Immunological disorders of the oral cavity

Prof. Shaleen Chandra

Recurrent aphthous stomatitis

Aphthous ulcers

Canker sores

- Common condition characterized by development of painful, recurring, solitary or multiple ulcerations of the oral mucosa

- Clinically similar to herpetic stomatitis

Etiology

- Bacterial infection
  - A hemolytic streptococci
  - Thought to be immunologic hypersenstivity to streptococcus

- Immunologic abnormalities
  - Autoimmune response of the oral epithelium
    - Increased binding of IgG and IgM antibodies to the spinous layer of oral epithelium
  - Local immune response against antigenically altered mucosa

- Nutritional deficiencies
  - Iron
  - Vitamin B 12
  - Folic acid

- Hormonal disturbances
  - Incidence is greatest during premenstural and postovulatory period in females
  - Remission during pregnancy and eruptions following parturition
  - May be related to blood levels of progesteron

- Psychological factors
  - Emotional and physical stress
  - Lack of sleep
- Allergic factors
  - History of asthma, hay fever, food or drug allergies

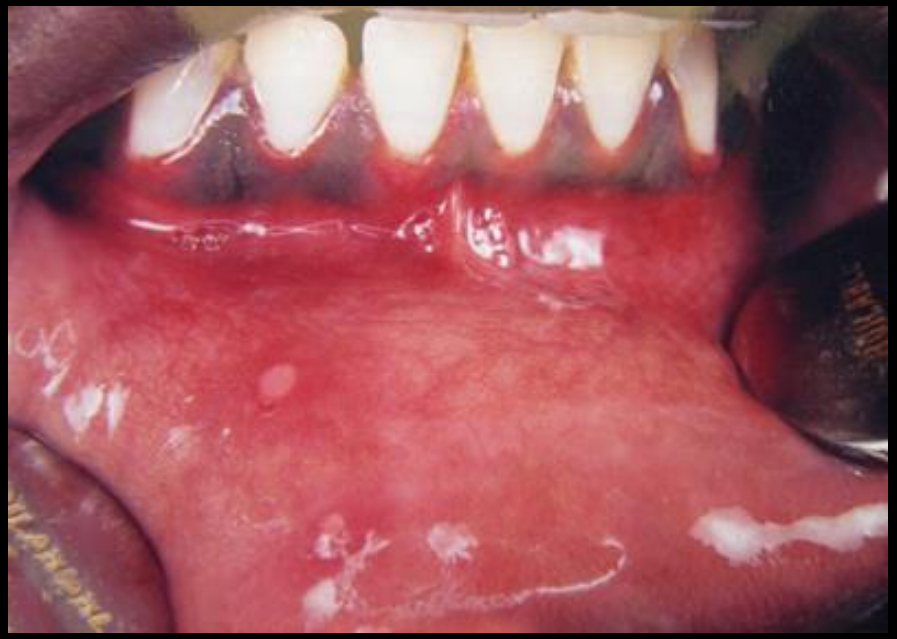
Clinical features

- Classification
  - Recurrent aphthous minor
    - Canker sore
  - Recurrent aphthous major
    - Periadenitis mucosa necrotica recurrens
    - Mikulicz's scarringt aphthae
    - Sutton's disease
  - Recurrent herpetifor ulcerations

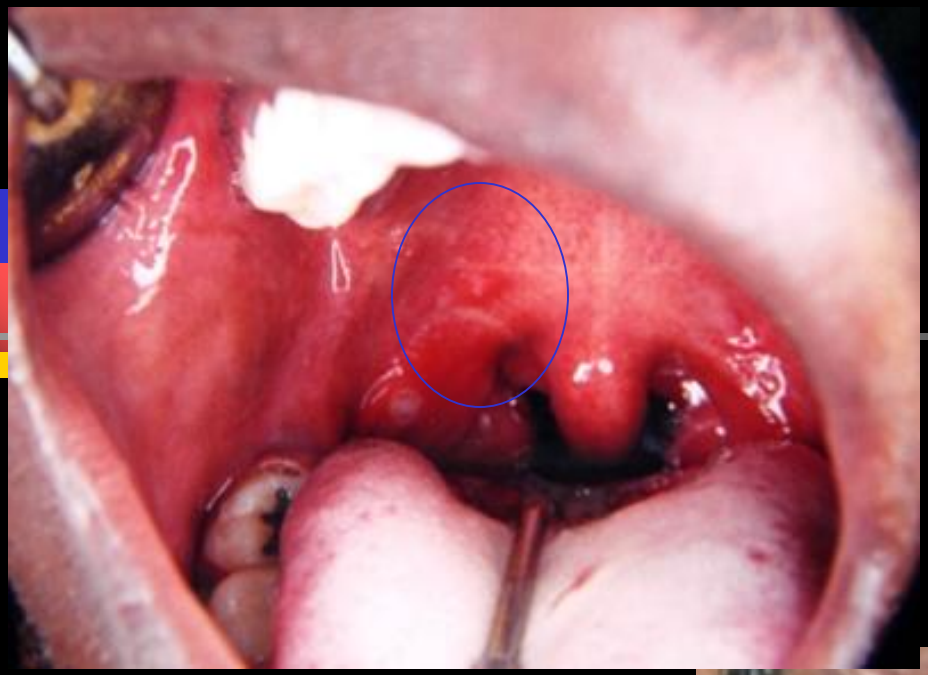
- Women
- 10-30 years

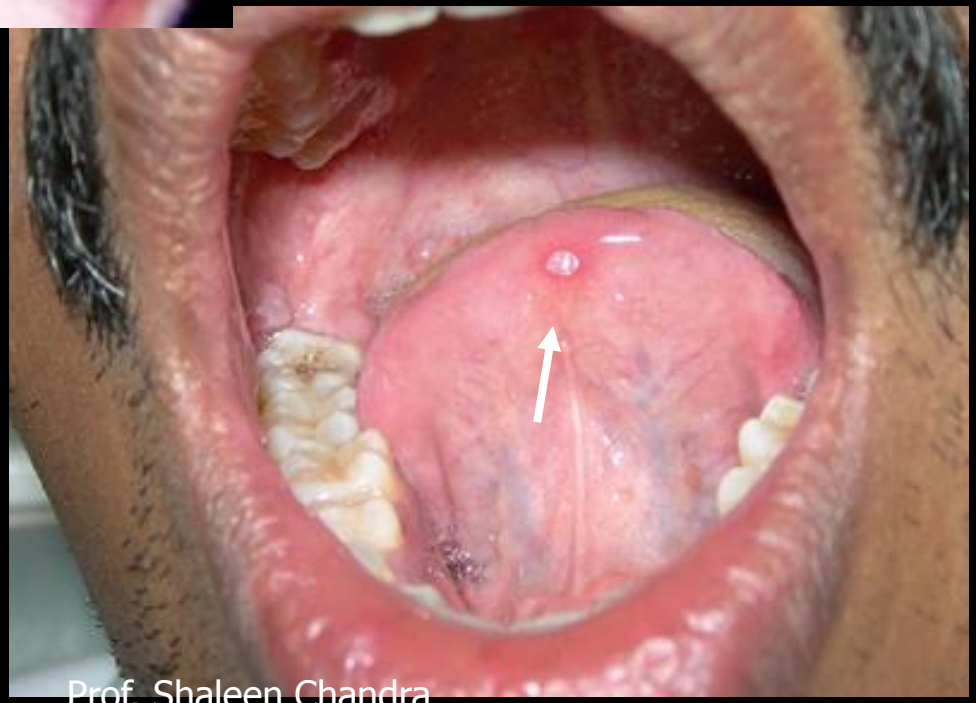
- May or may not have prodromal features
  - Small nodules
  - Generalized edema of the oral cavity
  - Paresthesia
  - Low grade fever
  - Localized lymphadenopathy
  - Vesicle like lesions

Single or multiple superficial erosions



- Well circumscribed margins
- Covered by grey membrane
- Erythematous halo
- Extremely painful
- Usually 2-3 mm in size
- Usually seen in mucosa not bound to periostium
- Heal in 7-14 days without scarring





