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POEMS syndrome; a rare multi-systemic disorder that overlaps common conditions leading to confirmation bias

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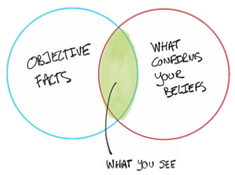
BACKGROUND

POEMS syndrome

- (Polyneuropathy, Organomegaly, Endocrinopathy, Monoclonal protein, Skin changes) is a rare disease involving different systems of the body.
- The diagnosis requires both mandatory criteria; polyneuropathy plus a monoclonal plasma cell disorder as well as one major criterion (osteosclerotic bone lesions, Castleman's disease or elevated VEGF levels) and at least one of the minor criteria (organomegaly, endocrinopathy, skin changes, or ascites)
- The exact incidence its unknown given the complexity of its clinical manifestations; it commonly presents in the 5th and 6th decade

Confirmation Bias

- Using information that supports initial diagnosis while ignoring other information that does not support the initial diagnosis



CASE/TIMELINE

- 40 year-women with a past medical history of untreated latent TB who presented to an outside hospital with progressive edema, ascites and was subsequently found to have diffuse lymphadenopathy with a benign biopsy, monoclonal gammopathy and sclerotic bony lesions.
- Transferred to our hospital for concern for pulmonary hypertension (PAH) that was confirmed by right heart catheterization.
- Ultimately she was also diagnosed with Scleroderma given sclerodactyly, Raynaud's and a +anti-Scl-70 Ab.
- Her monoclonal gammopathy revealed two small IgA lambda M-spikes but a normal hemoglobin, renal function, and kappa/lambda ratio. A review of her PET scan did not showed increased metabolic activity in the sclerotic lesions. Hematology/oncology felt this presentation was most consistent with a monoclonal gammopathy of undetermined significance (MGUS) associated with her Scleroderma.
- Eventually she was treated with epoprostenol for severe PAH. After initiation patient noted worsening of burning sensation in hands and feet that she later endorsed preceded initiation of the drug.
- A paracentesis revealed a serum-ascites albumin gradient (SAAG) of 0.7 consistent with a non-portal hypertension etiology and inconsistent with PAH being the sole etiology of ascites. Analysis of ascitic fluid was negative for malignancy or TB. A later paracentesis confirmed a low SAAG.
- An elevated VEGF solidified the diagnosis

POEMS MATCHING CRITERIA

MANDATORY CRITERIA *(both required)*

- **Polyneuropathy**
- **Monoclonal plasma cell disorder**

MAJOR CRITERIA *(one required)*

- **Osteosclerotic bone lesions**
- Castleman's disease or
- **Elevated VEGF**

MINOR CRITERIA *(one required)*

- Organomegaly (hepatomegaly, **splenomegaly** or **lymphadenopathy**)
- Endocrinopathology
- Skin changes (**hyperpigmentantion**, hemangioma, **Sclerodermoid changes, Raynaud phenomenon**)
- Extravascular volume overload (**ascites**, pleural effusion, lower extremity edema)
- Hematologic features (polycythemia, thrombocytosis)
- CNS involvement (Papilledema)

OTHER SIGNS AND SYMPTOMS

- Renal (acute and chronic renal failure)
- Cardiovascular (arterial and venous thrombosis, stroke)
- Pulmonary involvement (**pulmonary hypertension**)

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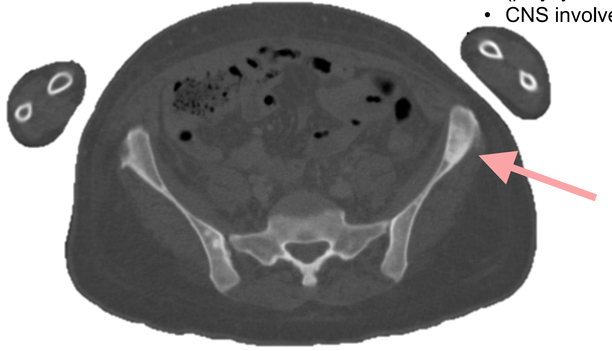
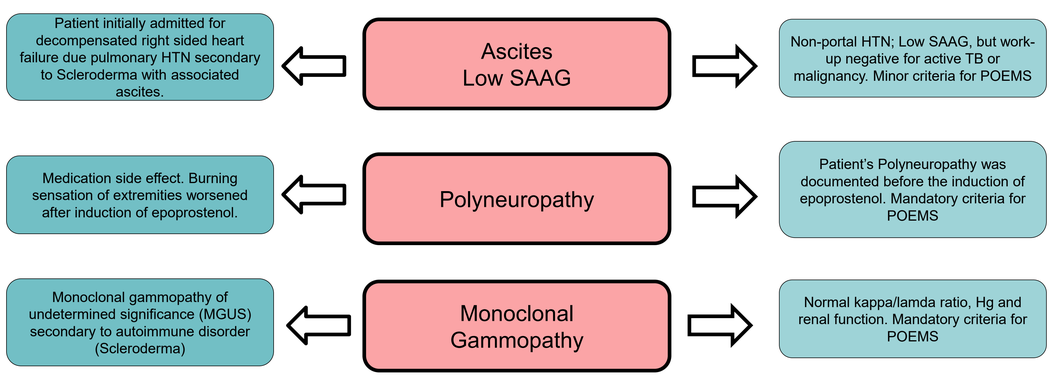


Peach arrow; sclerotic bone lesions.

CONFIRMATION BIAS



DISCUSSION

- Our patient's peripheral neuropathy was assumed to be a side effect of PAH medication and it was not until later that it was recognized that her symptoms predated epoprostenol.
- Her low-level monoclonal gammopathy was attributed to her autoimmune disorder.
- Her low-SAAG ascites was inconsistent with portal hypertension, but defining an alternative etiology for this was not initially successful.
- In retrospect, our patient met mandatory, major and minor criteria even before her VEGF returned elevated. Inconsistencies of clinical manifestations with lab work should highlight the possibility of confirmation bias and should alert the clinician to consider alternative diagnoses.

TAKE HOME POINTS

- This case highlights the tendency towards confirmation bias in patients with a new diagnosis of a rare disease, our patient's signs and symptoms that arose from Scleroderma and its treatment obscured her presentation with POEMS syndrome.
- POEMS syndrome is a rare cause of low-SAAG ascites
- Consider POEMS in any patient signs and symptoms of polyneuropathy and monoclonal gammopathy

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