SKIN

VASCULITIDES (PURPURA AND PETECHIAE)

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Life threatening purpura syndromes

Table 1. Names of the syndromes

Name	Definition	Comments
Pathologic name		
TMA	The characteristic histologic abnormalities (swelling of endothelial cells and the subendothelial space) of capillaries and arterioles that cause microvascular thrombosis and result in microangiopathic hemolytic anemia and thrombocytopenia	In addition to TTP and HUS, TMA may occur in other disorders, such as malignant hypertension, scleroderma, antiphospholipid antibody syndrome, systemic lupus erythematosus, preeclampsia, radiation nephropathy, renal allograft rejection, HIV infection, allogeneic HSCT, disseminated malignancy.
Clinical names		
Typical HUS	A syndrome of microangiopathic hemolytic anemia, thrombocytopenia, and renal failure with a diarrhea prodrome caused by infection with Shiga toxin-producing bacteria	Occurs primarily in children younger than 5 years. Accounts for 90% to 95% of childhood HUS. *E. coli* O157:H7 is the most common etiology.
aHUS	A syndrome of microangiopathic hemolytic anemia, thrombocytopenia, and renal failure without a diarrhea prodrome	Occurs primarily in children younger than 5 years. Accounts for 5% to 10% of childhood HUS. Abnormalities of complement regulation may be the most common etiology.
TTP	Adults with microangiopathic hemolytic anemia and thrombocytopenia, with or without renal or neurologic abnormalities, without another etiology, such as systemic infection or another cause of TMA	Children without renal failure are also diagnosed as TTP. The diagnosis of TTP requires treatment with plasma exchange.
Congenital TTP (Upshaw-Schulman syndrome)	A rare syndrome caused by congenital ADAMTS13 deficiency	Symptoms may first occur at any age. Treatment with plasma infusion is sufficient. In some subjects, symptoms of TTP never occur.

http://www.imreference.com/_/rsrc/1472777395453/hematology-oncology/thrombocytopenia/Screen%20Shot%202015-08-26%20at%208.37.44%20PM.png Accessed 12/10/2019

Thrombotic thrombocytopenic purpura

- Usually an acquired disease
- Palpable purpura
- More common in those of African ancestry
- More common in obese
- Symptom pentad
- Fever
- Microangiopathic hemolytic anemia
- Thrombocytopenia
- Renal Failure
- Neurologic deficits
- This is not a coagulopathy

Thrombotic thrombocytopenic purpura

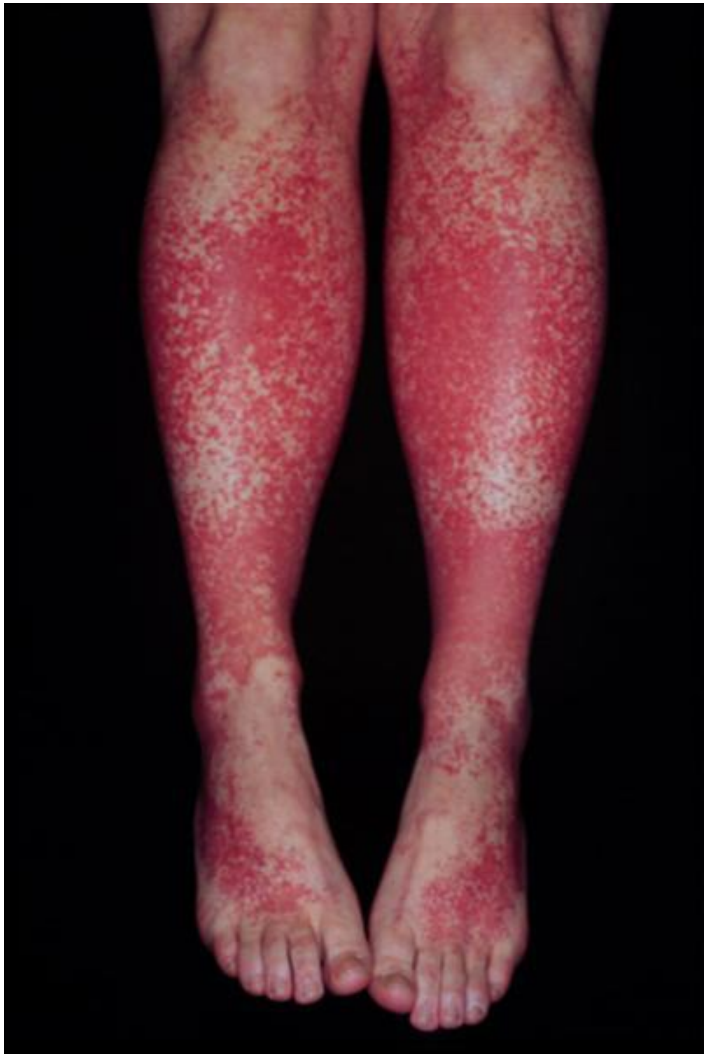
- Precipitating agents
- Pregnancy (increase vWF leves)
- Quinine
- Mitomycin-C
- Requires skin biopsy for definitive diagnosis
- Plasma exchange therapy