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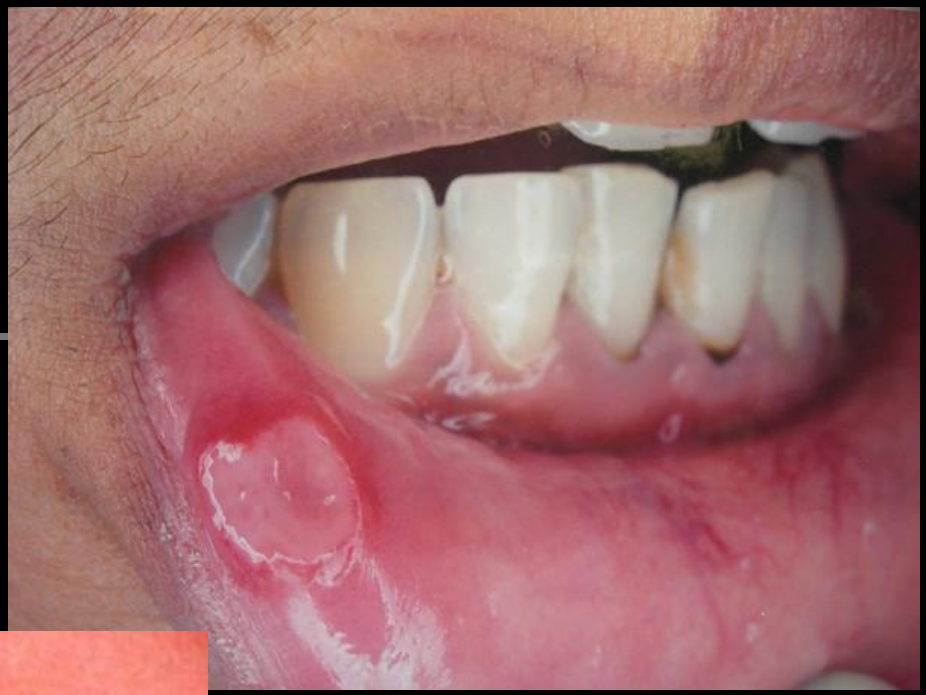
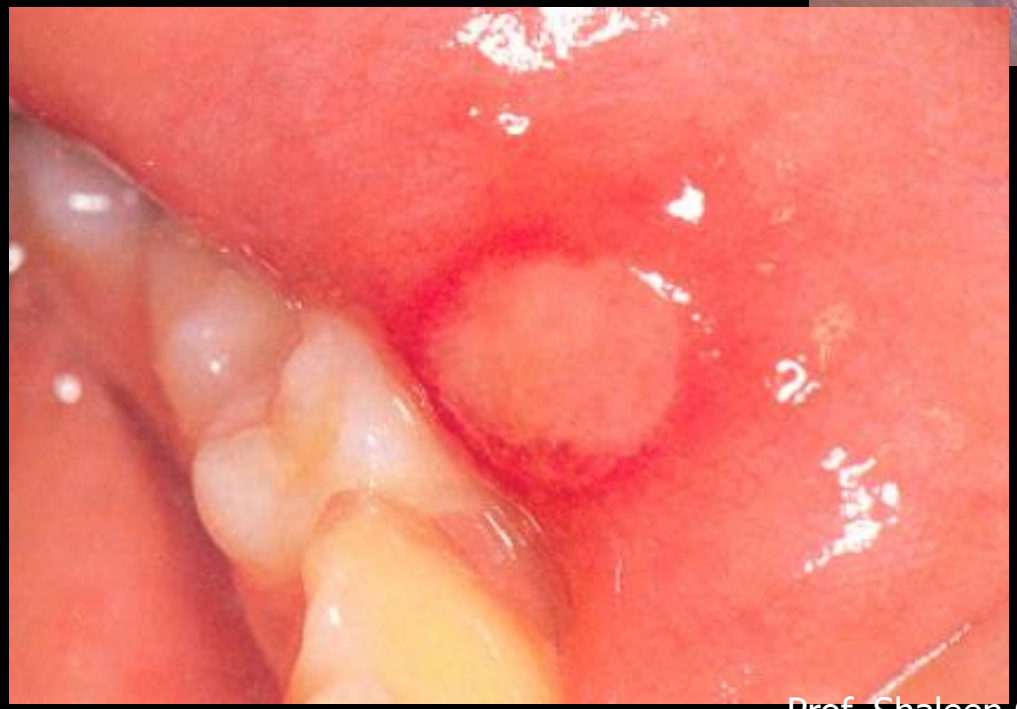
Recurrent aphthous major

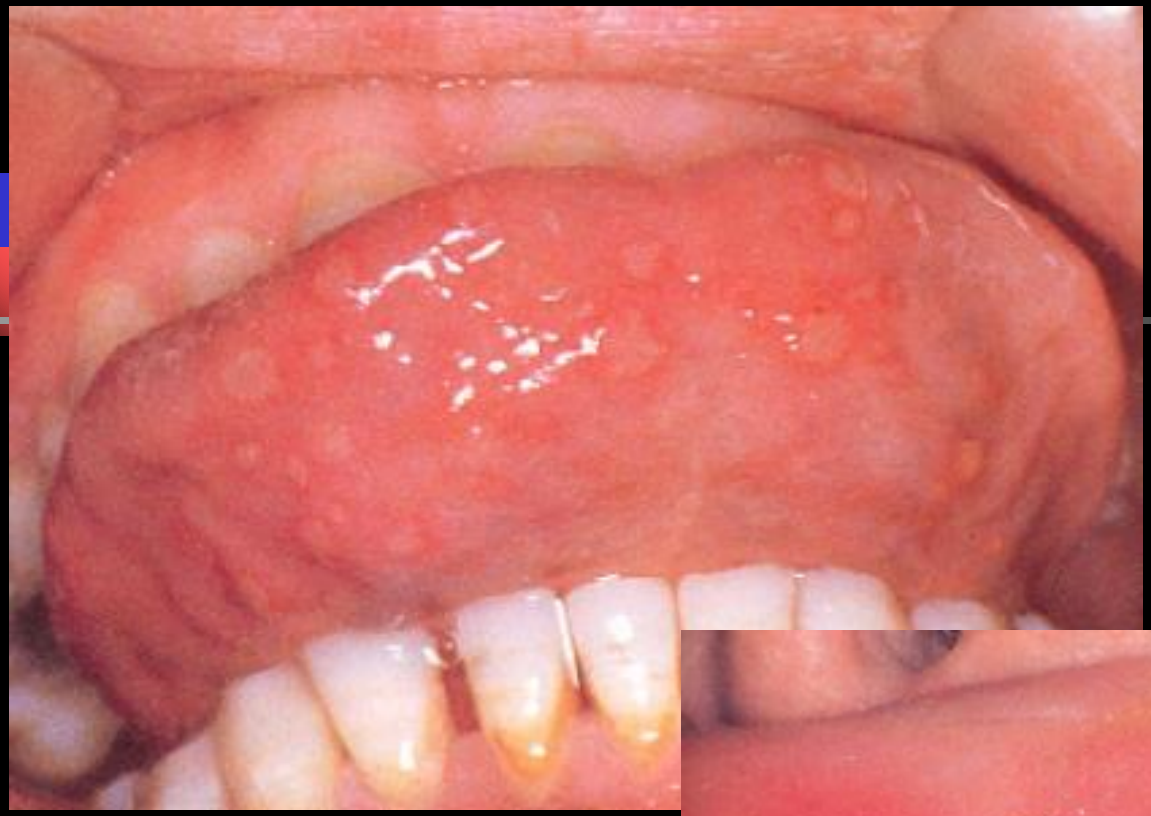
- Large painful ulcers
- 1-10 in number
- Usually about 10mm in diameter
- May persist for upto 6 weeks
- Heal with scarring

