VASCULITIS SYNDROMES

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ILLUSTRATED CASE 1

- A 56 years old lady referred me for prolonged fever, arthritis and burning pain in her feet and hands.
- She had history of transfusion during operation 5 years ago and HBV infection.
- She had history of 3 month fever, fatigue, loss of appetite, postprandial abdominal pain and 5 Kg weight loss during this time. She also had arthritis in hand joints and severe burning pain in feet and hands. She noticed inability to extent left wrist.
Her Ph/Exam showed:
Fever, arthritis, wrist drop, gangrene in finger tips.
ILLUSTRATED CASE 1  

- She diagnosed vasculitis and treatment started.

Two days later she had severe abdominal pain and operation showed massive intestinal gangrene.

She died 2 days later.
WHAT IS VASCULITIS?

- **Vasculitis** is a clinicopathologic process characterized by inflammation of and damage to blood vessels.
- The vessel lumen is usually compromised, and this is associated with **ischemia of the tissues** supplied by the involved vessel.
- A broad and **heterogeneous group** of syndromes may result from this process, since any type, size, and location of blood vessel may be involved.
- Vasculitis and its consequences may be the **primary** or sole manifestation of a disease; alternatively, vasculitis may be a **secondary** component of another primary disease.
- Vasculitis may be confined to a **single organ**, such as the skin, or it may simultaneously involve **several organ systems**.
POTENTIAL MECHANISMS OF VESSEL DAMAGE IN VASCULITIS SYNDROMES

Pathogenic immune complex formation and/or deposition
- Henoch-Schönlein purpura
- Vasculitis associated with collagen vascular diseases
- Serum sickness and cutaneous vasculitis syndromes
- Hepatitis C–associated essential mixed cryoglobulinemia
- Hepatitis B–associated polyarteritis nodosa

Production of antineutrophilic cytoplasmic antibodies
- Wegener's granulomatosis
- Churg-Strauss syndrome
- Microscopic polyangiitis

Pathogenic T lymphocyte responses and granuloma formation
- Giant cell arteritis
- Takayasu's arteritis
- Wegener's granulomatosis
- Churg-Strauss syndrome
**VASCULITIS CLINICAL MANIFESTATIONS**

- **Systemic symptoms**
  - **Constitutional symptoms**: fever, weight loss, malaise, arthralgias/arthritis, loss of appetite, generally body pain
- **Localized symptoms (According vessel size )**
  - **Large Vessel Vasculitides**
  - **Medium Vessel Vasculitides**
  - **Small Vessel Vasculitides**
Classification of Vasculitis

Chapel Hill Consensus Criteria
Nomenclature update 2012

- **Immune Complex Small Vessel Vasculitis**
  - Cryoglobulinemic Vasculitis
  - IgA Vasculitis (Henoch-Schönlein)
  - Hypocomplementemic Urticarial Vasculitis
    - (Anti-C1q Vasculitis)

- **Medium Vessel Vasculitis**
  - Polyarteritis Nodosa
  - Kawasaki Disease
  - Anti-GBM Disease

- **ANCA-Associated Small Vessel Vasculitis**
  - Microscopic Polyangiitis
  - Granulomatosis with Polyangiitis
    - (Wegener’s)
  - Eosinophilic Granulomatosis with Polyangiitis
    - (Churg-Strauss)

- **Large Vessel Vasculitis**
  - Takayasu Arteritis
  - Giant Cell Arteritis
Vasculitis Clinical manifestations

Large Vessel Vasculitides

- Limb claudication
- Asymmetric blood pressures
- Absence of pulses
- Bruits
- Aortic dilation
- Renovascular hypertension
Vasculitis Clinical manifestations

_Takeyasu arteritis (TAK)_  
_Giant cell arteritis (GCA)_
Giant cell arteritis (GCA) can alternatively be called cranial arteritis or temporal arteritis, reflecting the most commonly affected vessels.

GCA is the inflammation of the lining of the arteries and is a relatively common vasculitis among older adults.

