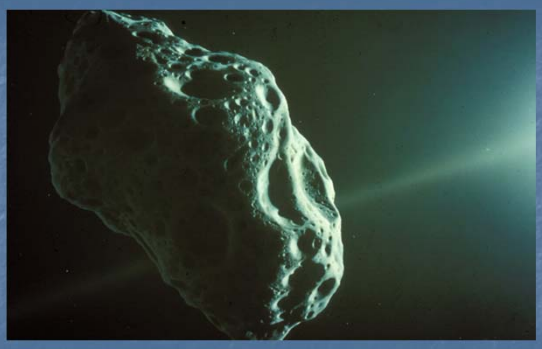
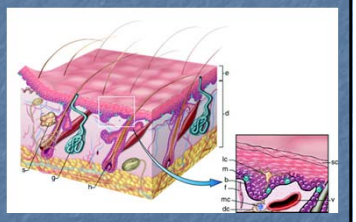


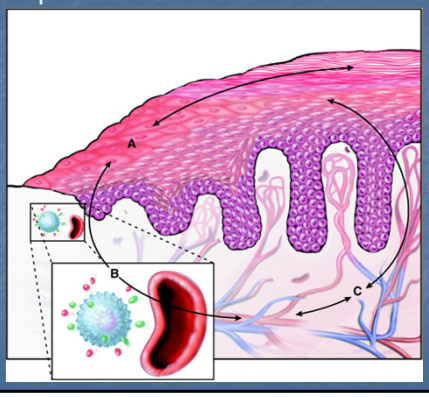
Diseases of the Skin

Physiology & Function

- Protection
- Holds us together
- Water regulation
- Vitamin D
- Immune processing



Epidermis/Dermis Communication



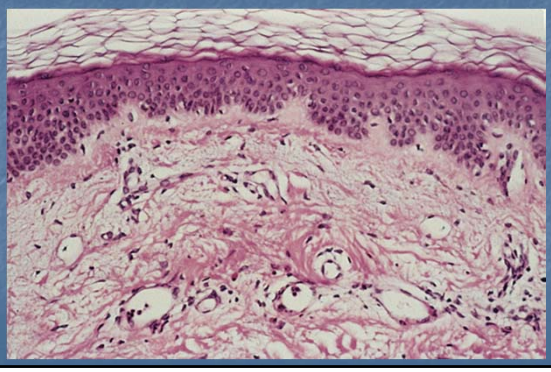
Basic Patterns

- Interplay between epidermis and dermis.
- Rash, reddened
- Changes in pigmentation
- Shape of isolated lesions
  - Macule: flat, close your eyes
  - Papule: raised
  - Vesicle: fluid filled

Inflammatory Dermatosis

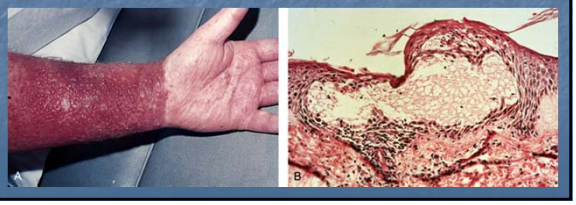
- Hives
- Urticaria (wheal)
- Generalized
- Allergic reaction
  - Bee sting
  - Medications
- IgE mediated
  - Histamine release
  - Vascular dilation
  - Fluid in tissues

Urticaria

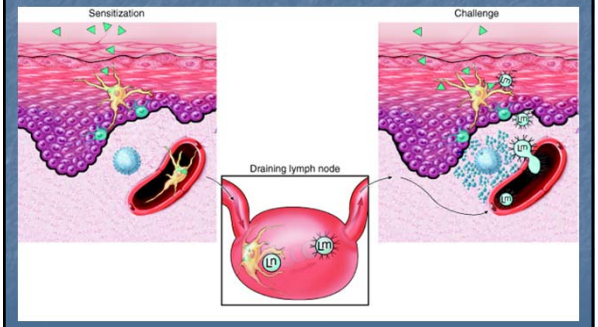


Eczema, 'Boiling Over'

- Contact dermatitis
- Local reaction to toxic agent.
- Epidermal spongiosis
- Vesicles
- Poison ivy

