VASCULITIS IN THE ELDERLY

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Case:

- 86 year old male presenting to the ED for presumed sepsis after a reported sinus infection by his PCP three days prior. The patient states that he was being treated with Cefdinir and supportive therapy. At the time of admission his temperature is 98.2 F, HR 96-110, BP 140/97, RR: 18, SpO2 98 %. His Physical exam is noted for a **ill general appearance** as well as **bilateral eye conjunctival injections**. His mouth was noted to have **blue discoloration of the gingiva**. Finally...
Case:

- Skin exam was noted to have: *Fine blue punctate lesions on the tips of the digits of the hands bilaterally.*
Case:

\[ \begin{array}{c}
25! \\
14 \\
42 \\
270 \\
\end{array} \]
CASE

Lactate: 3.52
Case:

- Imaging showed a questionable left lobe infiltrate as well as a non specific density in the right lower lung fields. Possible pneumonia / please correlate clinically.
Case:

- The patient was admitted to the medicine service for *community acquired pneumonia with sepsis* and an *acute kidney injury*. The patient was started on IV Rocephin and doxycycline and placed on the regular hospital ward. Patient failed to improve and by day 2 of his hospital admission...
Case:
Case:

- The patient was starting to develop cutaneous non blanching petechia and purpura. Associated with his worsening rash were worsening of his respiratory status. Nursing reports that the patient is becoming increasingly dyspneic and that his O2 requirement is now 8 L (Room air on admission)
Case:

Stat CT shows Pulmonary Hemorrhage
Case:

- At this point:
- Pt has clinically deteriorated / Rapid Response – he is now intubated and in the ICU
- BLOOD CX show NO GROWTH
- CT HEAD ordered for Altered Mental Status
Case:
Case:

- Findings: Findings: Ventricles and sulci are mildly enlarged diffusely compatible with atrophy. There is decreased periventricular white matter attenuation consistent with age-related white matter small vessel ischemic disease. No mass, mass effect, hemorrhage or abnormal calcification is demonstrated.

  Visualized bones and their sinuses are remarkable for air-fluid levels in the left maxillary and sphenoid sinuses. Mucosal thickening in the left maxillary sinus and right maxillary sinus and a few bilateral ethmoid air cells.

- Impression

  IMPRESSION: Atrophy and age-related white matter small vessel ischemic disease. No evidence of acute intracranial abnormality.

  Bilateral paranasal sinusitis.
Case:

- The differential broadens: stat ESR, CRP come back at 100 and 25 respectively.
- Per progress notes: the differential begins to discuss the strong possibility of vasculitis and the underlying process driving the patient's clinical deterioration.
- A review of the patient's initial labs from the ED:
  - Urine notable for 50-100 RBC on HPF
Case:

- Patient continues to remain in the ICU. It is now hospital day 3. A rheumatological panel has been ordered however it will take approximately 1 to 2 weeks for the results – Labs sent out to another facility.
- Pt started on IV glucocorticoids 1 g loading / maintenance rate of 2 mg/kg/day
- Pt started on Cyclophosphamide 2 mg/kg/day
- Pt failed to improve and continued to deteriorate.
Case:

- Day 7 of the Hospital. Family meeting regarding the poor prognosis and very low likelihood of a meaningful recovery. Family stated that they knew very well the patient’s wishes about intubation and being on a ventilator long term. Family favored Comfort Care.
A Case Review:

- By day 2 the primary care team suspects a diffuse vasculitis process. Pt antibiotics were discontinued and pt was started on IV solumedrol.

- Rheumatologic Panel that resulted 2 weeks after the pt passed away were notable for the following:
  - *Serine Protease IGG: 859!* *(Highly suggestive of a c ANCA process)*
  - *Myeloperoxidase Ab: 0*
Vasculitis in the Elderly

■ Objectives:
  - Review the most common forms of Vasculitis in the Elderly using Giant Cell Arteritis and Granulomatosis with Polyangiitis
  - Review general signs and symptoms
  - Discuss current Diagnostic Laboratory Testing
  - Review current Treatment Regimens
European Medicines Agency Algorithm for Granulomatosis with Polyangiitis

