Oral Manifestations of Systemic conditions

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Oral Manifestations of Systemic Disease

- Mucopolysaccharidosis
- Lipid reticuloendothelioses (Gaucher Disease, Niemann-Pick Disease, Tay-Sachs Disease)
- Lipoid Proteinosis
- Jaundice
- Amyloidosis
- Vitamin Deficiency (Vit A, Thiamin, Riboflavin, Niacin, Pyridoxine, Vit C, D, E, K
- Iron deficiency anemia
- Plummer-Vinson syndrome
- Pernicious Anemia
- Pituitary Dwarfism
- *Gigantism*
- Acromegaly
- Hypothyroidism
- Hyperthyroidism
- Hyperparathyroidism
- Pseudohypoparathyroidism
- Hyperparathyroidism
- Hypercortisolism
- Addison’s Disease
- Diabetes Mellitus
- Hypophosphatasia
- Vitamin-D resistant Rickets
- Crohn’s Disease
- Pyostomatitis Vegitans
- Uremic Stomatitis

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Oral Manifestations of Systemic Disease

- Mucopolysaccharidosis – heterogeneous group of metabolic disorders (inherited as an autosomal recessive), leading to a lack of any enzyme capable of processing glycoaminoglycans { used to be called mucopolysaccharides}); mental retardation, with coarse facial features and heavy browsridges.
- Lipid reticuloendothelioses [Gaucher Disease { lack of glucocerebrosidase leads to accumulation of glucosylceramide; type I non neuronopathic, Type II and III neuronopathic), ;Niemann-Pick (deficiency of acid sphingomyelinase Disease leads to accumulation of shingomylinase); Tay-Sachs Disease lack of B-hexosaminidase A leads to accumulation of ganglinoside)]
- Lipoid Proteinosis- inherited as an autosomal recessive trait and leads to deposition of waxy material in the dermis and sub mucosa (PAS +ve)
- Jaundice- excess bilirubin in the bloodstream (from breakdown of hemoglobin). Auto immune hemolytic anemia, sickle cell anemia.
- Pseudohypoparathyroidism- normal levels of PTH (parathyroid hormone) but may have defect in cAMP (needed for cell metabolism), defective receptors for PTH; or lack of functional response in target cells .
- Hyperparathyroidism- excess PTH (primary due to parathyroid adenoma or rarely hyperplasia or Ca. eg MENS type I or 2a, or hyperparathyroidism- jaw tumour syndrome. Secondary due to chronic low serum Ca++ due to renal disease which means low Vit D (required for Ca absorption)
- Hypercortisolism- sustained increase in glucocorticoid levels, due to corticosteroid therapy ; or due to adrenal or Pituitary tumour

  (Cushin's disease)
- Hypophosphatasia- rare metabolic bone disease due to lack of alkaline phosphatase (lack of cementum leading to premature loss of primary teeth;
- Vitamin-D resistant Rickets-
- Uremic Stomatitis- uncommon complication of renal failure, leading to white plaques deposited on buccal mucosa

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Oral Manifestations of Systemic Disease

Amyloidosis- represents a heterogeneous group of conditions leading to the deposition of Amyloid (Proteinacious substance)

Organ-limited: rare in oral

Systemic amyloidosis : **Primary, Myeloma associated** (affect adults, weight loss fatigue, hoarseness of voice; MACROGLOSSIA), **Secondary, hemodialysis-associated, Heredofamilial**

Vitamin Deficiency-

Vit A : blindness, skin dryness

Thiamin: peripheral neuropathy, neurologic problems

Riboflavi: glossitis,, angular chelitis, sore throat, swelling and erythema of mucosa

Niacin: Pellagra (glossitis)

Vit C : (scurvy) delayed wound healing, gingival swelling hemorrhage, ulceration

Vit D: (rickets in infancy and Osteomalacia in adults), Dietary (Milk) and Sunlight

Vit K : bleeding

- Iron Deficiency- excessive blood loss, incresed demands, decreased intake, decreased absorption (GI-tract disease)

  Plummer-Vinson (patterson-Kelly)syndrome iron deficiency, glossitis, dysphagia (and ^ risk of SCC)
- Gigantism- increased growth hormone (pituitary adenoma) during growth (McCune – Albright syndrome Polyostotic fibrous dysplasia, café au lait pigmentation and endocrine disturbances.