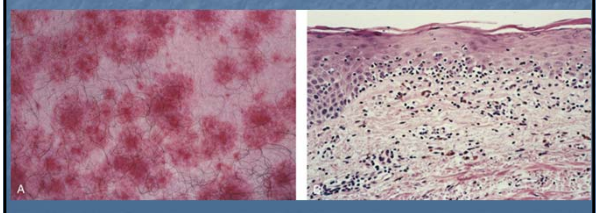


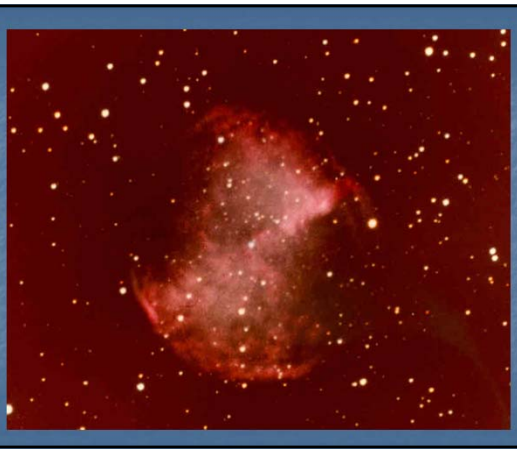
Contact Dermatitis



Erythema Multiforme

- Error in notes: Red macule with darker center.
- Immunologic in most cases
- Degeneration of basal layer of epithelium with
- Lymphocytic infiltrate of dermis
- Rather nonspecific reaction





Chronic Inflammatory Dermatoses

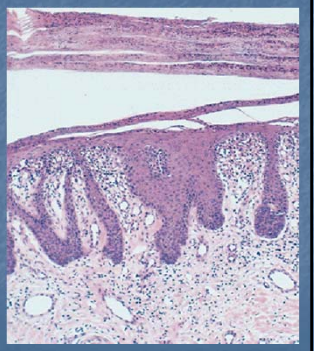
- Persistent
- Epithelial reaction characterized by increased turnover rate
  - Thickening
  - Scaling
  - Roughening
- Variable inflammation of dermis

Psoriasis

- Ag/Ab reaction?
- Knees, elbows, scalp, glans
- Whole body is pretty bad
- At areas of trauma
- Salmon skin

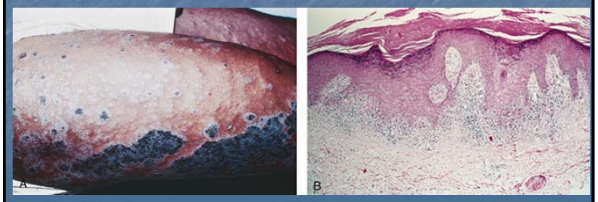
Psoriasis

- Acanthosis
  - Thickening of the epi
- Long rete pegs
- Thinned granulosa
- Ag/Ab and C'
- Microscopic abscesses in epi.



Lichen Planus

- Purple plaques
- Saw-tooth epidermis
- Band-like lymphocytic infiltrate in dermis.
- Self limiting but may last years.
- Hypopigmentation when resolves

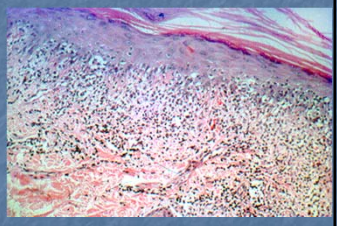


Lupus Eyrthematosis

- Autoimmune
- Two forms
  - Systemic ->
  - Discoid (skin only)
- Systemic problems
  - Kidney failure
  - Vasculitis and
  - DVT with emboli
- Antibodies in serum
  - Anti-DNA
  - Other nuclear

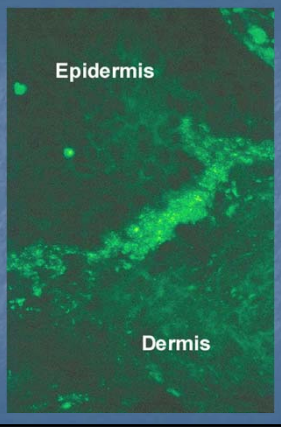
Lupus Eyrthematosis

- Chronic inflammation
  - Derm/epi junction
  - Adenexal structures
- Antibodies at derm/epi junction



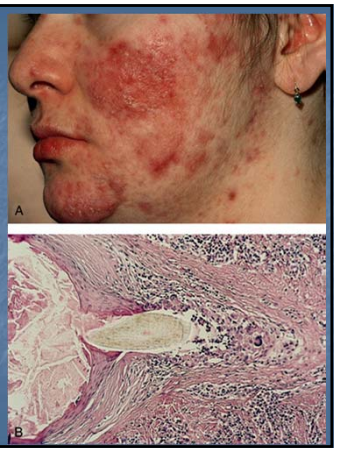
Lupus Erythematosis

- Antihuman IgG
- Concentration at basal layer.