- **Upper Airway:** Bloody nasal discharge / sinusitis
- **Lower Airway:** Radiographic findings of pulm infiltrates, nodules, cavitations
- **Renal:** glomerulonephritis / hematuria w. RBC casts or > 10 RBC per HPF
- **Lab:** if C-ANCA positive / biopsy not required
Vasculitis in the Geriatric Population
Granulomatosis with Polyangiitis

- Granulomatous inflammation of the small and medium sized vessels

- Approximately 90% of patients present with a upper or lower airway chief compliant
Vasculitis in the Geriatric Population
Granulomatosis with Polyangiitis

- Highly associated with cANCA and pANCA
- cANCA: PR3
- pANCA: MPO
- 75-90% of pts have Pr3-ANCA
Vasculitis in the Geriatric Population
Granulomatosis with Polyangiitis

- Biopsy is the Gold Standard
- However, biopsy may be impractical or impossible
- Various Rheumatologic Societies score clinical / lab findings
  - European Medicine Agency
  - American College of Rheumatology
Vasculitis in the Geriatric Population
Granulomatosis with Polyangiitis

Management

- Pts with respiratory compromise should be managed in the ICU setting (e.g. pulmonary hemorrhage)
- Organ threatening or Life Threatening: regimen of Glucocorticoids with combination of Cyclophosphamide or Rituximab
- IV fluid bolus to treat distributive shock. Epinephrine or dopamine drip may be used if shock persists
- Pt with a significant decline in their renal function may be candidates for plasma exchange

- **Non-Organ** threatening: combination of Glucocorticoids and methotrexate. May substitute methotrexate for Rituximab if pt is unable to tolerate methotrexate

- Cyclophosphamide oral dosing: 1.5 – 2 mg/kg per day
- Monthly IV cyclophosphamide: 3 – 5 mg/kg twice weekly
Patient with new GPA or MPA

Is the patient pregnant?

Yes

No

Does the patient have ANY features of organ-threatening or life-threatening disease?

Organ-threatening or life-threatening features include, but are not limited to, the following:
- Active glomerulonephritis
- Pulmonary hemorrhage
- Cerebral vasculitis
- Progressive peripheral or cranial neuropathy
- Orbital pseudotumor
- Gastrointestinal bleeding due to vasculitis
- Pericarditis
- Myocarditis

Refer immunologist in patient with GPA or MPA, and to the

Initial therapy in patient with GPA or MPA, and to the

Decide between cyclophosphamide and rituximab

Cyclophosphamide

Does the patient have a reason to treat with plasma exchange?

Yes

No

Cyclophosphamide, glucocorticoids, and plasma exchange

Rituximab and glucocorticoids

No

Rituximab

Does the patient have a reason not to use methotrexate?

Yes

No

Rituximab and glucocorticoids

Methotrexate and glucocorticoids
Vasculitis in the Geriatric Population
Granulomatosis with Polyangiitis

Teaching points

Summary of European Medicines Agency Algorithm

Guideline 1: Stage the severity of the underlying cANCA mediated vasculitis. Non life threatening can include Methotrexate with Glucocorticoids

Guideline 2: Immunosuppressants including glucocorticoids/cyclophosphamide/rituximab all have a central role in attempting to achieve remission

Guideline 3: Biopsy may not have to be performed if the criteria for cANCA mediated process are all met. Immunosuppressant Tx should be initiated as soon as possible to increase the chance of obtaining remission.

Educating Pt and HCPs about complex immunological rheumatologically diseases can be challenging. Questions can be addressed during family meetings and ensuring that labs, imaging, treatments are explained in easy to understand language that CLEARLY explains the severity and intensity of various vasculitis diseases.
Vasculitis in the Geriatric Population

Large Vessel Vasculitis: GIANT CELL ARTERITIS

- AKA Temporal Arteritis
- Estimated incidence of 18.8 cases /100,000 person – years
- Symptoms: headache, jaw or tongue numbness, scalp tenderness, fever
- Late course: vision may be affected if ocular circulation is compromised
- Estimated 15% of cases may have limb claudication
Vasculitis in the Geriatric Population

Large Vessel Vasculitis: GIANT CELL ARTERITIS

- American College of Rheumatology (ACR) Criteria:
  - *Pt has GCA if 3 of 5 criteria are positive*
  - *3 or more yields 93% sensitivity and 91% specificity (ACR 1990 Criteria for Classification of GCA)*
    - Age >49
    - New Headache
    - Temporal artery abnormality: tenderness, absent pulse, thickening
    - Abnormal temporal artery biopsy
    - ESR >49mm/h
Vasculitis in the Geriatric Population

Large Vessel Vasculitis: GIANT CELL ARTERITIS

- Physical Exam: nodularity, tenderness, faint or absent pulses in afflicted vessels
- Lab testing: ESR elevation occurs in approximately 80% of cases
- Gold Standard: Temporal artery biopsy

Should be done as soon as possible, but treatment with steroids SHOULD NOT BE DELAYED while awaiting biopsy.

