Palpable Purpura: A Case Study

Christopher Kennedy DO, S. Whitney Courtney DO, Eric Radcliffe MD, and Lianne Ghalayini, OMS III
United Hospital Center Family Medicine Residency, Bridgeport, WV

History of Present Illness
The patient is a 68 year old male with a history of type II diabetes mellitus and peripheral vascular disease that presents as an established patient to clinic with a new onset of a rash in the bilateral upper extremities and lower extremities that is non pruritic and non-painful. He stated the rash had worsened over the a few days. Denied any oral mucosal lesions or ulcers. Denied bowel/bladder habit changes, fevers/chills. He did describe a gastrointestinal illness he experienced a few weeks prior to onset of rash that involved diarrhea 5-6 times a day, non bloody in nature. Those symptoms resolved over time. He denied current abdominal pain, denies joint pain or swelling, or hematuria.

Physical Exam
BP 114/70 | Pulse 83 | Temp 36.3 °C (97.3 °F) | SpO2 96%
• General appearance: alert, oriented x 3, cooperative, not in apparent distress, appearing stated age
• Lungs: clear to auscultation bilaterally without wheezing, rales, or rhonchi
• Heart: regular rate and rhythm, S1, S2 normal, no murmurs appreciated on auscultation
• Abdomen: soft, non-tender, non-distended. Bowel sounds present and appropriate
• Integumentary: Scattered minimally palpable purpuric rash noted on the lower extremities diffusely with scattered lesions throughout, and on the extremity surface of bilateral upper extremities, nonpruritic and non tender to palpation, non-blanchable; no rash noted on torso, no rash noted on the face or scalp, no rash noted on the palms of the hands or the plantar aspect of the feet. Scattered ecchymos noted on the dorsal aspect of the right foot without obvious surrounding induration or erythema, no purulence or fluctuance appreciated
• Vascular: +1 edema noted bilaterally, capillary refill less than 3 seconds, +1/4 pedal pulse bilaterally

Labs and Pathology
• WBC 10.3 (H), HGB/HCT 15.3/45.6, Platelets 262
• ESR 34 (H), CRP (H)
• Na 133 (L), K 4.9, Cl 96 (L), CO2 24, BUN 29 (H), Cr 1.81 (H), glucose 259 (H) Ca 9.8
• Urinalysis performed was within normal limits
• Punch biopsy of rash from both the right and lower left legs, revealed leukocytoclastic vasculitis

Diagnosis Evaluation
• High clinical suspicion
• IgA deposition noted on immunofluorescence microscopy of the skin lesion biopsy.
• Complete blood count with differential
• Cytopenia may suggest underlying connective tissue disease
• Leukocytosis can suggest infection or hemolytic anemia
• Urinalysis with microscopy
• Biopsy for direct immunofluorescence
• If cause of persistent vasculitis (>4 weeks) is unclear or that have symptoms that suggest extracutaneous symptoms:
• Hepatitis B and C serologies
• Serum complement levels (C3, C4)
• ANA, anti-dsDNA, anti-Ro, anti-La, Anti-RNP, and anti-Smith antibodies
• Rheumatoid factor
• Serum cryoglobulins
• ANCA
• Positive ANCA are helpful in the correct clinical context, but do not confirm or eliminate diagnosis of ANCA associated vasculitis
• HIV antibody
• Biopsy for direct immunofluorescence
• Essential component of evaluation of cutaneous vasculitis in adults with small vessel vasculitis:
• Direct immunofluorescence utilizes labeled antibodies to identify immunoglobulin and complement depositions within the skin
• Important particularly for determining IgA vasculitis, and distinguishes immune mediated vasculitides from pauci immune vasculitis. It demonstrates deposition of C3, IgM, IgA, and/or IgG in a granular pattern within the vessel walls.
• Deposition is highest in skin lesions present for <48 hours.
• 48-72 hours after lesion onset, direct immunofluorescence will be negative for immunoglobulins. Only C3 will be detected >72 hours.

Pathophysiology
• Cutaneous small vessel vasculitis (CSVV) is mediated by immune complex deposition in the small vessels, mediated by neutrophils and primarily affecting the post capillary venule. However immunologic, genetic, and environmental factors all play a factor in the manifestation of leukocytoclastic vasculitis.
• Many medications can cause CSVV including
• Penicillin, Cephalosporins, Sulfonamides, and others. These drugs act as haptons stimulating an immune response
• Infections such as hepatitis B or C virus, chronic bacteremias, and HIV may also be associated with CSVV.
• Lesions for greater than 48-72 hours may have a predominantly mononuclear rather than neutrophilic infiltrate.
• Palpable purpura can be explained by the infiltrate of leukocytes (palpability) and the resulting extravasation of RBCs from the damaged blood vessel (purpura).

Management
• The patient was referred to rheumatology where additional labs performed in that office.
• IgA 575 (H), IgM 36 (L), IgG 1.106, C3 182 (H), C4 33, CRP 14.4, negative for cryoglobulins, negative rheumatoid factor, HIV, SS-A/Ro and SS-B/La antibodies, negative ANA, negative ANCA, urinalysis negative
• He was given the final diagnosis by the rheumatologist of leukocytoclastic vasculitis and was placed on a high dose steroid taper regimen
• 60 mg daily for 1 week, 50 mg daily for 1 week, 40 mg daily for 1 week, 30 mg daily for 1 week, 20 mg daily for 1 week, and finally 10 mg daily for one week
• After tapering from 60 mg to 50 mg of prednisone after one week, the result of the high dose steroids in treatment is shown in the figure to the right. There was noted improvement in palpable purpura.
• Higher dose steroids were given in caution with close monitoring of patient’s blood glucose. Patient continues routine follow-up with Rheumatology

References
• • ANCA, • Positive ANCA are helpful in the correct clinical context, but do not confirm or eliminate diagnosis of ANCA associated vasculitis
• HIV antibody • Biopsy for direct immunofluorescence • Essential component of evaluation of cutaneous vasculitis in adults with small vessel vasculitis:
• Direct immunofluorescence utilizes labeled antibodies to identify immunoglobulin and complement depositions within the skin
• Important particularly for determining IgA vasculitis, and distinguishes immune mediated vasculitides from pauci immune vasculitis. It demonstrates deposition of C3, IgM, IgA, and/or IgG in a granular pattern within the vessel walls.
• Deposition is highest in skin lesions present for <48 hours.
• 48-72 hours after lesion onset, direct immunofluorescence will be negative for immunoglobulins. Only C3 will be detected >72 hours.

Discussion
• Diagnosis of cutaneous leukocytoclastic vasculitis first introduced in 1994 at Chapel Hill Conference
• Other clinical symptoms of vasculitis include but are not limited to weight loss, dyspnea, hemoptysis, paresthesias, fever/chills. This patient did not experience these.
• No good diagnostic definitions of leukocytoclastic vasculitis.
• Incidence higher in men than women.
• Peak incidence around age 65-74 years of age
• Treatment options discussed in literature showing evidence of treatment benefit include but not limited to systemic steroids, colchicine, dapsone, Rituximab and IVg.
• Treatment options discussed in literature showing no evidence of treatment benefit include but not limited to antihistamines, leg elevation.
• Prognosis is often described in the literature as favorable in disease states limited to cutaneous involvement, with near majority of patients having resolution of symptoms within 6 months. Possible for relapsing disease course as well.