179 VASCULITIS

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PATIENT STORY

A 21-year-old woman presented with a 3-day history of a painful purpuric rash on her lower extremities (Figure 179-1 and Figure 179-2). The lesions had appeared suddenly, and the patient had experienced no prior similar episodes. The patient had been diagnosed with a case of pharyngitis earlier that week and was given a course of clindamycin. She had not experienced any nausea or vomiting, fever, abdominal cramping, or gross hematuria. Urine dipstick revealed blood in her urine, but no protein. The typical palpable purpura on the legs is consistent with Henoch-Schönlein purpura (HSP).

INTRODUCTION

Vasculitis refers to a group of disorders characterized by inflammation and damage in blood vessel walls. They may be limited to skin or may be a multisystem disorder. Cutaneous vasculitic diseases are classified according to the size (small versus medium to large vessel) and type of blood vessel involved (venule, arteriole, artery, or vein). Small- and medium-size vessels are found in the dermis and deep reticular dermis, respectively. The clinical presentation varies with the intensity of the inflammation, and the size and type of blood vessel involved.

SYNONYMS

Hypersensitivity vasculitis is also known as leukocytoclastic vasculitis. HSP is a type of leukocytoclastic vasculitis.

EPIDEMIOLOGY

- HSP (Figure 179-1 to Figure 179-3) occurs mainly in children with an incidence of approximately 1 in 5000 children annually. It results from immunoglobulin (Ig) A-containing immune complexes in blood vessel walls in the skin, kidney, and GI tract. HSP is usually benign and self-limiting, and tends to occur in the springtime. A streptococcal or viral upper respiratory infection often precedes the disease by 1 to 3 weeks. Prodromal symptoms include anorexia and fever. Most children with HSP also have joint pain and swelling with the knees and ankles being most commonly involved (Figure 179-3). In half of the cases there are recurrences, typically in the first 3 months. Recurrences are more common in patients with nephritis and are milder than the original episode. To make the diagnosis of HSP, establish the presence of 3 or more of the following:
  - Palpable purpura
  - Bowel angina (pain)
- GI bleeding
- Hematuria
- Onset ≤ 20 years
- No new medications

- Some patients with systemic lupus erythematosus (SLE) (Figure 179-4 and Figure 179-5), rheumatoid arthritis (RA), relapsing polychondritis, and other connective tissue disorders develop an associated necrotizing vasculitis. It most frequently involves the small muscular arteries, arterioles, and venules. The blood vessels can become blocked leading to tissue necrosis (Figure 179-4 and Figure 179-5). The skin and internal organs may be involved.

- Leukocytoclastic vasculitis (Figure 179-6 to Figure 179-8) is the most commonly seen form of small vessel vasculitis. Prophylactic symptoms include fever, malaise, myalgia, and joint pain. The palpable purpura begins as asymptomatic localized areas of cutaneous hemorrhage that become palpable. Few or many discrete lesions are most commonly seen on the lower extremities but may occur on any dependent area. Small lesions itch and are painful, but nodules, ulcers, and bullae may be very painful. Lesions appear in crops, last for 1 to 4 weeks, and may heal with residual scarring and hyperpigmentation. Patients may experience 1 episode (drug reaction or viral infection) or multiple episodes (RA or SLE). The disease is usually self-limited and confined to the skin. To make the diagnosis, look for presence of 3 or more of the following:
  - Age older than 16 years
  - Use of a possible offending drug in temporal relation to the symptoms
  - Palpable purpura
  - Maculopapular rash
  - Biopsy of a skin lesion showing neutrophils around an arteriole or venule

- Systemic manifestations of leukocytoclastic vasculitis may include kidney disease, heart, nervous system, GI tract, lungs, and joint involvement.

**ETIOLOGY AND PATHOPHYSIOLOGY**

- Vasculitis is defined as inflammation of the blood vessel wall. The mechanisms of vascular damage consist of either a humoral response, immune complex deposition, or cell-mediated T-lymphocyte response with granuloma formation.
- Vasculitis induced injury to blood vessels may lead to increased vascular permeability, vessel weakening, aneurysm formation, hemorrhage, intimal proliferation, and thrombosis that result in obstruction and local ischemia.
- Small-vessel vasculitis is initiated by hypersensitivity to various antigens (drugs, chemicals, microorganisms, and endogenous antigens), with formation of circulating immune complexes that are deposited in walls of postcapillary venules. The vessel-bound immune complexes activate complement, which attracts polymorphonuclear leukocytes. They damage the walls of small veins by release of lysosomal enzymes. This causes vessel necrosis and local hemorrhage.
FIGURE 179-5 Vasculitis ulcer on the leg of a woman with systemic lupus erythematosus. (Courtesy of Everett Allen, MD.)