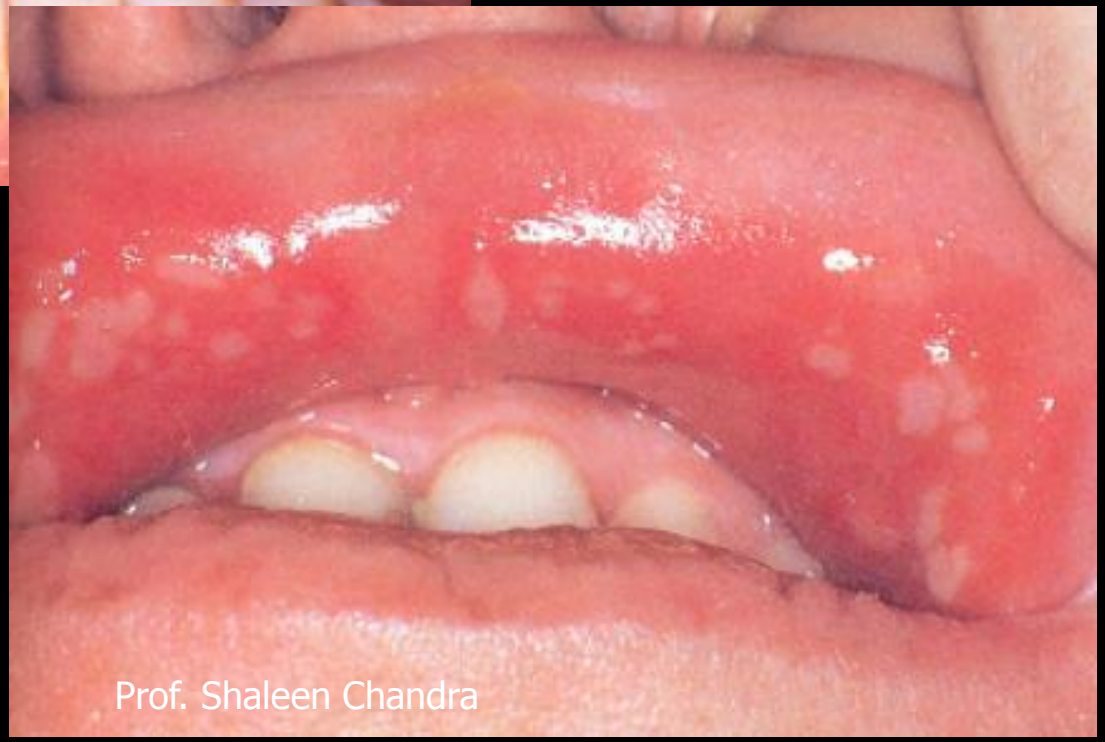




Recurrent herpetiform ulcers

- Crops of multiple, small, shallow ulcers
- Often upto 100 in number
- Gradually enlarge and coalesce
- Any site
- Present almost continuously for one to three years
- Immediate but temporary relief with 2% tetracyclin mouthwash





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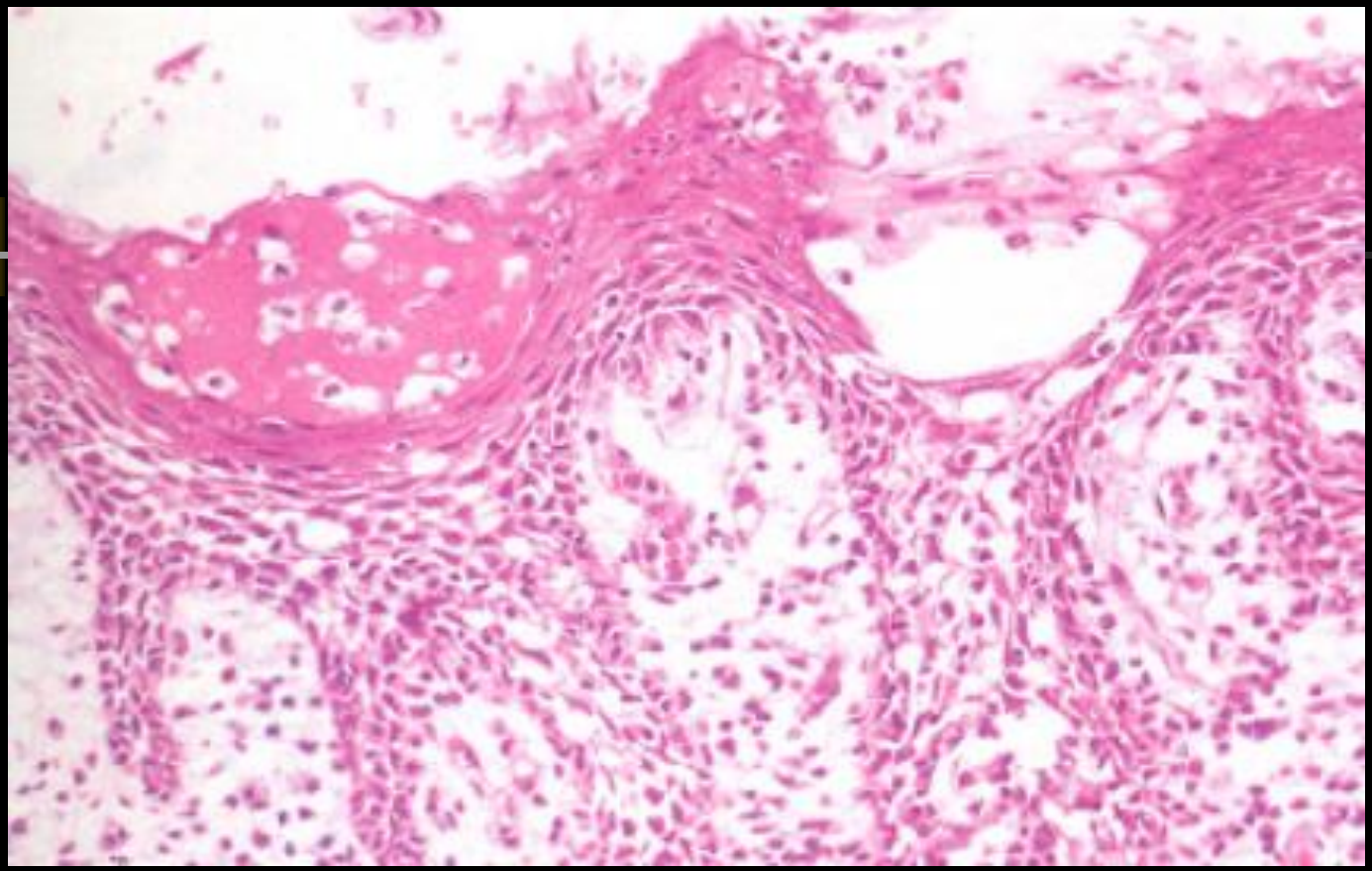
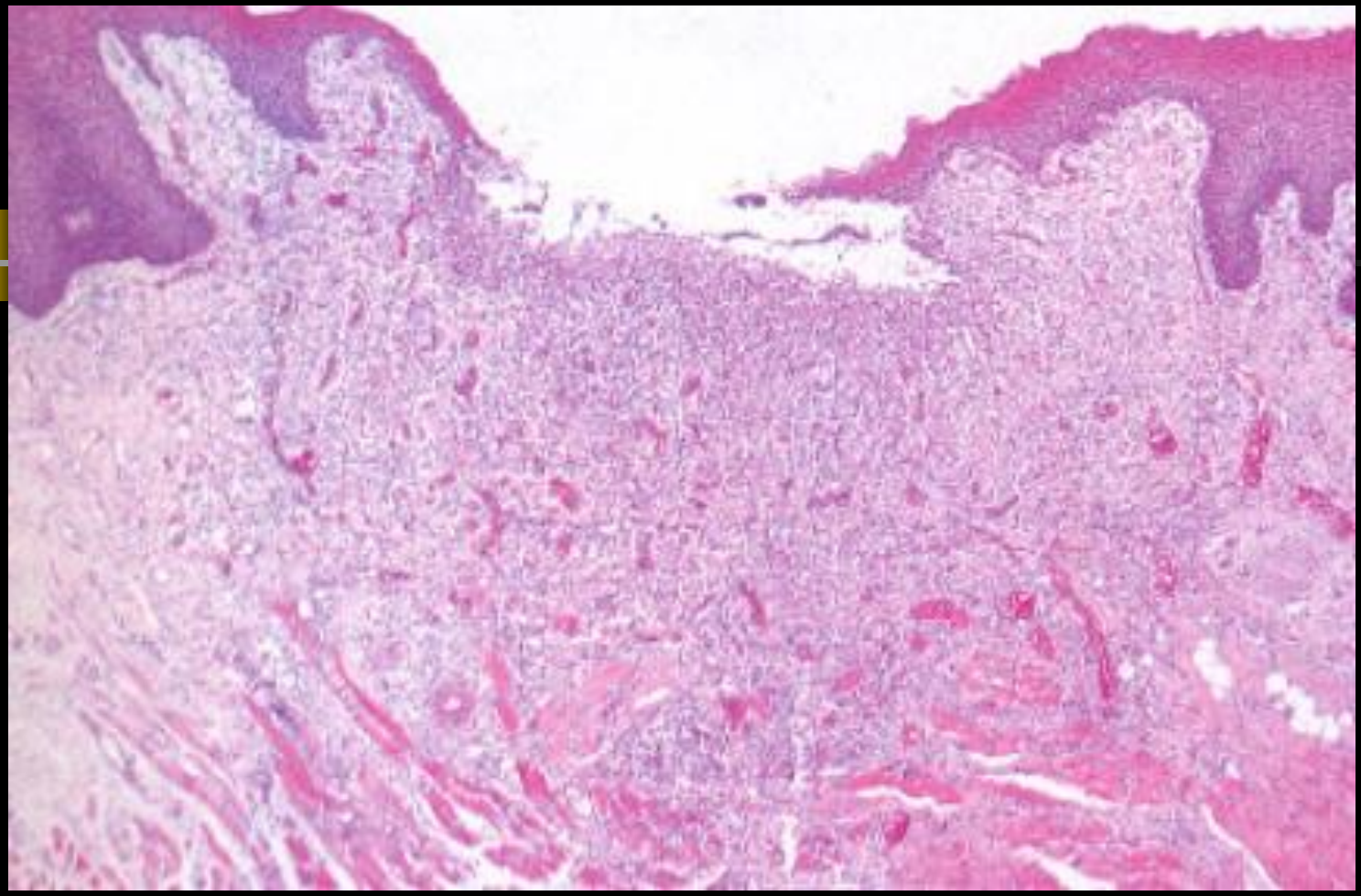
- How to differentiate from herpetic stomatitis
  - HSV can not be cultured from the lesions
  - Cytologic smears fail to reveal Tzank cells
  - Microscopic findings are identical to those of aphthous
  - Immunofluorescent and serological techniques are negative for antibodies against herpes simplex