  Acromegaly- increased growth hormone as an adult (mandibular prognathism, spacing of teeth and open bite, Macroglossia)

Oral Manifestations of Systemic Disease

Hypoparathyroidism- PTH and Vit D regulate Ca++ levels in extracellular tissues. Decrease in PTH leads to hypocalcaemia (failure of tooth eruption, pitting of enamel, persistent candidosis (endocrine – candidosis syndrome)

Addison's disease: Hyperadrenocorticism- intral oral brown macular pigmenntation, (excess melanin)

- Crohn's disease- inflammatory (immune – mediated?) condition affecting the small bowel (but can affect any part of GI-tract). Causes malabsorption leading to ulceration. Granulomas in the mucosa
- Pyostomatitis vegitans- affects the gingiva; similar to pathogenesis of inflammatory bowel disease. Appearing as yellowish-white pustules

Systemic Disorders

- HIV / AIDS
- Lupus
- Anaemia
- Leukaemia
- Acromegaly
- Diabetes (..later)
- Crohn’s Disease
- Tonsillitis
- Syphilis
- Tuberculosis
- Cat Scratch Disease
- Paget’s Disease
- Cleidocranial Dysplasia
- Osteogenesis Imperfecta

HIV / AIDS

- AIDS:
  - One or more opportunistic diseases diagnosed by reliable methods, which are at least moderately indicative of an underlying cellular immunodeficiency
  - Absence of all other known causes of cellular immunodeficiency
  - Absence of causes of reduced resistance known to be caused by these opportunistic diseases
  - HIV +

HIV

- Came to limelight in 1981; by 1992- 8 million people infected by HIV
- Primary target is CD4+ helper T cells
- On introduction of HIV, those infected will have acute self-limiting infection (symptoms similar to infectious mononucleosis), lasting a few weeks!
- Followed by asymptomatic stage (8-10 years)
- Persistent Generalised Lymphadenopathy
- AIDS Related Complex (chronic fever, weight loss, oral candidosis, herpes zoster, Oral hairy leukoplakia)
- Other oral manifestations- Kaposi's sarcoma (HHV 8), trigeminal neuropathy, Xerostomia etc

HIV

- Present in oral fluids
- Saliva reduces the ability of HIV to infect its target cells
- Anecdotal reports of HIV transmission from:
  - Oral-sexual contact
  - Oral-oral contact
  - Breastfeeding

Oral Manifestations of HIV

Table 7-1 *Oral Manifestations of Acquired Immunodeficiency Syndrome (AIDS)*

	MORE COMMON	LESS COMMON
Infections		
Fungal	Candidiasis HIV-related gingivitis	Aspergillosis Histoplasmosis Cryptococcosis Geotrichosis
Bacterial	HIV-associated periodontitis NUG	*Mycobacterium avium-intracellulare* *Klebsiella pneumoniae* *Enterobacter cloacae* *Escherichia coli* *Salmonella enteritidis* Cat-scratch disease Sinusitis Exacerbation of periapical inflammatory disease Submandibular cellulitis
Viral	HSV VZV EBV	HPV CMV
Neoplasms	KS	Non-Hodgkin's lymphoma Squamous cell carcinoma
Lymphadenopathy	Cervical	
Neurologic		Trigeminal neuropathy Facial palsy
Miscellaneous		Aphthous ulcerations Necrotizing stomatitis Toxic epidermolysis Delayed wound healing Thrombocytopenia Xerostomia or siccalike syndrome HIV-related embryopathy Hyperpigmentation Granuloma annulare Exfoliative cheilitis Lichenoid reactions

CMV, Cytomegalovirus; *EBV*, Epstein-Barr virus; *HIV*, human immunodeficiency virus; *HPV*, human papillomavirus; *HSV*, herpes simples virus; *KS*, Kaposi's sarcoma; *NUG*, necrotizing ulcerative gingivitis; *VZV*, varicella-zoster virus.

(Modified from Scully C, Laskaris G, Pindborg J, et al: Oral manifestations of HIV infection and their management: I. More common lesions, *Oral Surg Oral Med Oral Pathol* 71:158-166, 1991.)