Common symptoms of GCA include blurring or loss of vision, headaches, and jaw pain. Other areas such as the head and neck can also be affected by GCA.

Histologically, the tunica media thickens and the lumen narrows due to tunica interna fibrosis. Inflammatory cells can be seen invading the tunica media, especially lymphocytes and eosinophils. Giant cells can occasionally be seen populating areas around the internal elastic membrane.
Vasculitis Clinical manifestations

Medium Vessel Vasculitides

- Cutaneous nodules
- Ulcers
- Livedo reticularis
- Digital gangrene
- Mononeuritis multiplex
- Microaneurysms
- Renovascular hypertension
Vasculitis Clinical manifestations

Medium Vessel Vasculitides

- Polyarteritis nodosa (PAN)
- Kawasaki disease (KD)
Vasculitis Clinical manifestations

Small Vessel Vasculitides

- Purpura
- Vesiculobullous lesions
- Urticaria
- Glomerulonephritis
- Alveolar hemorrhage
- Cutaneous extravascular necrotizing granulomas
- Splinter hemorrhages
- Uveitis/episcleritis/scleritis
Vasculitis Clinical manifestations

Small Vessel Vasculitides

- Antineutrophil cytoplasmic antibody (ANCA)–associated vasculitis (AAV)
  + Microscopic polyangiitis (MPA)
  + Granulomatosis with polyangiitis (Wegener’s) (GPA)
  + Eosinophilic granulomatosis with polyangiitis (Churg-Strauss) (EGPA)

- Immune complex SVV
  + Anti–glomerular basement membrane (anti-GBM) disease
  + Cryoglobulinemic vasculitis (CV)
  + IgA vasculitis (Henoch-Scho¨nlein) (IgAV)
  + Hypocomplementemic urticarial vasculitis (HUV) (anti-C1q vasculitis)
<table>
<thead>
<tr>
<th>TABLE 143.6 INVESTIGATION OF VASCULITIS</th>
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<tbody>
<tr>
<td><strong>Assessment of inflammation</strong></td>
</tr>
<tr>
<td>Blood count and differential (total white cell count, eosinophils)</td>
</tr>
<tr>
<td>Acute-phase response (ESR and CRP)</td>
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<tr>
<td>Liver function</td>
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<tr>
<td><strong>Assessment of organ involvement</strong></td>
</tr>
<tr>
<td>Urine analysis (proteinuria, hematuria, casts)</td>
</tr>
<tr>
<td>Renal function (creatinine clearance, 24-hour protein excretion, biopsy)</td>
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<tr>
<td>Chest radiograph</td>
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<tr>
<td>Liver function</td>
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<tr>
<td>Nervous system (nerve conduction studies, biopsy)</td>
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<tr>
<td>Muscle (EMG, creatine kinase, biopsy)</td>
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<tr>
<td>Cardiac function (ECG, echocardiography)</td>
</tr>
<tr>
<td>Gut (angiography)</td>
</tr>
<tr>
<td>Skin (biopsy)</td>
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<tr>
<td><strong>SEROLOGICAL TESTS</strong></td>
</tr>
<tr>
<td>ANCA (including proteinase 3 and myeloperoxidase)</td>
</tr>
<tr>
<td>Antinuclear antibodies</td>
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<tr>
<td>Rheumatoid factor</td>
</tr>
<tr>
<td>Anticardiolipin antibodies</td>
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<tr>
<td>Complement</td>
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<tr>
<td>Cryoglobulins</td>
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<tr>
<td><strong>Differential diagnosis</strong></td>
</tr>
<tr>
<td>Blood cultures</td>
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<tr>
<td>Viral serology (HBV, HCV, HIV, CMV)</td>
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<tr>
<td>Echocardiography (two-dimensional, transesophageal, or both)</td>
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</tbody>
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CRP, C-reactive protein; ECG, electrocardiogram; EMG, electromyogram; ESR, erythrocyte sedimentation rate; HBV, HCV, hepatitis B and C viruses; CMV, cytomegalovirus.
pANCA PATTERN
<table>
<thead>
<tr>
<th>Disease</th>
<th>Frequency (%)</th>
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<tbody>
<tr>
<td>Microscopic polyarteritis</td>
<td>50–70</td>
</tr>
<tr>
<td>Idiopathic necrotizing glomerulonephritis</td>
<td>50–85</td>
</tr>
<tr>
<td>Churg–Strauss syndrome</td>
<td>70–85</td>
</tr>
<tr>
<td>Goodpasture’s syndrome (anti-GBM)</td>
<td>10–30</td>
</tr>
<tr>
<td>Wegener’s granulomatosis</td>
<td>5–10</td>
</tr>
<tr>
<td>Polyarteritis nodosa</td>
<td>+</td>
</tr>
<tr>
<td>Polyangiitis overlap</td>
<td>+</td>
</tr>
<tr>
<td>Systemic lupus erythematosus</td>
<td>+</td>
</tr>
<tr>
<td>Hydralazine-induced crescenteric glomerulonephritis</td>
<td>+</td>
</tr>
<tr>
<td>Kawasaki disease</td>
<td>+</td>
</tr>
<tr>
<td>Ill children</td>
<td>+</td>
</tr>
</tbody>
</table>