Histopathological findings

- Ulcerated epithelium covered by fibrinopurulent area
- Superficial colonies of microorganisms
- Intense inflammatory cell infiltration with considerable necrosis
- Granulation tissue near the base of the lesion



- Intercellular edema with distintegration of epithelium



- Ulcerated epithelium with intense inflammatory infiltrate

- Ductal ectasia
- Periductal fibrosis
- Disruption of ductal epithelium

- Cytological smears
  - Cells with elongated nuclei
  - Linear bar of chromatin with radiating processes of chromatin extending towards the nuclear membrane
  - Anitschkow cells

Behcet's syndrome

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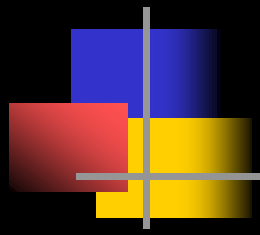

- Disease of uncertain etiology thought in past to be caused by
  - Pleuropneumonia-like organism (PPLO)
- Now thought to have autoimmune etiololgy

Clinical features

- Between 10 to 45 years
- Males
- Triad
  - Oral and genital ulcers
  - Ocular lesions
  - Skin lesions
  - At least 2 should be present

- Oral lesions
  - Similar to aphthous
  - Painful
  - Any site
- Ocular lesions
  - Photophobia
  - Irritation
  - Conjunctivitis
  - Uveitis
- Skin lesions
  - Pustules or papules on trunk, limbs, and genital

- Arthralgia
- Thrombophlebitis
- CNS, cardiovascular, pulmonary involvement

Histopathologic features

- Nonspecific
- Similar to recurrent aphthous stomatitis

Laboratory findings

- Hypergammaglobulinemia
- Leukocytosis
- Eosinophelia
- Elevated ESR

Reiter’s syndrome

- Disease of unknown etiology
- Previously thought to be caused by
  - PPLO
  - Bedsonia group of virus
  - Mycoplasma
  - Chlamydial species
- Current concept
  - Immunodysregulated condition

Clinical features

- Young adults
- Men (9:1)
- Tetrad
  - Nongonoccocal urethritis
  - Arthritis
  - Conjunctivitis
  - Mucocutaneous lesions

- Urethritis
  - Urethral discharge
  - Itching
  - Burning sensation
- Arthritis
  - Polyarticular
  - Bilaterally symmetrical
- Conjunctivitis
  - Mild
- Skin lesions
  - Red or yellow keratotic macules or papules

- Oral manifestations
  - Buccal mucosa, lips, gingiva
    - Painless, red, slightly elevated areas
    - White borders
  - Palate
    - Small, bright red perpuric spots
    - Darken and coalesce
  - Tongue
    - Resembles geographic tongue

Histopathologic features

- Parakeratosis
- Acanthosis
- Neutrophilic infiltration of epithelium forming microabcess
- Lymphocyte and plasma cell infiltrate in connective tissue

Laboratory findings

- Mild leukocytosis
- Elevated ESR
- Pyuria

Sarcoidosis

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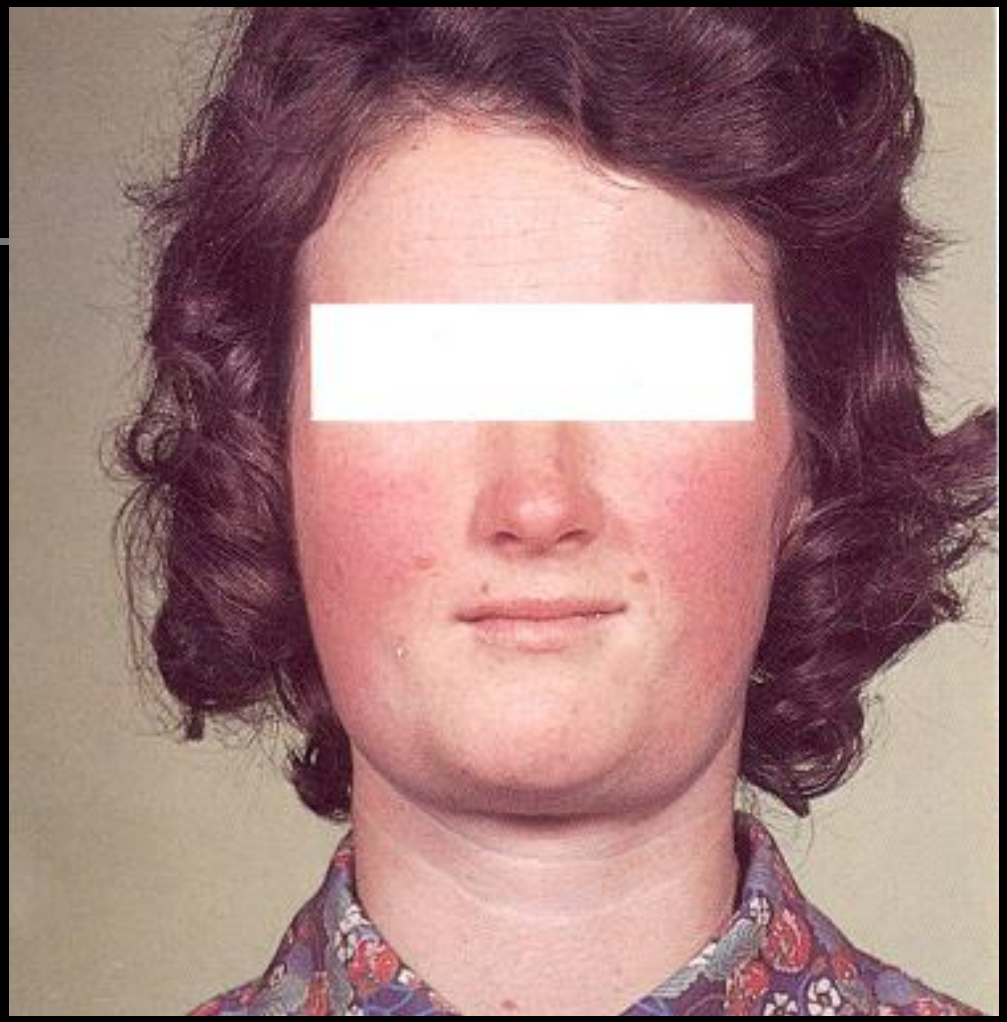
- Multisystem granulomatous disease of unknown origin