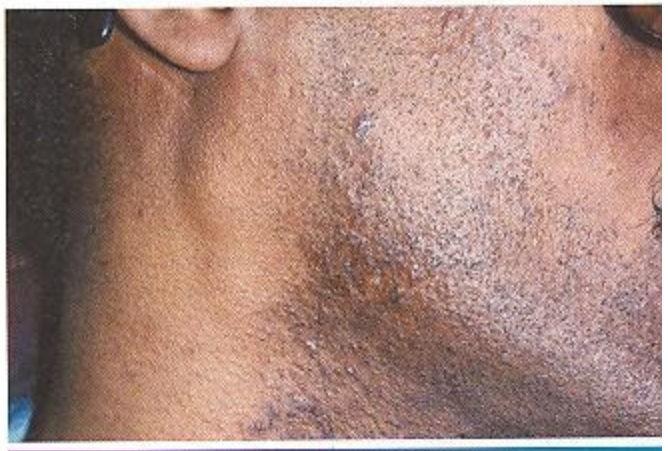
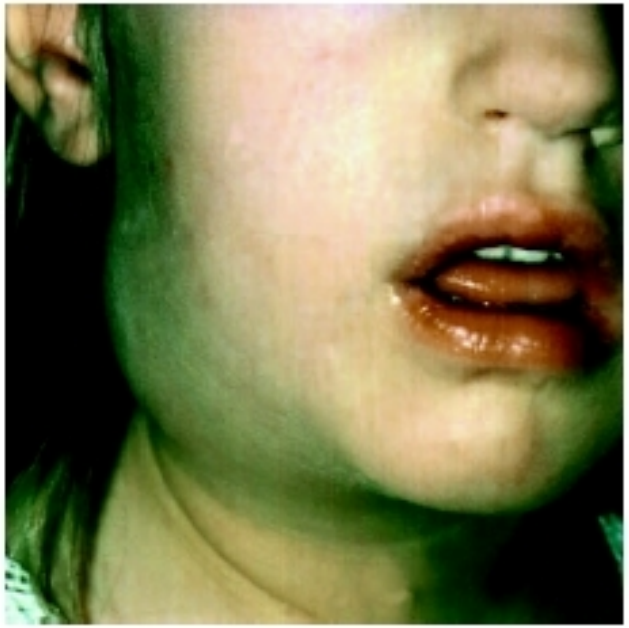


Figure 7-. • **HIV-associated lymphadenopathy.** Enlarged cervical lymph nodes in a patient with persistent generalized lymphadenopathy (PGL).