FIGURE 179-6 Leukocytoclastic vasculitis on the leg of a woman. (Courtesy of Richard P. Usatine, MD.)

FIGURE 179-7 Very palpable purpura on the leg of a middle-aged woman with leukocytoclastic vasculitis. (Courtesy of Eric Kraus, MD.)

FIGURE 179-8 Vasculitis on the abdomen of a middle-aged woman who also has the vasculitis on her legs. (Courtesy of Everett Allen, MD.)
Small-vessel vasculitis most commonly affects the skin and rarely causes serious internal organ dysfunction, except when the kidney is involved. Small-vessel vasculitis is associated with leukocytoclastic vasculitis, HSP, essential mixed cryoglobulinemia, connective tissue diseases or malignancies, serum sickness and serum sickness-like reactions, chronic urticaria, and acute hepatitis B or C infection.

Hypersensitivity (leukocytoclastic) vasculitis causes acute inflammation and necrosis of venules in the dermis. The term leukocytoclastic vasculitis describes the histologic pattern produced when leukocytes fragment.

**RISK FACTORS**

- Viral infections
- Autoimmune disorders
- Drug hypersensitivity
- Cocaine (adulterated with levamisole) (Figure 179-9) (Chapter 239, Cocaine for additional images and information)

**DIAGNOSIS**

Initially, determining the extent of visceral organ involvement is more important than identifying the type of vasculitis, so that organs at risk of damage are not jeopardized by delayed or inadequate treatment. It is critical to distinguish vasculitis occurring as a primary autoimmune disorder from vasculitis secondary to infection, drugs, malignancy, or connective tissue disease such as SLE or RA.

**CLINICAL FEATURES**

Small-vessel vasculitis is characterized by necrotizing inflammation of small blood vessels, and may be identified by the finding of "palpable purpura." The lower extremities typically demonstrate "palpable purpura," varying in size from a few millimeters to several centimeters (Figure 179-2, Figure 179-6, Figure 179-7, and Figure 179-10). In its early stages leukocytoclastic vasculitis may not be palpable.

The clinical features of HSP include nonthrombocytopenic palpable purpura mainly on the lower extremities and buttocks (Figure 179-1, Figure 179-2, and Figure 179-3), GI symptoms, arthralgia, and nephritis.

**TYPICAL DISTRIBUTION**

Cutaneous vasculitis is found most commonly on the legs, but may be seen on the hands and abdomen (Figure 179-3, Figure 179-8, and Figure 179-10).

**LABORATORY TESTING**

Laboratory evaluation is geared to finding the antigenic source of the immunologic reaction. Consider throat culture, antistreptolysin-O titer, erythrocyte sedimentation rate, platelets, complete blood count (CBC), serum creatinine, urinalysis, antinuclear antibody,
serum protein electrophoresis, circulating immune complexes, hepatitis B surface antigen, hepatitis C antibody, cryoglobulins, and rheumatoid factor. The erythrocyte sedimentation rate is almost always elevated during active vasculitis. Immunofluorescent studies are best done within the first 24 hours after a lesion forms. The most common immunoreactants present in and around blood vessels are IgM, C3, and fibrin. The presence of IgA in blood vessels of a child with vasculitis suggests the diagnosis of HSP.

- Basic laboratory analysis to assess the degree and types of organs affected should include serum creatinine, creatinine kinase, liver function studies, hepatitis serologies, urinalysis, and possibly chest x-ray and ECG.

**BIOPSY**

- The clinical presentation is so characteristic that a biopsy is generally unnecessary. In doubtful cases, a punch biopsy should be taken from an early active (nonulcerated) lesion or, if necessary, from the edge of an ulcer (Figure 179-4).

**DIFFERENTIAL DIAGNOSIS**

- Pigmented purpuric dermatosis is a capillaritis characterized by extravasation of erythrocytes in the skin with marked hemosiderin deposition. It is not palpable. Schamberg disease is a type of pigmented purpuric dermatosis found most often on the lower legs in older persons (Figure 179-11 and Figure 179-12). It is described as a cayenne pepper-like appearance. Lichen aureus is a localized pigmented purpuric dermatosis seen in younger persons that may occur on the leg or in other parts of the body (Figure 179-13). The color may be yellow brown or golden brown. There is also a pigmented purpuric dermatosis of the Majocchi type that has an annular appearance with prominent elevated erythematous borders that may have telangiectasias (Figure 179-14). A dermatoscope can help to visualize the red or pink dots that represent inflamed capillaries in these conditions.