- Characterized by
  - Depression of delayed type of hypersensitivity
    - Due to impaired cell mediated immunity
  - Raised abnormal serum immunoglobulin levels
    - Due to lymphoproliferation

Clinical features

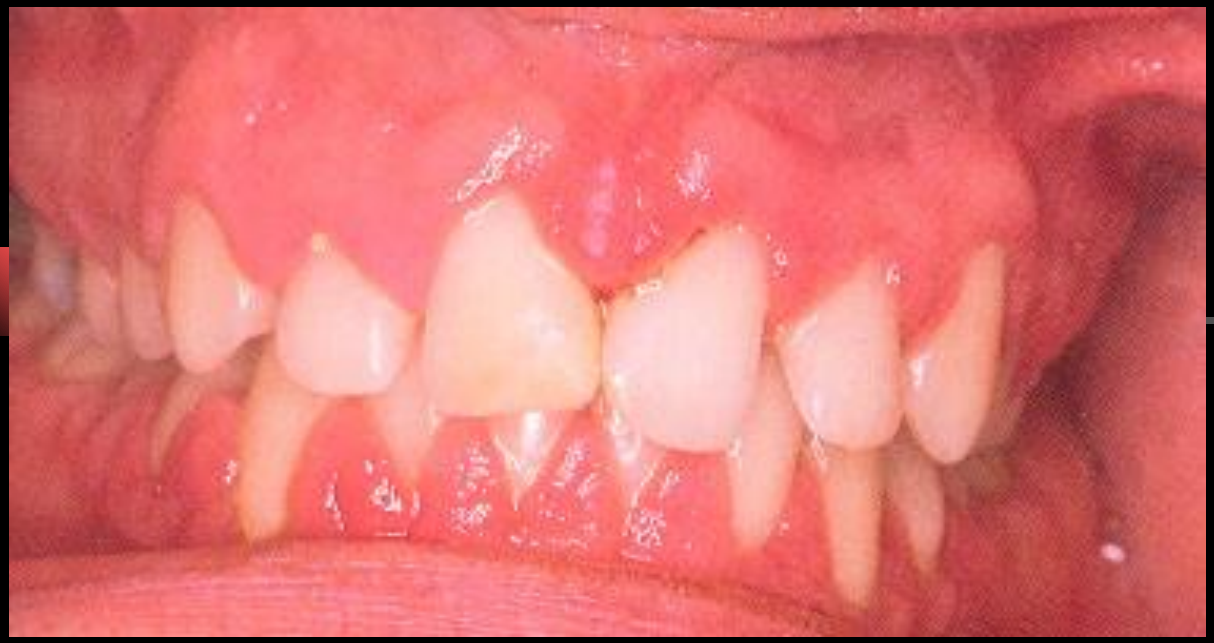
- Young and middle aged adults
- Starts with mild malaise and cough
- Hilar lymphadenopathy
- Pulmonary infiltration
- Eye lesions
- Hepatospleenomegaly
- Enlargement of salivary glands

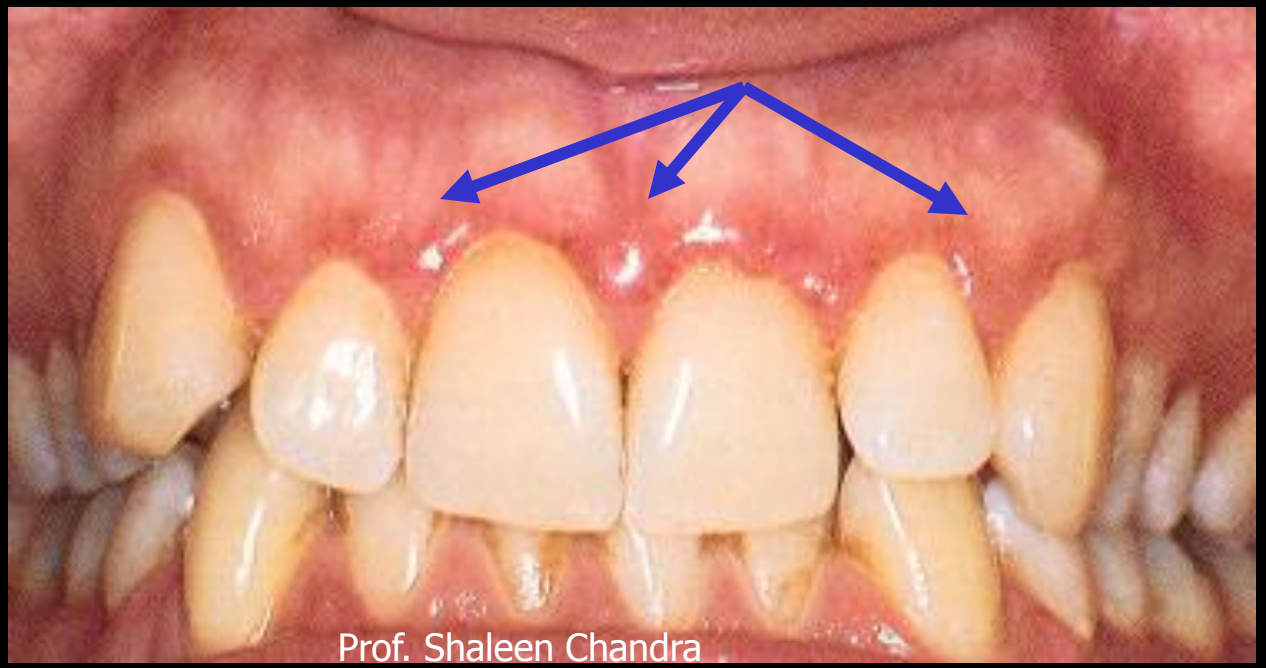
- Cutaneous lesions
  - Multiple, raised, red patches
  - Grow slowly
  - Do not tend to ulcerate or crust



Oral manifestations

- Rare
- Most common site
  - Gingiva, lips, palate, buccal mucosa
- Painless enlargement
- Solitary or multiple nodules having gelatinous consistency
- Diffuse destruction of bone