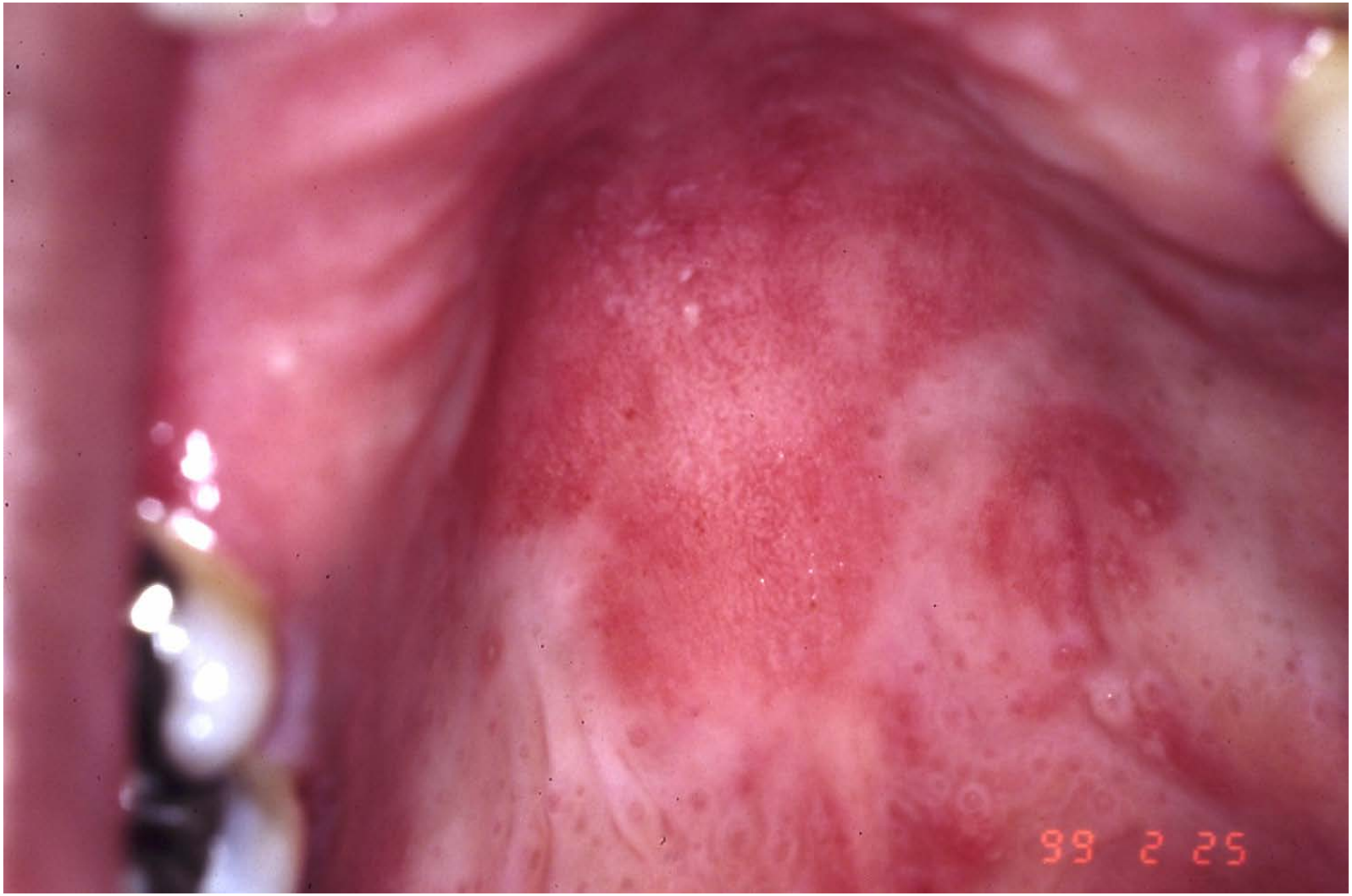
PGL (persistent generalised lymphadenopathy)

- > 3 months
- Involves >2 extra inguinal sites
- >1cm
- 1/3 will have diagnostic AIDS <5 yrs