Acne

- Acne vulgaris
  - Males mostly
  - Testosterone
- Observations
  - Keratin plugging of hair shafts
  - Proprionum bacteria grows
    - Breaks down sebaceous oils
    - Very reactive



Other Direct Infections of Skin

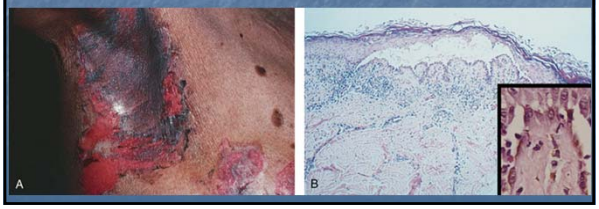
- Bacterial
  - Abscesses
- Fungal
  - Ringworm
- Worms
- Viruses
  - Smallpox

Gram+ Bugs

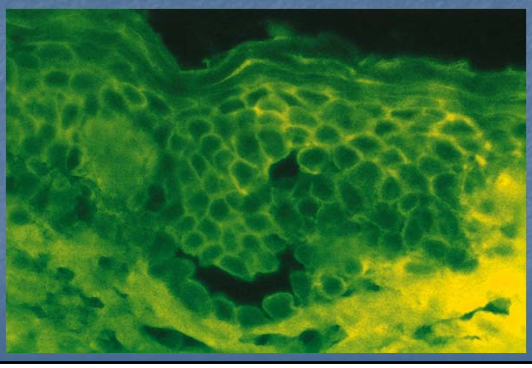
Viruses

Blistering Conditions

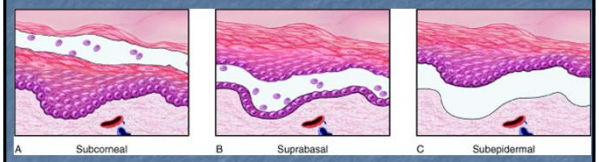
- Pemphigus vulgaris
  - Ab against skin and basement membrane.
  - Acantholysis
  - Suprabasalar cleft
- Blisters with sloughing of skin
- Pressure points



Pemphigus

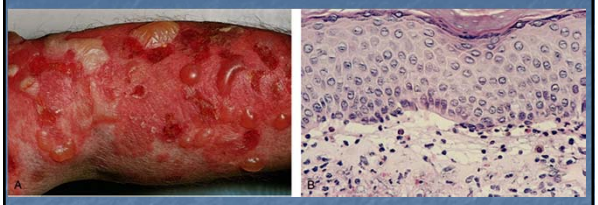


Cleft Position is Important



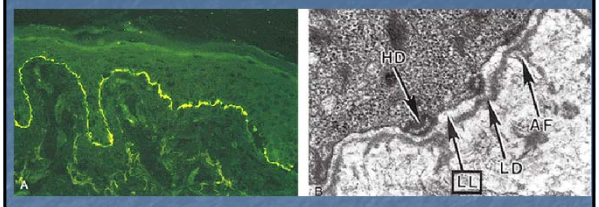
- Subcorneal: Impetigo
- Suprabasalar: Pemphigus vulgaris
- Subepidermal or basilar:
  - Bullous pemphigoid
  - Dermatitis herpatiformis

Bullous Pemphigoid



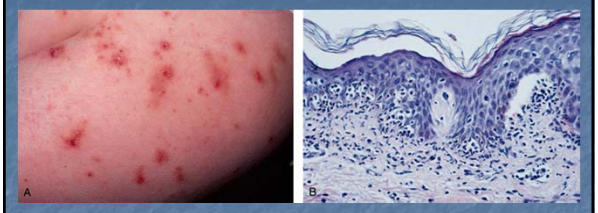
- Antibodies against hemidesmosomes.
- Hemidesomsomes anchor epidermis to basement membrane

Bullous Pemphigoid



- Note antibody staining along BM
- Antibodies against hemidesmosomes
- Epidermis lifts off the basement membrane

Dermatitis Herpatiformis



- Not actually the virus herpes
- 'Herpes' describes radial spread of a lesion.
- In some the symptoms are associated with wheat products (gluten)
- IgA deposits in the tips of the dermal papillae
- Microabscesses in the dermal papillae