Thrombotic thrombocytopenic purpura

- HLADRB1*11 association
- Abnormal activation of platelets and endothelium leading to fibrin deposition in the microvasculature
- Antibody to ADAMTS 13
- Cleaves vWF
- vWFas a bridging molecule at sites of vascular injury for normal platelet adhesion
- Under high shear conditions, it promotes platelet aggregation.
- Carrier for factor VIII
- Decreasing the clearance of factor VIII fivefold

Thrombotic thrombocytopenic purpura

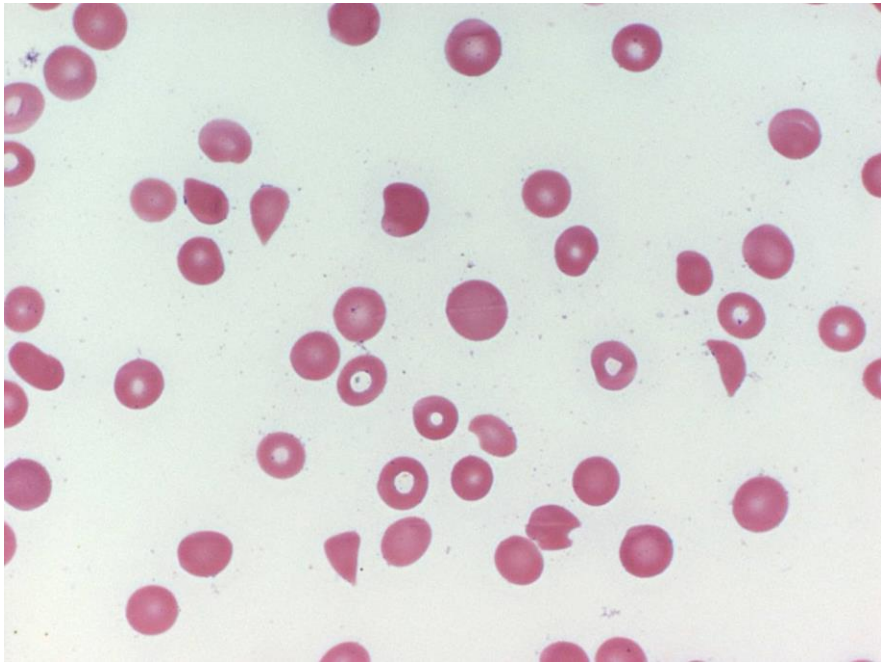
Confluence of purpuric lesions



http://4.bp.blogspot.com/-QCB3txu3nJE/TwcziHE18BI/AAAAAAAAE2o/uCpXxY_Pp9E/s1600/thrombotic-thrombocytopenic-purpura.jpg