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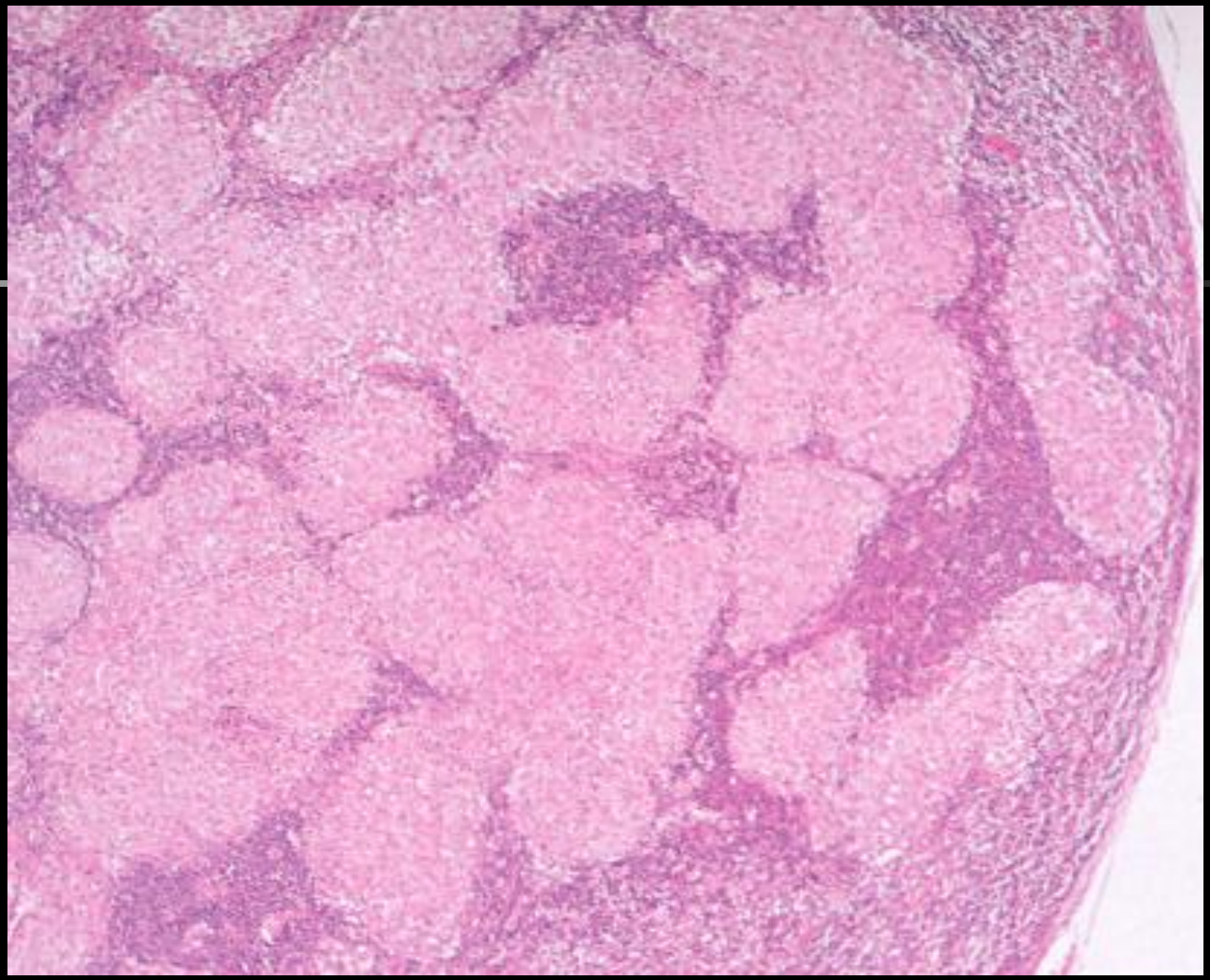
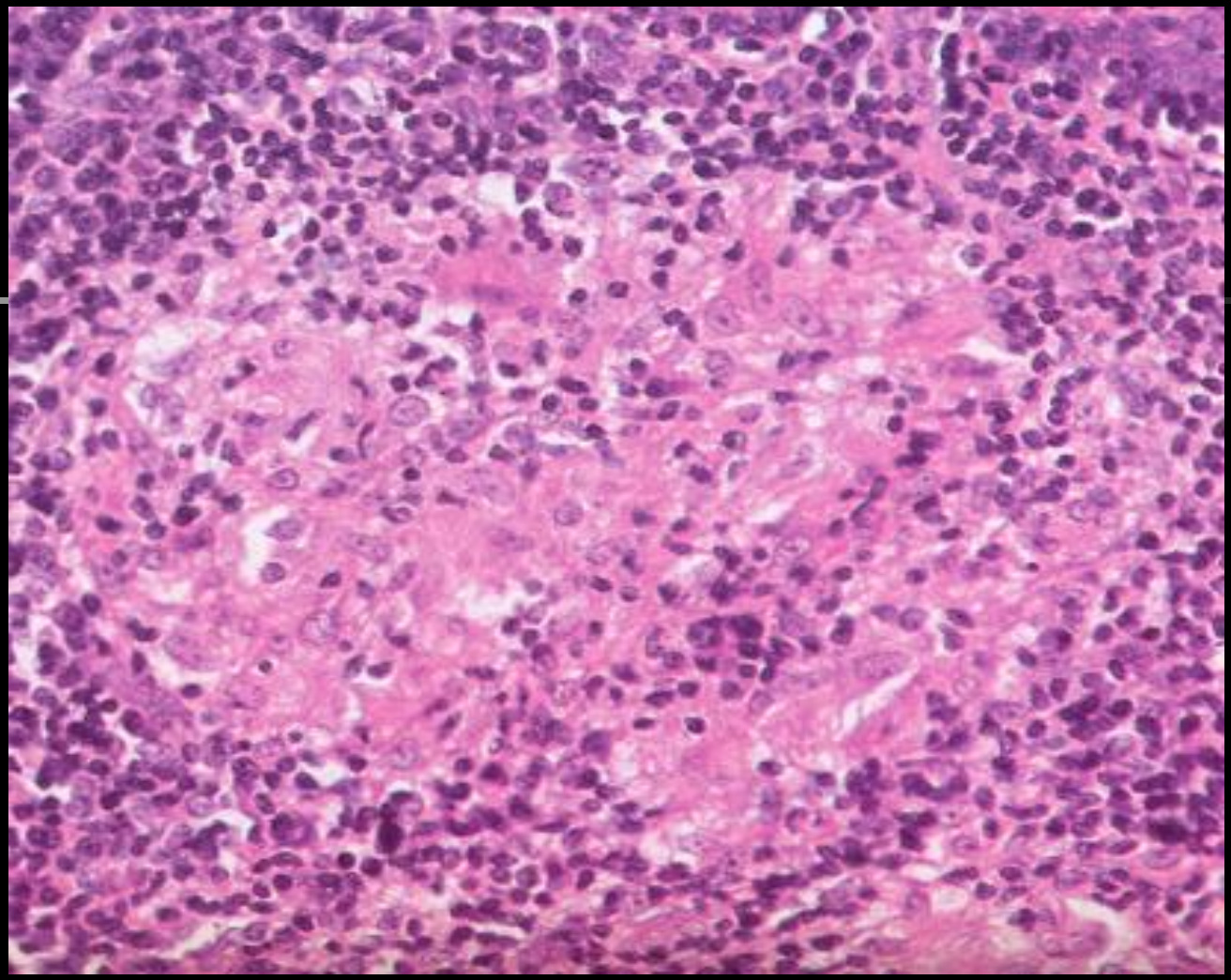
Histopathologic features