A Brief Commercial Message

- John West Red Salmon Company

Changes in Pigmentation

Vitiligo

Proliferative Melanocytic Lesions

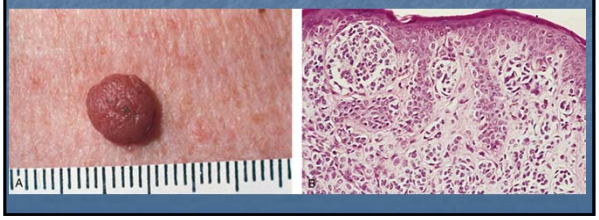
- Nevi
  - Benign growths of young melanocytes.
  - Born with them. We all have about 20
  - Not a freckle
- Dysplastic nevus
  - Abnormal maturation.
  - May become malignant
- Malignant melanoma

Nevus

- 'Mole', benign proliferation of young melanocytes.
- Where are the nevus cells"
  - Epidermal
  - Dermal
  - Compound
- Spitz nevus
  - Young people.
  - Looks aggressive, but not.
- Halo nevus (one undergoing regression)

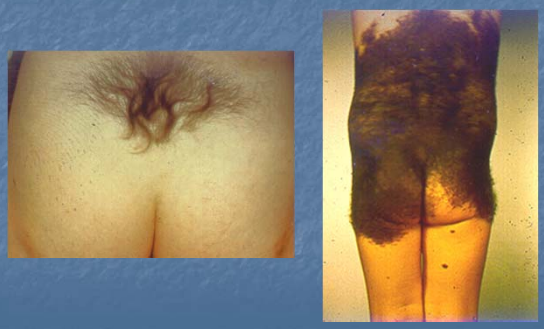
Dermal Nevus

- Clusters of young melanocytes.
- Confined to dermis.
- Maturation from 'surface to base'.



Nevi

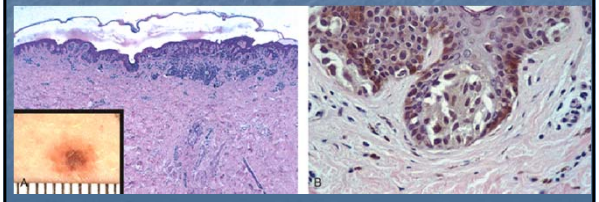
Large Nevi



Make Lemonade

Dysplastic Nevus

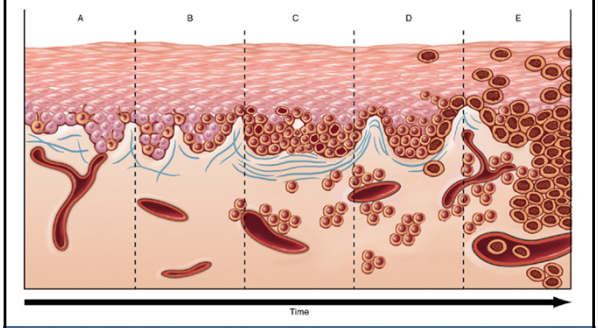
- Abnormal maturation of nevus cells
- May proceed to malignant melanoma
- Sometimes part of a familial syndrome.



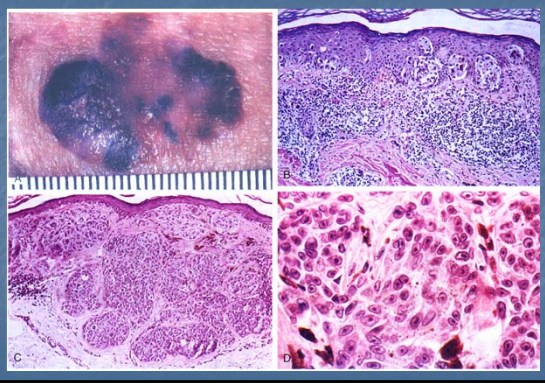
Malignant Melanoma

- Malignant melanocytic tumor
  - Very unpredictable tumor
- Genetics
- Solar and UV exposure
- Ethnic
- Radial growth followed by
- Penetrating phase
  - Metastasis
  - Persistent
    - Transplant 15 years later died with it

Melanoma History



Melanoma

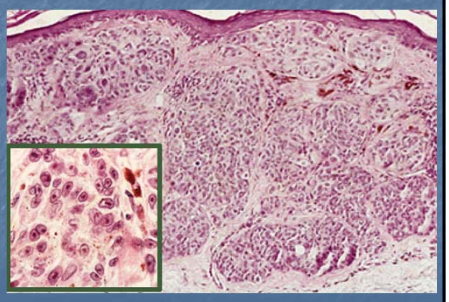


Malignant Melanoma

- Flag sign
- Nodular or vertical growth very important
- Depth >2 mm
  - Bad development
- Sites
  - Skin
  - Conjunctiva
  - Retina
  - Iris
  - Meninges

