomen).

INVESTIGATIONS: Bloodwork

[illegible]	[illegible]	[illegible]
	Chemistries	ALT, Creatinine, CK normal
	ESR, CRP	Elevated in nearly 100% of patients, ESR 35-100mm/hour
	Antibodies	Negative (including negative RF, CCP)

ESR (mm/h)

- To measure ESR, a patients blood is placed in an upright tube and allowed to sediment for 1-hour.
- Erythrocytes carry a positively charge; proteins made during inflammation (like CRP) carry a negative charge
- During acute inflammation, more negatively charged proteins are made which bind to the positively charged erythrocytes — thus sedimenting faster and increasing ESR. Hence, ESR is reported in units of mm/h.

Factors that increase ESR	Age, Gender	Upper bound-normal ESR Men: Age/2; Upper bound-normal ESR Women: (Age+10)/2
	Anemia	Fewer +ve charged cells, therefore erythrocytes sediment faster
	CKD	More circulating negatively-charged proteins
	Obesity	↑IL-6 from adipose tissue increase circulating negatively charged CRP
Factors that decrease ESR	RBC-opathies	Sickle cell, hereditary spherocytosis…
	Cachexia	Lower amount of circulating negatively charged protein
	CLL	More of +ve charged WBCs :. Erythrocytes sediment slower

DIAGNOSIS

Polymyalgia rheumatica should be suspected in patients (typically around the age of 70) presenting with subacute symmetrical morning stiffness in their shoulders and sometimes hip girdle with signs of shoulder impingement on exam. Review and exam should include a screen for features of Giant Cell Arteritis (ex: temporal headache, jaw/limb claudication, vision changes, scalp tenderness, abnormal cardio/vascular exam) or rheumatoid arthritis (peripheral symmetrical small-joint swelling). ESR and CRP should be elevated and patients should respond exquisitely to prednisone 15-20mg/day.

DIFFERENTIAL DIAGNOSIS

Consider an alternate diagnosis if:	• Young (ex: 50-65 years); never happens <50 years old • Male • No exquisite response to prednisone 15-20mg/d after 24-48 hours • Symptoms distal to elbows and knees • Presence of Joint swelling • ESR not very high, or ESR <<< CRP
Rheumatoid arthritis	• Elderly-onset RA often presents with PMR-like presentation and is seronegative
RS3PE	• Relapsing Seronegative Symmetrical Synovitis with Pitting Edema): look for hand edema and occult malignancy
Localized repetitive strain	• Is there a history of repetitive use? Asymmetrical symptoms? Normal ESR?
Other	• Cancer: widespread bony metastases and myeloma • Drugs: statin myopathy • Hypothyroidism • Psoriatic arthritis: up to 30% of psoriasis patients can get psoriatic arthritis • Infection: HIV, TB, SBE • Fibromyalgia: diffuse generalized tenderness on exam

CLASSIFICATION CRITERIA

Polymyalgia rheumatica is a ***clinical diagnosis***. Classification criteria are not meant as diagnostic criteria to diagnosis PMR in a single specific patient. Classification criteria are a standardized way of recruiting a well-defined homogenous population of patients in research studies to ensure comparability across studies of a heterogenous disease.

Required criteria: age >50 years, bilateral shoulder aching, and abnormal CRP and/or ESR

	Points without ultrasound	Points with Ultrasound
Morning stiffness duration >45 minutes	2	2
Hip pain or limited range of motion	1	1
Absence of RF or ACPA	2	2
Absence of other joint involvement	1	1
At least 1 shoulder with subdeltoid bursitis and/or biceps tenosynovitis and/or glenohumeral synovitis (either posterior or axillary) and at least 1 hip with synovitis and/or trochanteric bursitis	NA	1
Both shoulders with subdeltoid bursitis, biceps tenosynovitis, or glenohumeral synovitis	NA	1

A score of 4 or more is categorized as polymyalgia rheumatica (PMR) in the algorithm without ultrasound (US) and a score of 5 or more is categorized as PMR in the algorithm with US

TREATMENT

Prednisone	• Prednisone 15-25mg daily; patients should have near resolution of symptoms within 24-72 hours • Taper prednisone to 10mg/d within 4-8 weeks, then taper by 1mg monthly until off • Monitoring: re-measure ESR and CRP monthly during initial taper, can spread out to q3 months if stable
Prophylaxis	• Consider bisphosphonate depending on risk factors and arrange a BMD • Consider PPI for ulcer prophylaxis

Other	• If worsening symptoms during prednisone taper, consider:
	  • Is it a true flare of PMR (concordant proximal morning stiffness with elevated ESR)?
	  • Is it osteoarthritis and or other localized pathology symptomatic with prednisone taper? Prednisone has anti-prostaglandin effects and can provide general analgesia like an NSAID; has evidence for use in treating osteoarthritis.
	  • Is it an alternate diagnosis, such as rheumatoid arthritis (see differential above)?
	• If truly refractory PMR, can consider
	  • Methotrexate, combination csDMARDs
	  • IL-6 inhibition
	  • Sarilumab: approved in United States to decrease flare rate and steroid requirement in PMR
	  • Tocilizumab: small studies showing improvement in PMR activity and steroid requirement in PMR

FURTHER READING

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