Accessed 12/10/2019

Thrombotic thrombocytopenic purpura



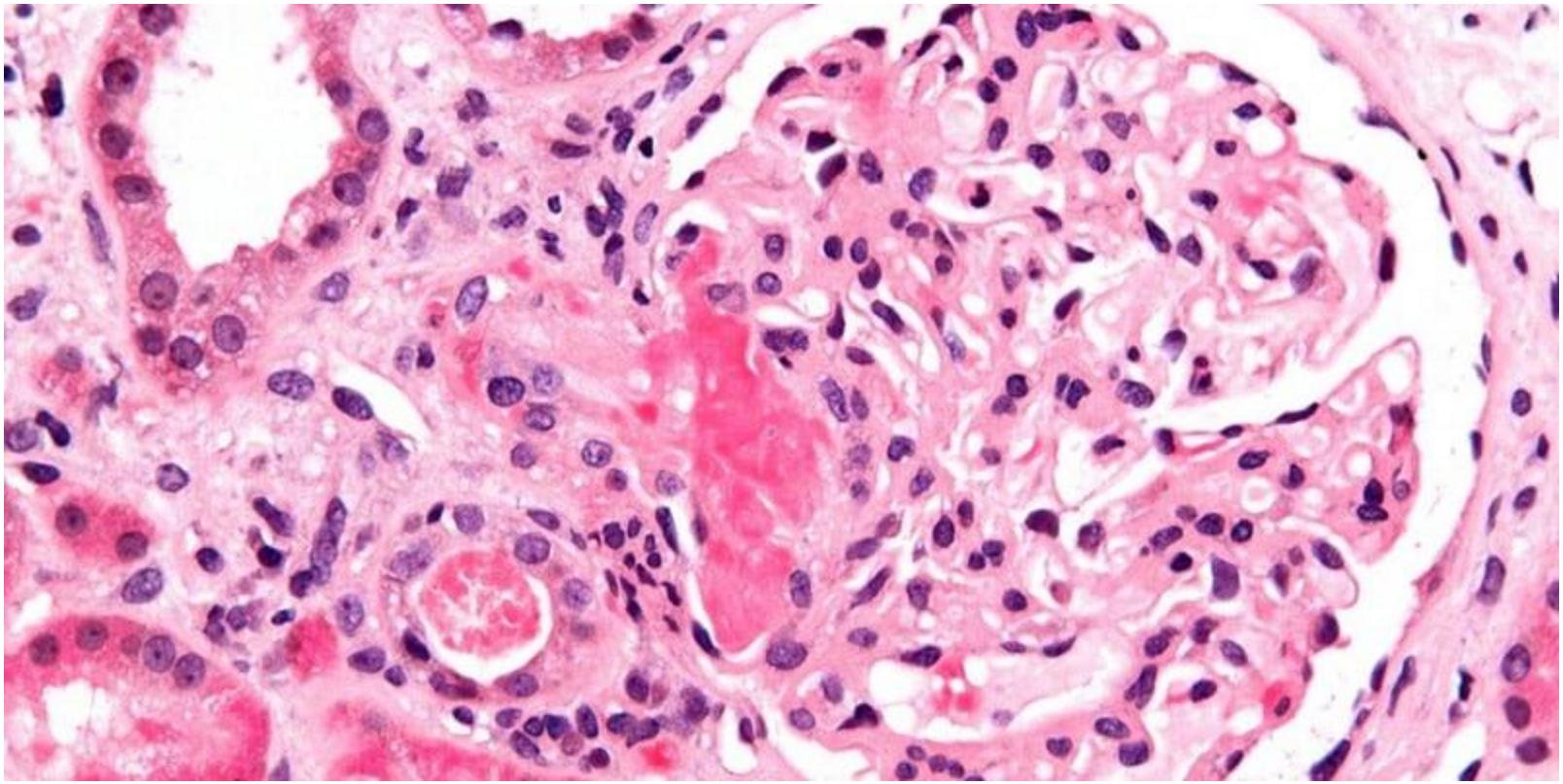
Microangiopathic hemolytic anemia

Schistocytes

Thrombocytopenia

https://www.ouhsc.edu/platelets/Platelet%20Pics/bloodcell2.jpg Accessed 12/10/2019