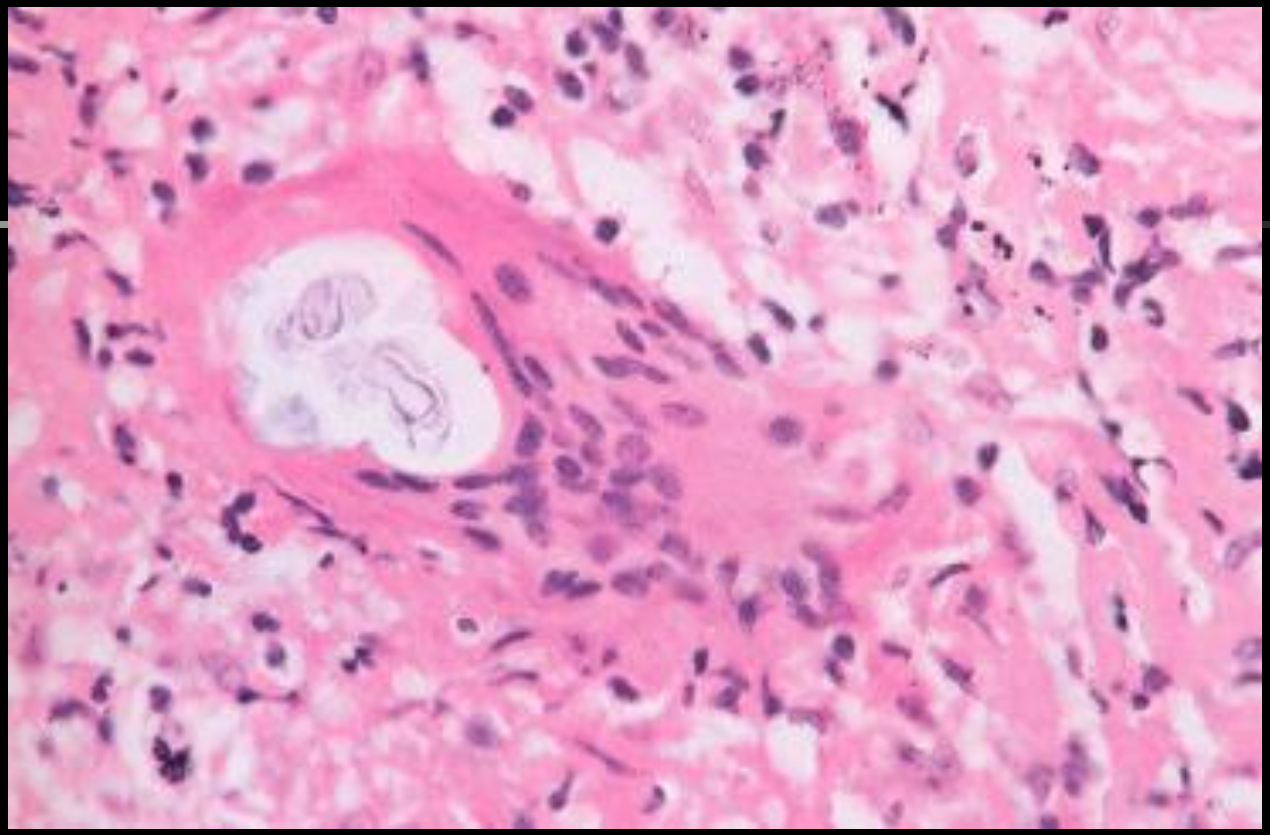
- Uniform, discrete, compact, non-caseating granulomas
- Nests of epitheliod cells
- Multinucleated giant cells
- No caseation or necrosis



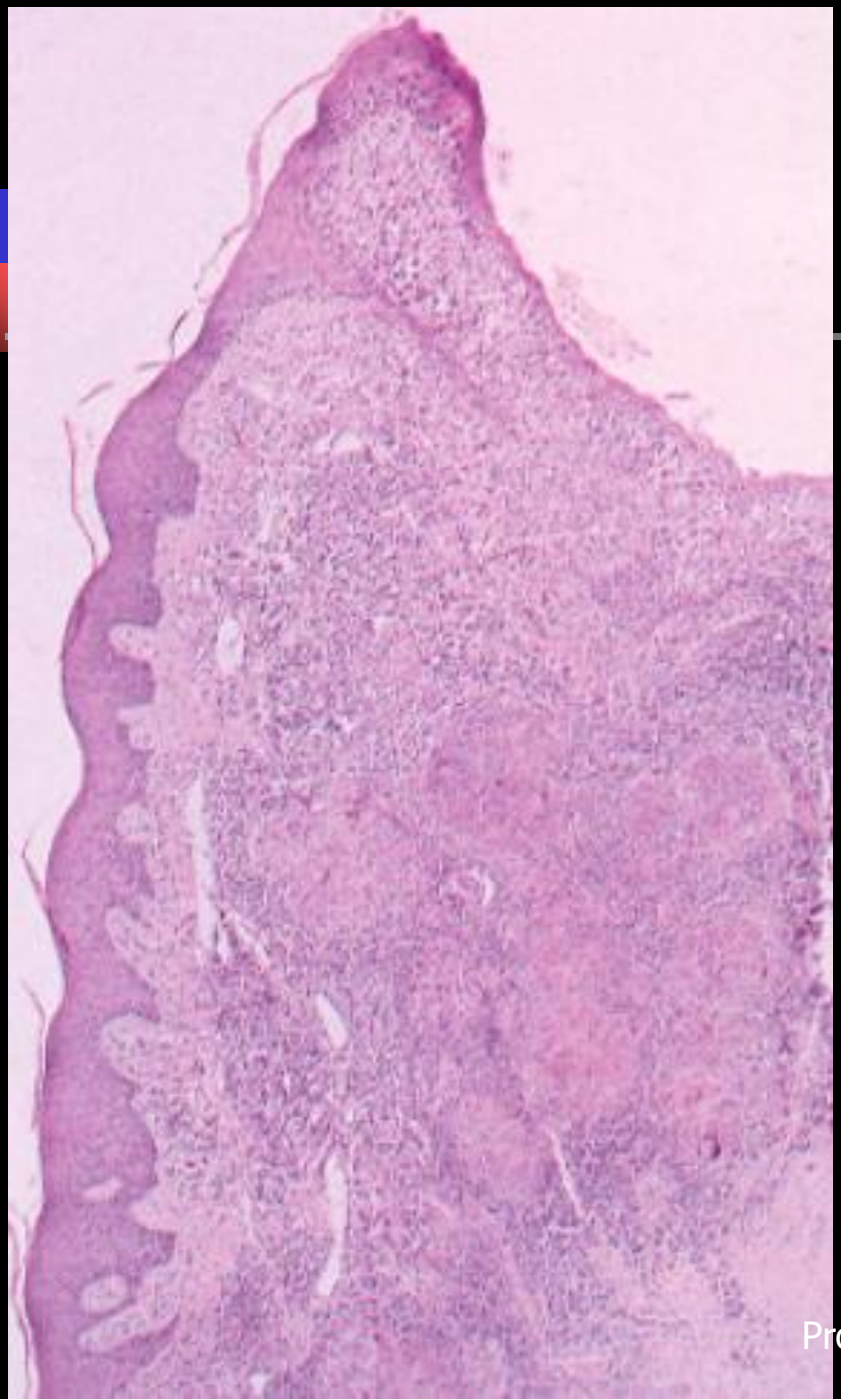
- Numerous discrete and compact granulomas



