L9-Purpura and Vasculitis
Objectives

❖ Differentiate between different types of purpura

❖ Identify the morphology of different types of purpura

❖ Recognize palpable purpura as a hallmark lesion of leukocytoclastic vasculitis

❖ Outline an initial diagnostic approach to diagnose purpura

Mind Map

Purpura and Vasculitis

1- Purpura:
- non-palpable purpura

2- Vasculitis
- 1. (Leukocytoclastic vasculitis):
  - Henoch-Schönlein purpura
  - Urticarial vasculitis
- 2. Cutaneous Polyarteritis nodosa-
1-Purpura:

Purpura is multifocal extravasation of blood into the skin or mucous membranes.

Purpura may be palpable or non-palpable

# Non-palpable purpura are divided into 2 morphologies based on their size:

1- Petechiae- (< 3mm) superficial, pinhead-sized, hemorrhagic macules
2- Ecchymoses- (> 3 mm) irregularly shaped, bluish-purpulish patches “bruises”

The type of lesion usually indicates the underlying pathogenesis;

❖ Non-palpable purpura is typically → non-inflammatory
❖ Palpable purpura is usually a sign of → vascular inflammation → “hallmark lesion of leukocytoclastic vasculitis”
# Causes of non-palpable purpura:

- **Trauma**
- **Poor dermal support of blood vessels** e.g. “topical or systemi steroid use”

- **Vascular dysfunction:** aging, scurvy, Ehlers-Danlos syndrome

- **Platelet dysfunction or Decreased Count:**
  - Idiopathic thrombocytopenic purpura
  - Thrombotic thrombocytopenic purpura
  - Drug-induced thrombocytopenia
  - Congenital/acquired platelet function defects

- **Coagulopathies:** hemophilia, cryoglobulinemia, anticoagulants, DIC, vitamin K deficiency, hepatic disease

All forms of purpura do NOT blanch with pressure:

- **Diascopy**—use of a glass slide to apply pressure to the lesion to differentiate erythema secondary to vasodilation (planchable with pressure), from extravasation of blood (non-blanchable)
How do we evaluate a patient with purpura?

❖ History (Family hx, Drug hx & Medical hx)
❖ Physical examination (Size, Type, Distribution & Mucous membranes)
❖ CBC & Differential
❖ Bleeding time
❖ PT & PTT

2-Vasculitis :

Vasculitis → is classified by the vessel size affected (small, medium, mixed or large)

Clinical morphology correlates with the size of the affected blood vessels:

่าย cutaneous small vessels- → palpable purpura OR urticarial lesions “urticarial vasculitis”
่าย small-medium vessels- → subcutaneous nodules, purpura, livedo reticularis, ulceration and necrosis of mainly medium vessel
่าย large vessels- → claudication, ulceration and necrosis
1. Cutaneous small vessels (Leukocytoclastic vasculitis):
   - Henoch-Schönlein purpura
   - Urticarial vasculitis
   - Other
     - idiopathic
     - infection- streptococcal, bacterial endocarditis, parvovirus B19, HIV, hepatitis, TB
     - drugs- NSAID, sulfonamides, penicillins, barbiturates, propylthiouracil
     - malignancy- leukemias, lymphoma, multiple myeloma, renal, lung, prostate, breast

2. Mixed (small and medium) vessels:
   - ANCA associated vasculitides
   - Churg-Stauss syndrome
   - Microscopic polyangiitis
   - Granulomatosis with polyangiitis (Wegener)
   - Essential Cryoglobulinemic vasculitis

3. Medium vessels:
   - Polyarteritis nodosa→ Cutaneous & systemic

4. Large vessels:
   - Giant-cell arteritis
   - Takayasu arteritis
1. Cutaneous small vessels (Leukocytoclastic vasculitis):

- Could occur as a primary process or could be secondary to an underlying cause
- The majority of cases follow an acute infection or exposure to a new medication
- **Palpable purpura** is the hallmark of this disease
- Pinpoint to several mm in diameter
- They predominate on the ankles and lower legs, affecting mainly dependent areas
- They resolve within 3-4 weeks with residual post-inflammatory Hyperpigmentation

**Histopathology:**

- Inflammation in the form of **perivascular infiltrate comprised** of intact and fragmented neutrophils (nuclear dust), hence, “leukocytoclastic vasculitis”
- Blood vessel wall **thickening**
- Errythrocyte extravasation
- Fibrin deposits within the blood vessel wall
- Endothelial necrosis (more serious illness)
- Immunoglobulin & complement deposits
1. Cutaneous small vessels (Leukocytoclastic vasculitis):

A- Henoch-Schönlein Purpura

- Subtype of cutaneous small-vessel vasculitis
- It's a leukocytoclastic vasculitis that mostly affects children, with a predominant IgA-mediated vessel injury
- A viral infection or streptococcal pharyngitis is the usual triggering event, other triggers: bacterial infections, foods, drugs (aspirin, penicillin), lymphoma