Thrombotic thrombocytopenic purpura



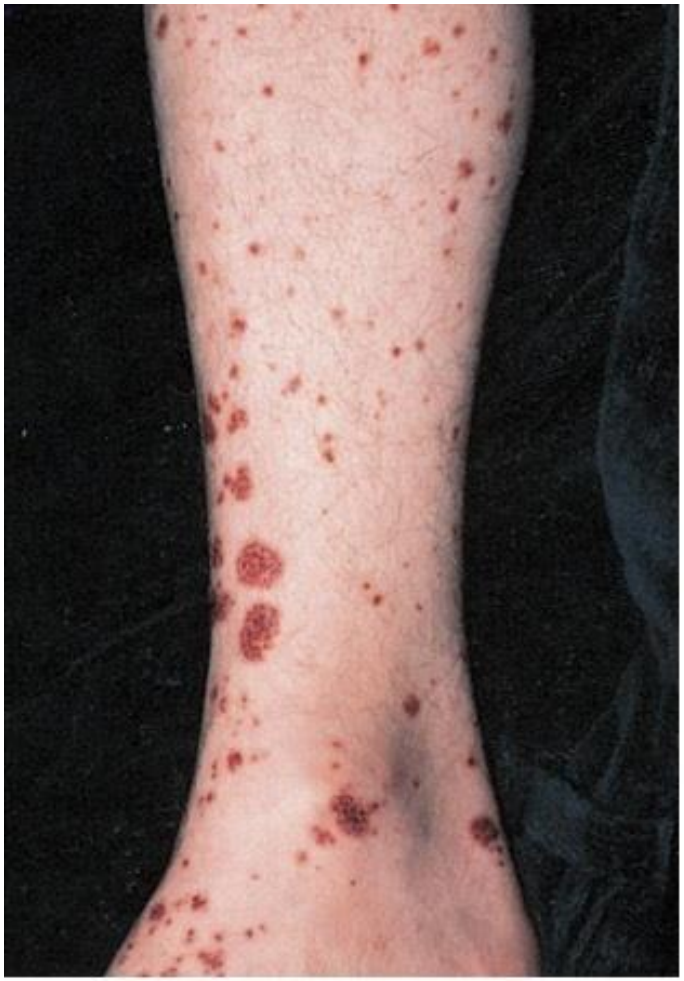
http://www.2minutemedicine.com/wp-content/uploads/2016/02/800px-Acute_thrombotic_microangiopathy_-_very_high_mag.jpgAccessed 12/10/2019

Thrombotic microangiopathy

Hypersensitivity vasculitis

- Palpable purpura
- Most common on lower limbs and dependent areas
- Small vessel involvement
- Histology
- Superficial and mid-perivascular and interstitial inflammatory infiltrate
- Neutrophil degeneration and extravasated erythrocytes (Leukocytoclasis)
- Fibrinoid necrosis pathogenic
- If eosinophils present, consider drug reaction
- C5a anaphylotoxin