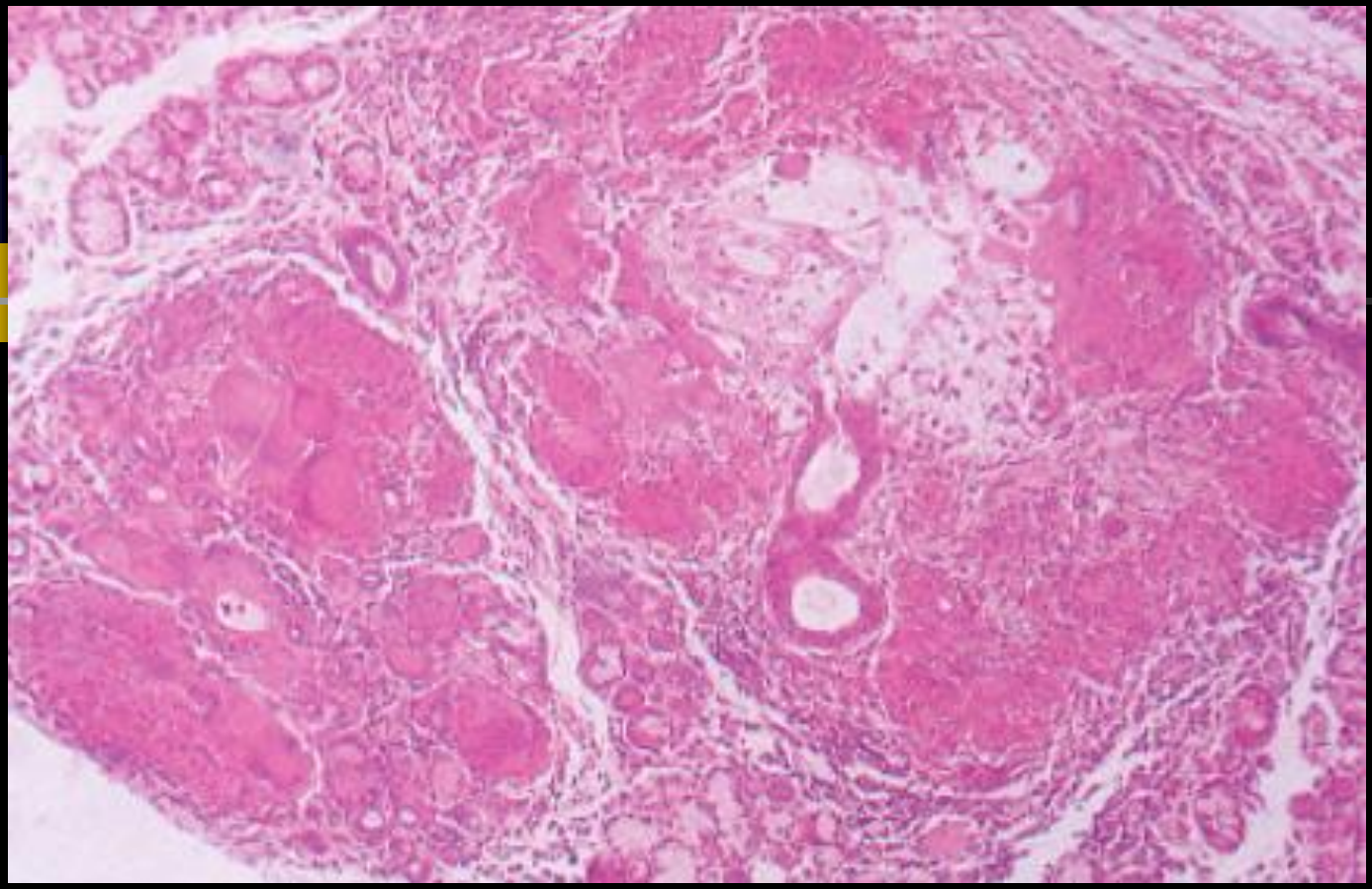
- High power view of single granuloma



- Multinucleated giant cell with crystalline inclusion



- Gingival biopsy
  - Compact granulomas within lamina propria



- Biopsy of labial mucosa showing granulomas in minor salivary glands

Angioedema

Angioneurotic edema

Quincke's edema

Giant urticaria

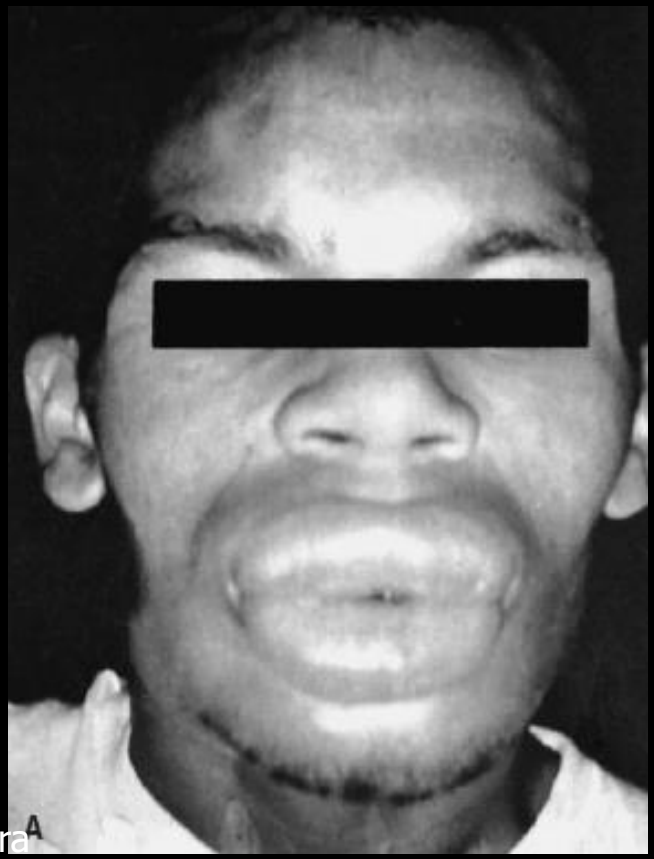
- Diffuse edematous swelling of the soft tissues commonly involving the subcutaneous and submucosal connective tissue

Pathogenesis

- Alteration in vascular permeability
  - **Allergic angioedema** → due to mast cell degranulation caused by IgE mediated hypersensitivity reactions
  - Associated with use of ACE inhibitors → due to increased levels of bradykinin
  - Defect in regulation of complement pathway
    - Hereditary or acquired
  - Patients with elevated eosinophil counts

Clinical features

- Soft, nontender, diffuse edematous swelling most commonly involving face
  - Lips and peri oral area
  - Chin
  - Eyes and periorbital area
  - Tongue
  - Pharynx
  - Larynx
- Rapid oset
- Usually resolves within 24-72 hours



- Feeling of tenseness
- Itching and prickly sensation
- Sever cases may show
  - Respiratory involvement
    - Hoarseness of voice
    - Difficulty in breathing
  - GI involvement
    - Vomitting
    - Watery diarrhea

Treatment

- Antihistaminics
- Epinepherine
- In sever cases
  - Intravenous corticosteroids
  - Tracheostomy

Drug allergy

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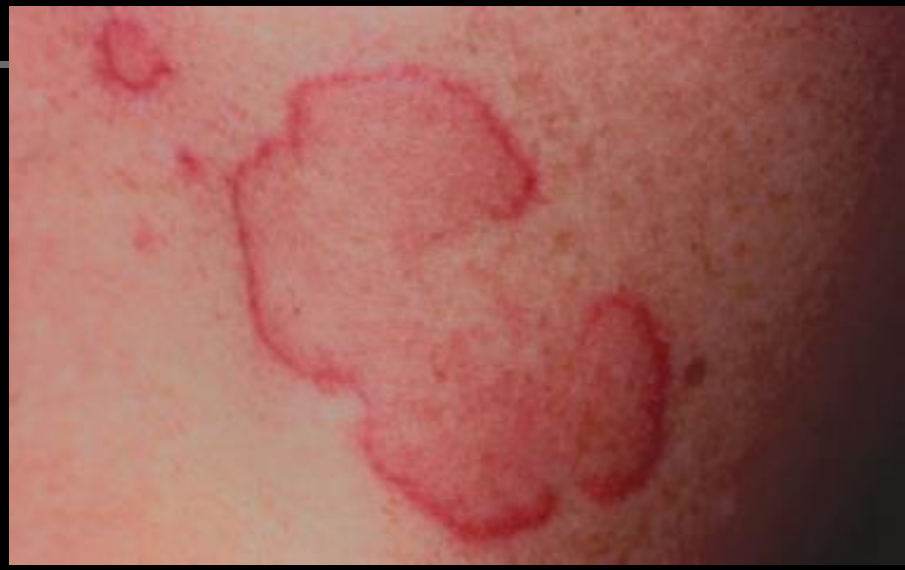
- Sensitivity reaction following exposure to any drug or chemical that is not related to any pharmacologic activity or toxicity of these materials

Clinical features



- Arthralgia
- Fever
- Lymphadenopathy
- Agranulocytosis
- Skin lesions → *dermatitis medicamentosa*
  - Urticaria
  - Fixed drug eruptiuons

Oral manifestation

- Stomatitis medicamentosa

- Present as
  - Erythema multiforme
  - Lichenoid drug reactions
  - Lupus erythematosus like eruptoions
  - Pemphigus like eruptions
  - Nonspecific vesciculoulcerative lesions

Contact stomatitis / dermatitis

Stomatitis/dermatitis venenata

- Type of reaction in which skin or oral lesions develop after repeated contact with the causative agent

Clinical features

- Itching or burning sensation at the site of contact
- Erythema
- Vesicle formation
- Erosion
- In chronic cases
  - Skin becomes thickened and dry

Oral manifestation

- Oral cavity is less sensitive than skin
- Oral mucosa becomes inflamed and edematous
- Small vesicles that rupture to form erosions and ulcerations
- Sever burning sensation, tingling, stinging sensation
- Plasma cell gingivitis
- Chronic cases
  - Erythematous areas
  - White hyperkeratotic areas

Histopathologic feature

- Intra and intercellular edema of epithelium
- Intraepithelial or subepithelial vesicle formation
- Engorged and dilated blood vessels
- Edema of connective tissue with dense plasma cell infiltrate
- Increased number of eosinophils