Candidosis

- The disease of the diseased… (immuncompromised)
- Often presenting sign that leads to diagnosis
- Predictive for development of full-blown AIDS <2yrs
- Different clinical patterns
  - Pseudomembranous and erythematous are the most common
- Oesophageal involvement implies poor prognosis!….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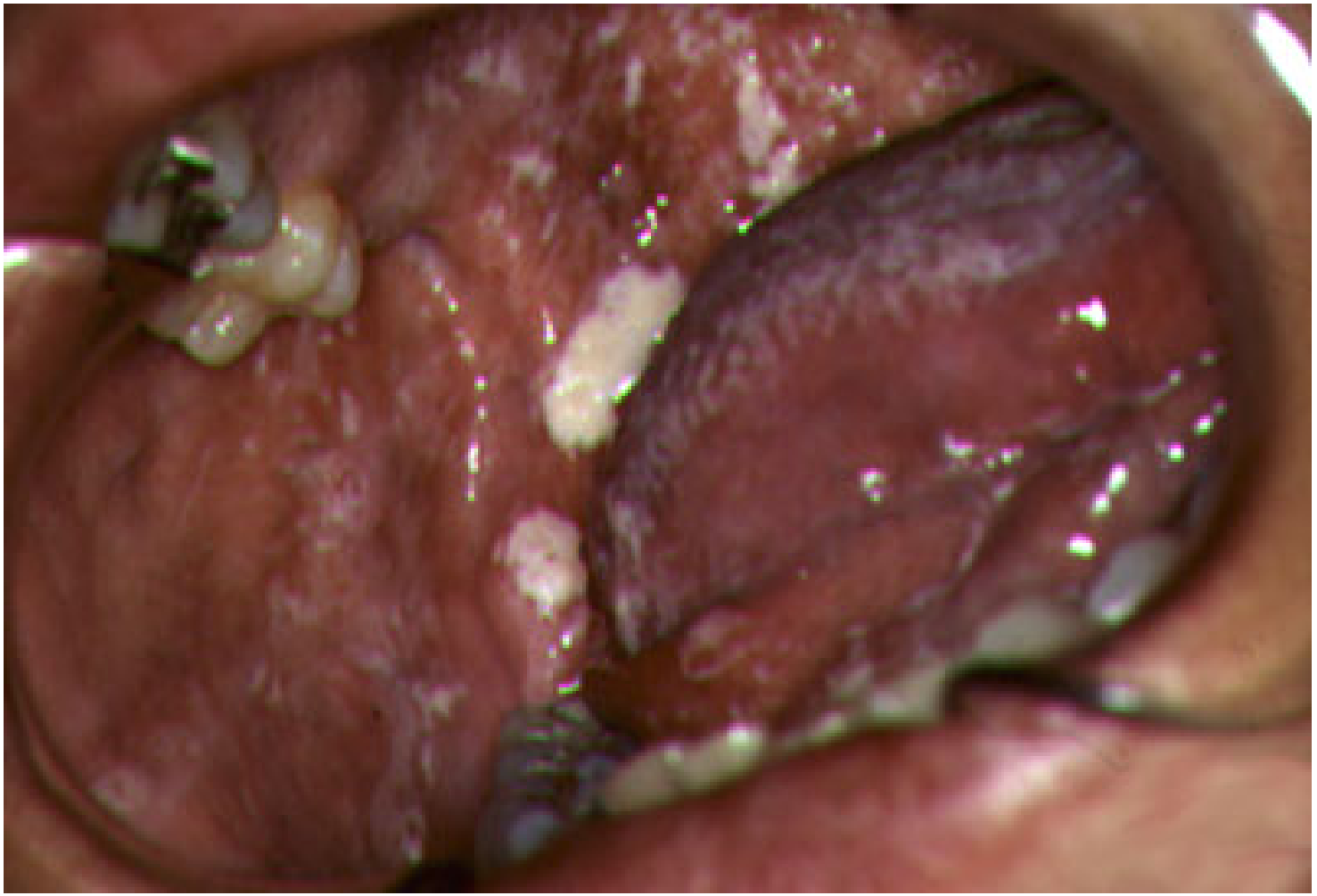
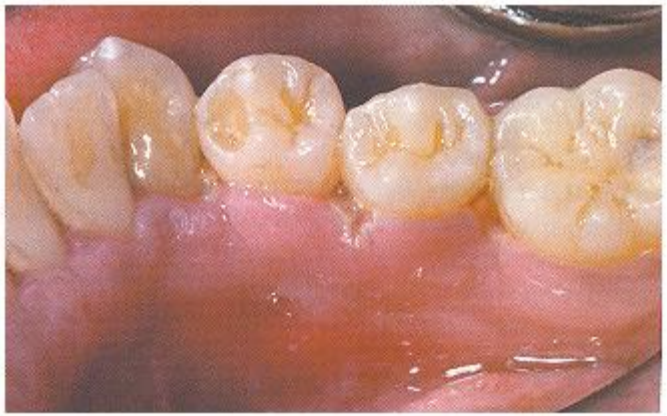