Positive biopsies have been reported 2-6 weeks after beginning steroids (Ray-Chaudhuri. Br J Ophthamol 2002;86;530-2)

Biopsy can be done by different surgical specialties: Vascular, plastic, general, ophthalmology

Outpatient procedure, low-risk

Biopsy should be >1-2cm, unilateral +/- bilateral

Risk of neuro-opthalmologic complications correlates with positive TAB and severity of findings on bx
Vasculitis in the Geriatric Population

Large Vessel Vasculitis: GIANT CELL ARTERITIS

Negative Biopsy

■ **DOES NOT ABSOLUTELY RULE OUT DIAGNOSIS**
  - *Skip lesions*
  - *Suboptimal Samples*
  - *Some surgeons may use Temporal Artery US to assist in bx, but not a substitute.*

■ If high suspicion, continue to treat while sorting out diagnosis
  - *May need bx of other side*
  - *May need further imaging of larger arteries*
    ■ *CTA, MRA*
  - *Referral*
Vasculitis in the Geriatric Population
Large Vessel Vasculitis: GIANT CELL ARTERITIS

- Glucocorticoids are the mainstay of treatment
  - Dosing, tapering schedule, duration depends on severity of illness
- Additionally
  - ASA 81mg
  - Bisphosphonate, Calcium, Vitamin D
  - Proton Pump Inhibitor
  - Probable referral to Rheumatology
Vasculitis in the Geriatric Population
Large Vessel Vasculitis: GIANT CELL ARTERITIS

- Uncomplicated- no visual symptoms or jaw claudication
  - *Begin Prednisone 60mg po qd*
- Complicated- visual symptoms/evolving visual loss
  - *Methylprednisolone IV, 500mg-1g daily for 3 days*
- Established vision loss-
  - *At least 60mg Prednisone daily*
Vasculitis in the Geriatric Population
Large Vessel Vasculitis: GIANT CELL ARTERITIS

- Treat with initial dose for 4 weeks, until symptoms resolve and inflammatory markers improve
- Then,
  - Reduce dose by 10mg q 2 weeks to 20mg
  - Reduce by 2.5mg q 2-4 wks to 10mg
  - Reduce by 1mg q 1-2 months
Relapse of GCA

- Increase to pre-relapse dosage of prednisone
- If jaw claudication or vision changes, consider IV steroids
- Consider addition of adjunctive methotrexate
  - Some studies have shown that adding MTX allows lower total dose of steroids, and may lower relapse risk
General Practitioner Thoughts

- **Comorbid pathology**
  - *PT may have other illnesses that may cloud the signs and symptoms of a vasculitic process*
  
  - *E.g. COPD may alter radiographic findings; pulmonary coin may be thought to represent malignancy as in our case.*
General Practitioner Thoughts

- Infection
  - Leading cause of morbidity and mortality due to immunosuppression
  - Risk increases when Prednisone is combined w. Cytotoxic agent
General Practitioner Thoughts

- Risk of adverse affects from medication
  
  - *Geriatric population is at higher risk from adverse affects, polypharmacy, etc.*
  
  - *Minimize this risk by close monitoring and close review and inspection of med-list*
General Practitioner Thoughts

- **GLUCOCORTICOIDS**
  - Estimated 35% - 65% have adverse affects from medication.
  - Risk of adverse affects increase with the elderly
  - E.g. Osteoporosis: Encourage moderate weight training
  - E.g. Diabetes Mellitus: Glucocorticoids appears to double the risk for developing DM 2
    - May consider diet and nutritional counseling
  - E.g. Cataracts are strongly associated with pt on systemic glucocorticoids
    - May consider Ophthalmologic monitoring at regular internals
References