Hypersensitivity vasculitis



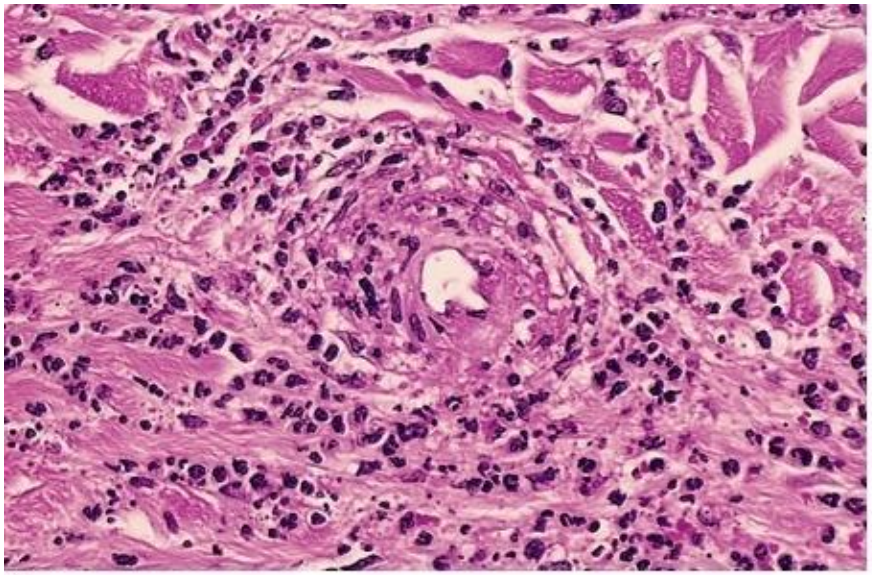
Small vessel vasculitis

Palpable purpuric papules on the lower legs are seen in this patient with cutaneous small-vessel (leukocytoclastic) vasculitis.

(Courtesy of Robert Swerlick, MD; with permission.)

Fig. e10-70 Accessed 07/16/2010

Hypersensitivity vasculitis



A

Perivenular infiltrate of neutrophils with fibrin deposition.

(Hematoxylin and eosin stain, x50 in original magnification.)

Fig. 164-6 Accessed 07/20/2010

Small vessel vasculitis

- Henoch-Shönlein purpura
- 75% in those <10 years-old
- Symptom tetrad:
- Rash (palpable purpura)
- Arthritis (especially ankles and knees)
- Abdominal pain
- Kidney involvement
- IgA deposition in vessel walls
- β-hemolytic Streptococcal infection precedes
- 90-95% resolve spontaneously

Small vessel vasculitis

- Eosinophilic granulomatosis with vasculitis (Churg-Strauss)
- ANCA-associated vasculitis
- Asthma
- Peripheral blood eosinophilia
- Vasculitis involving the heart
- Also GI tract (bloody diarrhea)
- Seizures
- 50% petechiae, purpura, nodules
- Respond to steroids
- 75% survive at 5 years