- Meningococcemia that presents with purpura in severely ill patients with central nervous system symptoms (Figure 179-15 and Figure 179-16).

- Rocky Mountain spotted fever is a rickettsial infection that presents with pink to bright red, discrete 1- to 5 mm macules that blanch with pressure and may be pruritic. The lesions start distally and spread to the soles and palms (Figure 179-17).

- Malignancies, such as cutaneous T-cell lymphoma (mycosis fungoides) (Chapter 176, Mycosis Fungoides).

- Stevens-Johnson syndrome and toxic epidermal necrolysis (Chapter 177, Erythema Multiforme, Stevens-Johnson Syndrome, and Toxic Epidermal Necrolysis).

- Idiopathic thrombocytopenia purpura can be easily distinguished from vasculitis by measuring the platelet count. Also, the purpura is usually not palpable and the petechiae can be scattered all over the body (Figure 179-18).

- Wegener granulomatosis is an unusual multisystem disease characterized by necrotizing granulomatous inflammation and vasculitis of the respiratory tract, kidneys, and skin.
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Figure 179-12 Schamberg disease with prominent petechiae and hemosiderin deposits. Note that this condition is not palpable. (Courtesy of Richard P. Usatine, MD.)

Figure 179-13 Lichen aureus. A. On the leg of a 27-year-old woman. B. On the leg of a 16-year-old girl. (Courtesy of Richard P. Usatine, MD.)

Figure 179-14 Pigmented purpuric dermatosis of the Majocchi type. Note the annular appearance and the prominent elevated erythematous borders. (Courtesy of Suraj Reddy, MD.)
• Charg-Strauss syndrome (allergic granulomatosis) that presents with a systemic vasculitis associated with asthma, transient pulmonary infiltrates, and hypereosinophilia.

• Cutaneous manifestations of cholesterol embolism, which are leg pain, livedo reticularis (blue-red mottling of the skin in a net-like pattern), and/or blue toes in the presence of good peripheral pulses.

**MANAGEMENT**

**NONPHARMACOLOGIC**

• The offending antigen should be identified and removed whenever possible. With a mild hypersensitivity vasculitis is due to a drug, discontinuing the offending drug may be all the treatment that is necessary. SOR C

**MEDICATIONS**

• An antihistamine might be used for itching. SOR C

• Oral prednisone is used to treat visceral involvement and more severe cases of vasculitis of the skin. Short courses of prednisone (60 to 80 mg/day) are effective and should be tapered slowly.6,7 SOR B

• Colchicine (0.6 mg twice daily for 7 to 10 days) and dapsone (100 to 150 mg/day) may be used to inhibit neutrophil chemotaxis. SOR B They are tapered and discontinued when lesions resolve. Azathioprine, cyclophosphamide, and methotrexate have also been studied. SOR C

• In HSP and prolonged hypersensitivity vasculitis, treatment with nonsteroidal antiinflammatory drugs is usually preferred. Treatment with corticosteroids may be of more benefit in patients with more severe disease such as more pronounced abdominal pain and renal involvement.8 SOR B Adding cyclophosphamide to the steroids may also be effective. SOR C Azathioprine also may be used.9

**REFER OR HOSPITALIZE**

• Refer or hospitalize with significant internal organ involvement or prolonged disease course.

**PROGNOSIS**

• In leukocytoclastic (hypersensitivity) vasculitis, the cutaneous lesions usually resolve without sequelae. Visceral involvement (such as kidney and lung) most commonly occurs in HSP, cryoglobulinemia and vasculitis associated with SLE.10 Extensive internal organ involvement should prompt an investigation for coexistent medium-size vessel disease and referral to a rheumatologist.

**FOLLOW-UP**

• Relapses may occur, especially when the precipitating factor is an autoimmune disease. Regular monitoring is necessary.

**PATIENT EDUCATION**

• Reassure patients and parents that most cases of acute cutaneous vasculitis resolves spontaneously.
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Vasculitis

PART 13
DERMATOLOGY

REFERENCES


PATIENT RESOURCES


PROVIDER RESOURCES


FIGURE 179-18 Petechiae and purpura in a patient with idiopathic thrombocytopenic purpura and a platelet count of 3000. Note that this purpura is not palpable. (Courtesy of Richard P. Usatine, MD.)