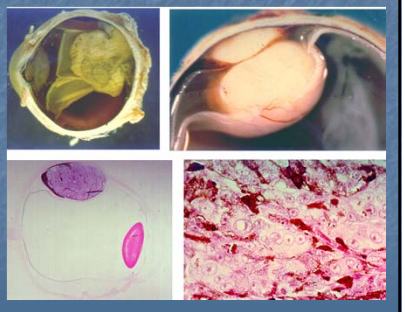
Malignant Melanoma

- Clusters
- Nucleoli
- Nuclear margins
- Lack of cohesion
- Depth



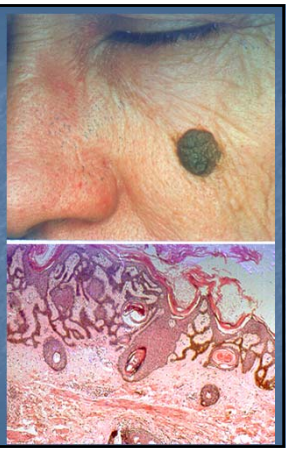
Ocular Melanomas

- Conjunctival
- Iris
- Retinal ->
- Histology
  - Spindle
  - Epitheloid ->
    - Bad
- Liver mets



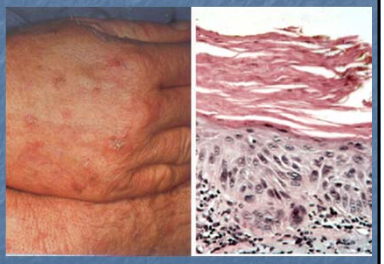
Epithelial Tumors

- Seborrheic keratosis
  - Older people
  - Pucker up big boy
- Stuck on appearance
- Greasy looking
- Keratin rich
- Benign
- Epithelial proliferation



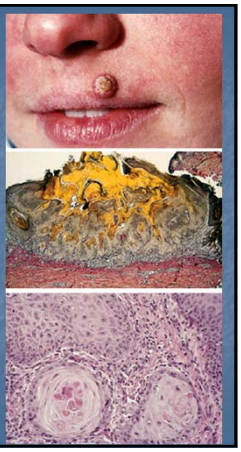
Actinic Keratosis

- Solar exposed skin
- Epithelial proliferation
- Dysplasia
- +/- malignant potential



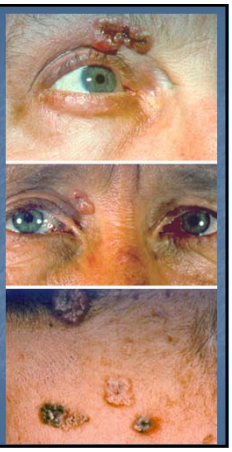
Keratoacanthoma

- Now considered a low grade squamous cell malignancy
- Often will regress
- Solar exposed skin
- Rapidly growing
- 'Cup or crater shaped'
- Epithelial proliferation
- Marked atypia



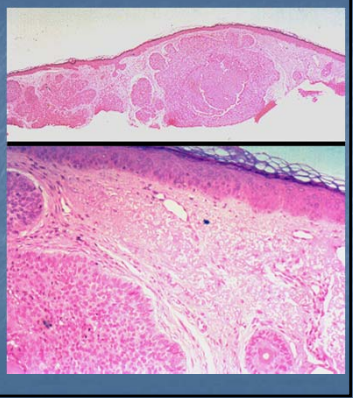
Basal Cell Carcinoma

- The most common malignancy we suffer from.
- Solar exposed skin.
- Pearly
- Raised edges
- Maybe central ulceration
- Stays at home, but
- Can locally invade and cause havoc.