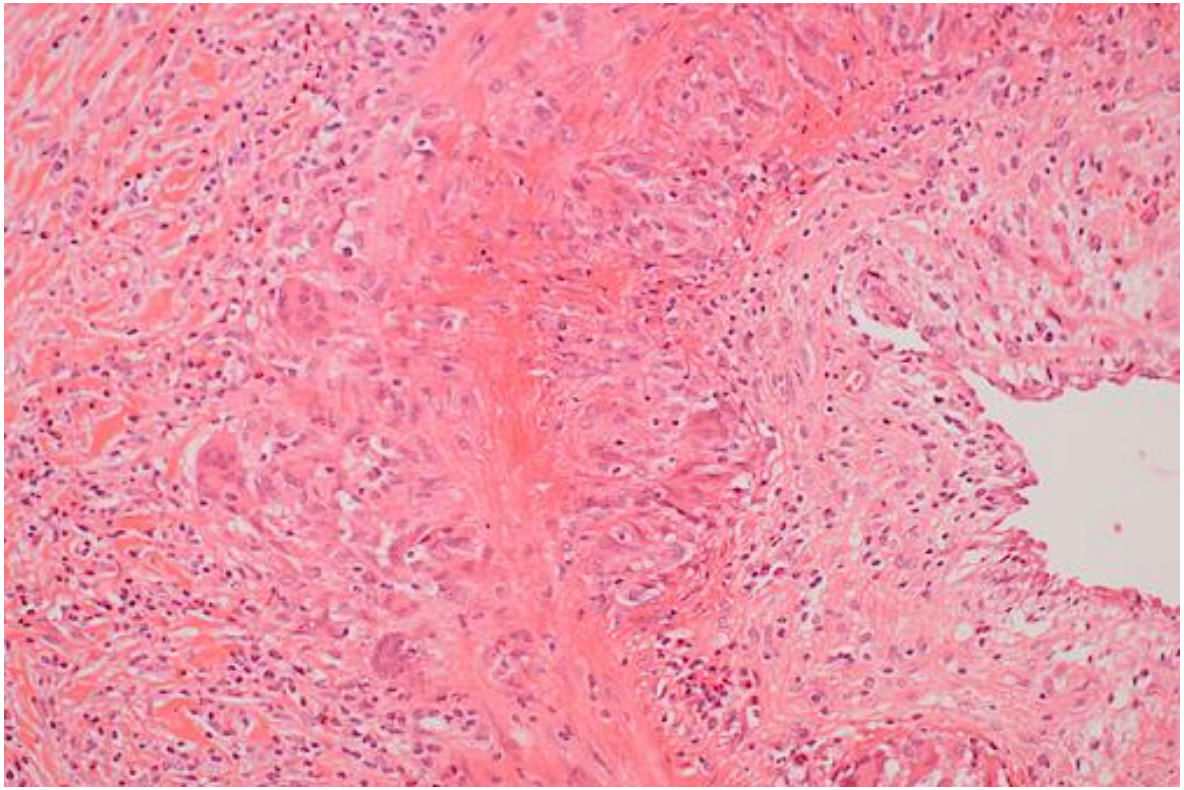
Medium vessel vasculitis

- Cutaneous polyarteritis nodosa
- Small and medium vessels of dermal and subcutaneous tissue arteries
- Chronic but benign course
- May be preciptitated by Group A Streptococcus, Hepatitis B virus, Hepatitis C virus, Parvovirus B19
- CERC mutation
- Deficiency of ADA2 protein
- Essential for endothelial and neutrophil development
- Systemic polyarteritis nodosa involves medium vessels of multiple organs

Large vessel vasculitis

- Temporal arteritis (Giant cell arteritis)
- Headache
- Tender scalp and temple
- Jaw claudication
- Most commonly affects arteries of scalp
- 50% associated with polymyalgia rheumatica
- 15% of those who present with poylymyalgia rheumatica have giant cell arteritis
- 20% anterior ischemic optic neuropathy
- Also, cerebral arteritis
- Also, aortic arch syndrome (Takayasu)
- Systemic steroids

Temporal arteritis



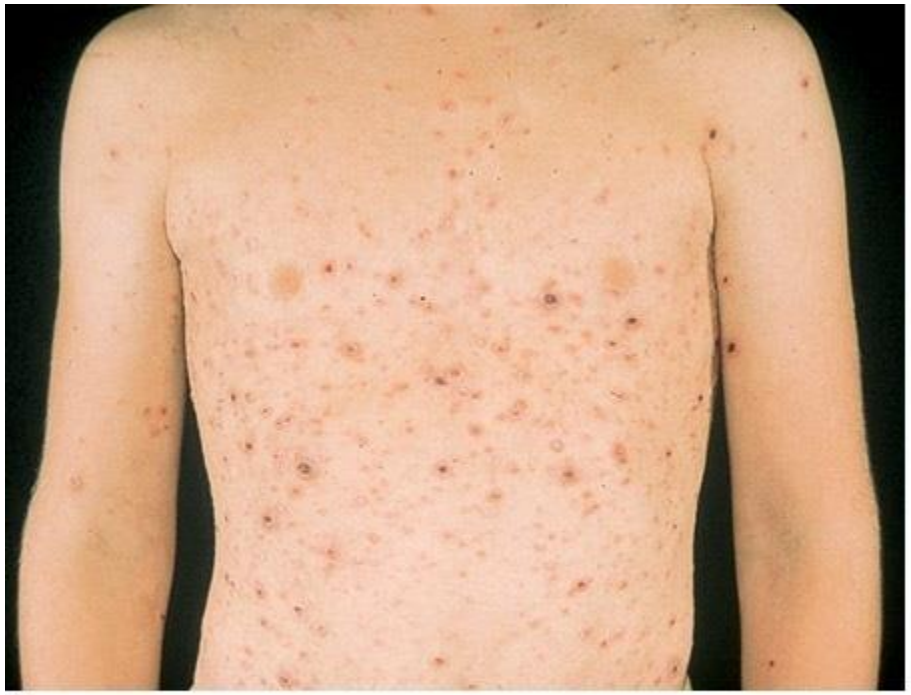
Extensive inflammation with narrowing of artery. Giant cells and granuloma formation in wall.