- Characterized by: purpura, arthralgias, abdominal pain and renal disease (characteristic)
- Multiple palpable purpura appears on the extensor aspects of the extremities (mainly lower legs and to a lesser extent on the forearms) and buttocks

- Histologically; LCV, IgA, C3 and fibrin deposits

Course of the disease & possible complications:

- The duration of the illness is 6-16 weeks
- In most patients the disease usually resolves without sequelae
- 5-10% of patients will have persistent or recurrent disease
- Arthalgias may progress to arthritis producing periarticular swelling around the knees and ankles
- GI bleeding, acute surgical abdomen, paralytic ileus may occur
- Progressive glomerular disease “crescentic glomerulonephritis”, renal failure may occur
- Pulmonary hemorrhage, can be fatal

Treatment:

- Supportive (bed rest, pain relieve, D/C drugs, treat underlying infection)
- Abdominal pain- H2 blockers, corticosteroids
- NSAIDs are best avoided (renal & GI complications)
1. Cutaneous small vessels (Leukocytoclastic vasculitis):

**B-Urticarial Vasculitis:**

- **Fixed urticarial lesions** that when biopsied will have vasculitis

**Histology**

3 clinical features distinguish the skin lesion of urticarial vasculitis from urticaria:

1. Lesions are rather painful, rather than pruritic
2. Lesions last longer than 24 h and are fixed, rather than pruritic
3. On resolving there is postinflammatory hyperpigmentation

- Urticarial vasculitis is an eruption of erythematous wheals that clinically resemble urticaria but histologically show changes of leukocytoclastic vasculitis.
- Urticarial vasculitis may be divided into normocomplementemic and hypocomplementemic variants.
- The hypocomplementemic form more often is associated with systemic symptoms and has been linked to connective-tissue disease (ie, systemic lupus erythematosus [SLE]).

So Determination of complement levels (CH50, C3, C4, and anti-C1q) is critical in these patients

**Normal complement levels:**

- idiopathic leukocytoclastic vasculitis
- limited to the skin
- self-resolving

**Low complement levels:**

- leukocytoclastic vasculitis + diffuse interstitial neutrophils
- not limited to the skin; clinical features include arthritis, arthralgia, angioedema eye symptoms, asthma, GI symptoms
Diseases associated with urticarial vasculitis:

• gammopathies (IgG & IgM)
• SLE
• Sjögren syndrome
• serum sickness
• viral infections (esp. hepatitis C)

Treatment & Management:

• History & physical exam
• Ix- CH50, C3, C4, C1q, ANA, dsDNA, Anti-SSA & Anti-SSB, hepatitis B&C, lupus band test

• **Treatment** is based on the systemic effects of the disease, extent of cutaneous involvement and previous response to treatment

• **Cutaneous involvement** -→ NSAIDs & antihitamines, if these fail —> colchicine, hydroxychloroquine, dapsone

if these fail or if the patient has systemic disease → corticosteroids + steroid sparing agent

(azathioprine, mycophenolate mofetil, rituximab)
Cutaneous polyarteritis nodosa

• Necrotizing vasculitis affecting small and mediumsized arteries of the dermis and subcutaneous tissue
• Localized to the skin with limited systemic involvement, usually neuropathy
• Patients should be followed carefully and regularly evaluated to exclude the development of systemic involvement

The Manifestations of Cutaneous polyarteritis nodosa:

• Cutaneous findings→ almost always subcutaneous nodules associated with livedo reticularis that may ulcerate on the legs and feet
• Peripheral neuropathy→ tingling, numbness, sensory disturbances, weakness and absent reflexes
Histopathology:

nodular arteritis + polymorphnuclear infiltrates involving medium sized arteries of the deep reticular dermis and subcutaneous tissue + extensive fibrinoid necrosis (this is contrast to classical PAN which rarely shows nodular arteritis and the picture is of small vessel leukocytoclastic vasculitis)

- **Cutaneous PAN**- has been associated with HBV & HCV infection, Crohn’s disease, streptococcal infections, TB, and medications (minocycline)

- Typically the only laboratory abnormality is ESR

- Treatment→ Most patients respond well to: aspirin, NSAIDs, prednisone, sulfapyridine, or methotrexate

PAN= Polyarteritis nodosa
SUMMARY

All forms of purpura do NOT blanch with pressure

Purpura:

Types

Palpable
- Vascular inflammation

Non-palpable
- Non-inflammatory

Causes
- Trauma
- Platelet dysfunction
- Vascular dysfunction
- Coagulopathies
- Topical or systemic steroid use

How do we evaluate a patient with purpura?

HX

CBC

Examination
Vasculitis

- Giant-cell arteritis
- Takayasu arteritis
- Polyarteritis nodosa - Cutaneous & systemic
- Medium vessels
- Large vessels
- Cutaneous small vessels
- Mixed (small and medium) vessels
- Granulomatosis with polyangiitis (Wegener)

Palpable purpura is the hallmark of this disease

- Henoch-Schönlein purpura
- Urticarial vasculitis