Basal Cell Carcinoma

- Arises from basal layer of epithelium.
- Invades locally
- Grows in clusters
- Peripheral palisade
- Sometimes adenexal skin structure differentiation

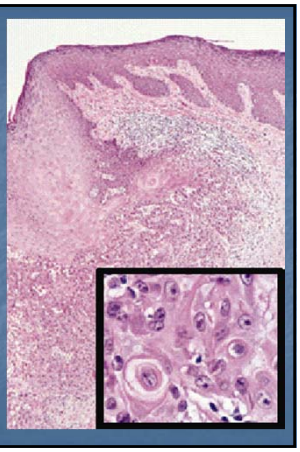


Squamous Cell Carcinoma

- Arises from differentiated squamous epithelium
- Sun exposed
  - UV
- Age of incidence is dropping.
- Metastasizes

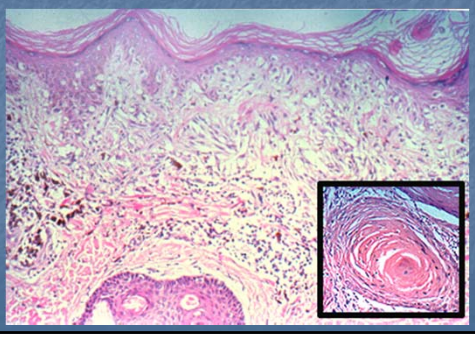
Squamous Cell Carcinoma

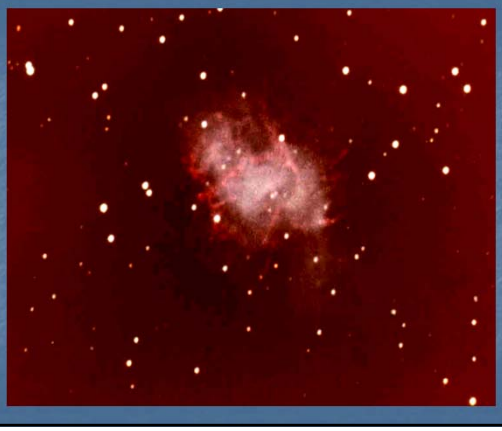
- Cells produce keratin
- Pearls
- Invade and spread
- High mitotic count



Squamous Cell Carcinoma

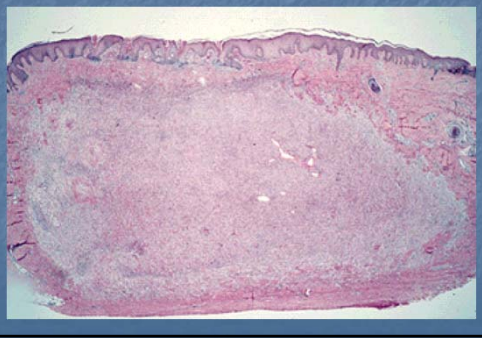
- Keratin Pearls





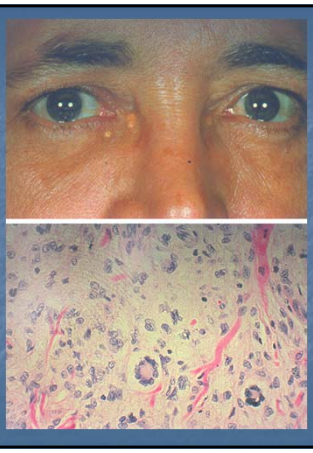
Dermal Tumors

- Fibroma



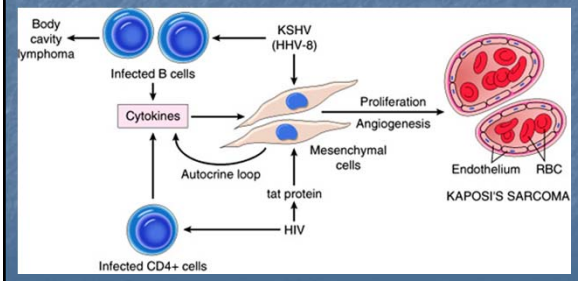
Xanthomas

- Histiocytes containing lipid
- Around eyes
- Extensor surfaces of extremities
- Diabetes
- Liver disease
- Hyperlipidemia

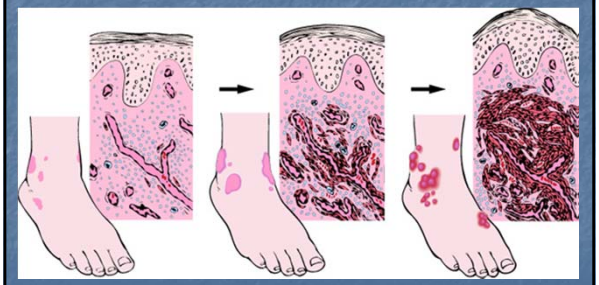


Kaposi's Sarcoma

- HIV & Herpes 8
- Vascular malignancy



Kaposi's Sarcoma



Kaposi's Sarcoma