https://webpath.med.utah.edu/CVHTML/CV167.html
Accessed 12/10/2019

Pityriasis lichenoides

- Initially a small pink papule that turns red-brown. A fine scale attached to the central spot develops.
- In the chronic form, the lesion is not painful.
- Fades. Relapses are common.
- The acute form (Mucha-Haberman) may present as a systemic illness.
- Vasculitis.
- Papules are necrotic.
- May be early presentation of cutaneous T-cell lymphoma.

Pityriasis lichenoides et varioliformis acuta



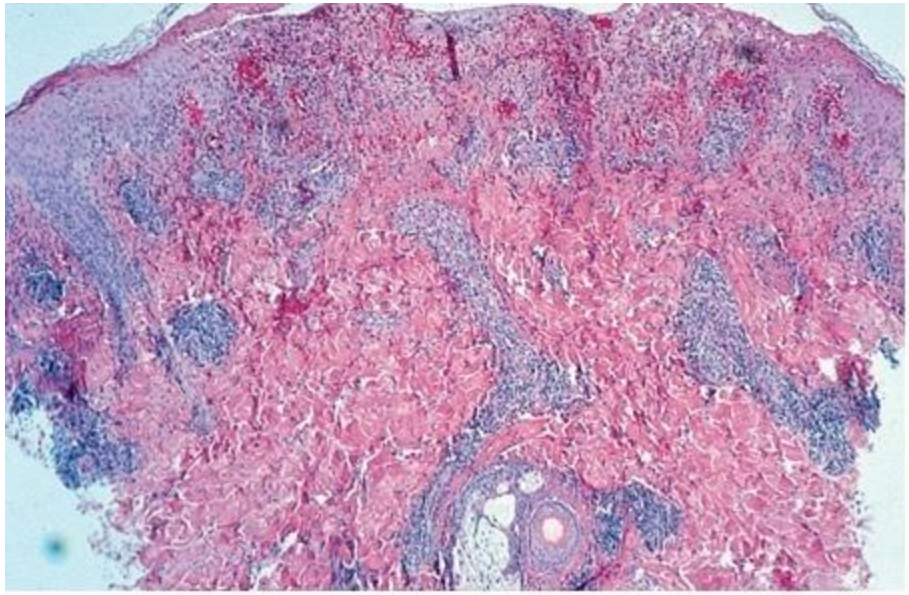
A

Source: Wolff K, Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffell DJ: *Fitzpatrick's Dermatology in General Medicine*, 7th Edition: http://www.accessmedicine.com

Adolescent with multiple erythematous papules and crusted lesions in various stages of evolution.

Fig. 25-11A
Accessed 07/16/2010

Pityriasis lichenoides et varioliformis acuta



A

Ulcerated papule with epidermal necrosis, hemorrhage, and superficial and deep perivascular lymphocytic infiltrate. Hematoxylin and eosin (H&E) stain.

Fig. 25-13A
Accessed 07/16/2010

Telangiectasia

- Arteriovenous malformation in small vessels.
- Osler-Weber-Rendu.
- Autosomal dominant.
- Presents with telangiectasias of skin, nosebleeds.
- Sturge-Weber
- Affects capillary sized blood vessels.
- Port wine stain on face.
- Leptomeningeal angiomatosis may be life-threatening (intracerebral arteriovenous malformation).