+, reported to be present.
cANCA PATTERN
<table>
<thead>
<tr>
<th>Disease</th>
<th>Frequency (%)</th>
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</thead>
<tbody>
<tr>
<td>Wegener's granulomatosis</td>
<td>90</td>
</tr>
<tr>
<td>Microscopic polyarteritis</td>
<td>50</td>
</tr>
<tr>
<td>Polyarteritis nodosa</td>
<td>5–10</td>
</tr>
<tr>
<td>Churg–Strauss angiitis</td>
<td>10</td>
</tr>
<tr>
<td>Hypersensitivity vasculitis</td>
<td>Rare</td>
</tr>
<tr>
<td>Henoch–Schönlein purpura</td>
<td>Rare</td>
</tr>
<tr>
<td>Immunoglobulin A nephropathy</td>
<td>Rare</td>
</tr>
<tr>
<td>Postinfectious glomerulonephritis</td>
<td>Rare</td>
</tr>
<tr>
<td>Systemic lupus erythematosus</td>
<td>Rare</td>
</tr>
<tr>
<td>Kawasaki disease</td>
<td>+</td>
</tr>
<tr>
<td>Controls</td>
<td>±</td>
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</table>

+, reported to be present; ±, occasionally present.
DIFFERENTIAL DIAGNOSIS FOR PRIMARY SYSTEMIC VASCULITIS

- **Infection**
  - Endocarditis
  - Sepsis
  - Syphilis
  - Meningococcemia
  - Viral hepatitis
  - Tuberculosis

- **Disorders of Coagulation**
  - Disseminated intravascular coagulation
  - Antiphospholipid antibody syndrome
  - Thrombotic thrombocytopenic purpura

- **Drug Toxicity**
  - Sympathomimetic agents
  - Cocaine
Differential Diagnosis for Primary Systemic Vasculitis

- **Atherosclerotic and Embolic Disease**
  - Peripheral vascular disease
  - Cholesterol embolization syndrome
  - Generalized atherosclerosis
  - Cardiac myxomas

- **Malignancy**
  - Lymphoma
  - Disseminated carcinomatosis

- **Secondary Vasculitides Associated with Other Autoimmune Conditions**
  - Systemic lupus erythematosus
  - Sjögren syndrome
  - Rheumatoid arthritis
  - Behçet disease
  - Sarcoidosis
DIFFERENTIAL DIAGNOSIS FOR PRIMARY SYSTEMIC VASCULITIS

- **Congenital Abnormalities and Anatomic Variants**
  - Fibromuscular dysplasia
  - Ehlers-Danlos syndrome
  - Marfan syndrome
- **Other Disorders**
  - Buerger disease
  - Calciphylaxis
  - Amyloidosis