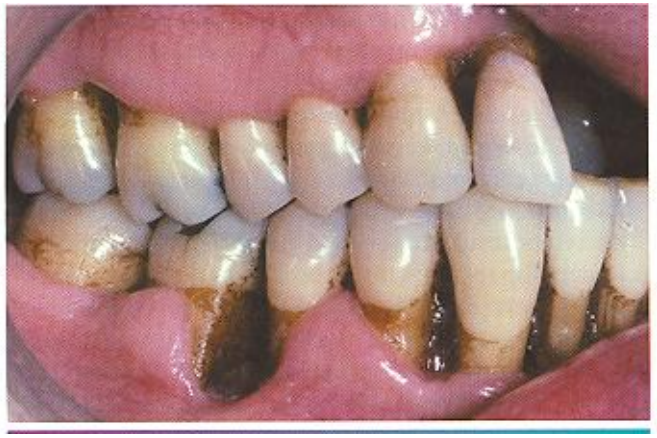
HIV-Associated Periodontitis

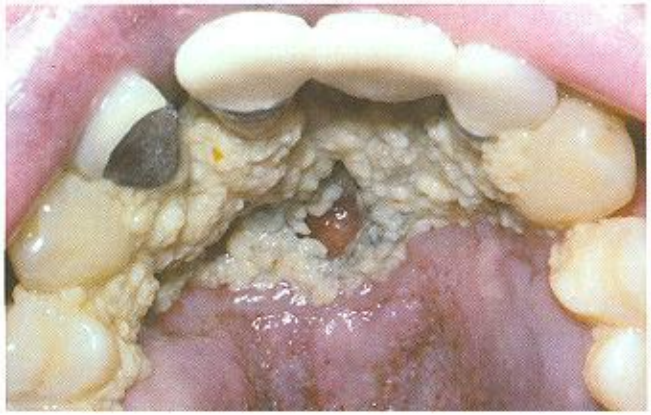
- Linear Gingival Erythema
  - Doesn’t respond to plaque control
- NUG
- NUP
- Necrotising stomatitis

NUG

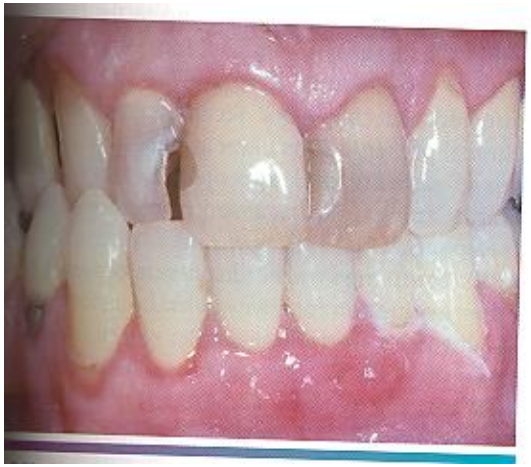


NUP



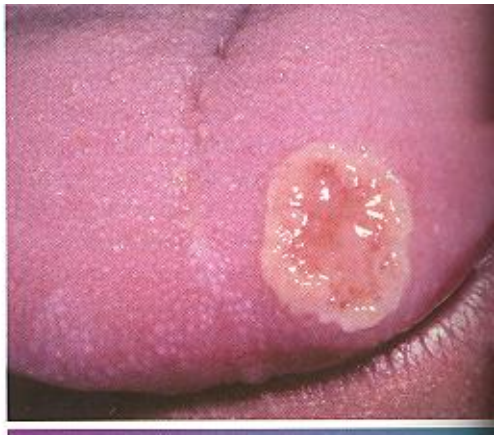


HIV associated stomatitis



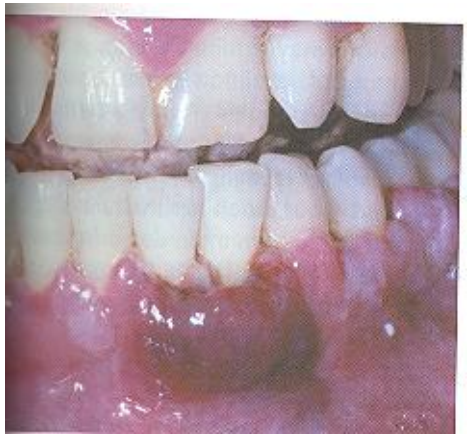
HIV associated gingivitis

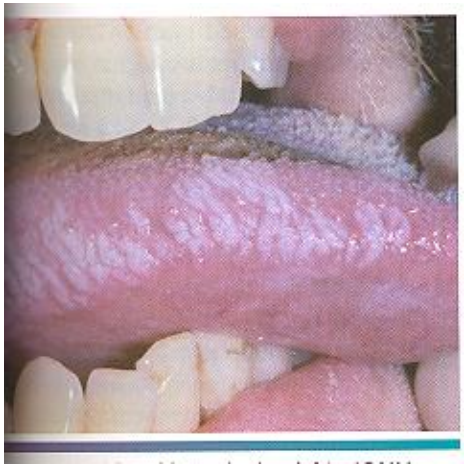
Oral Manifestation of HIV



HIV associated recurrent herpes

Kaposi's Sarcoma



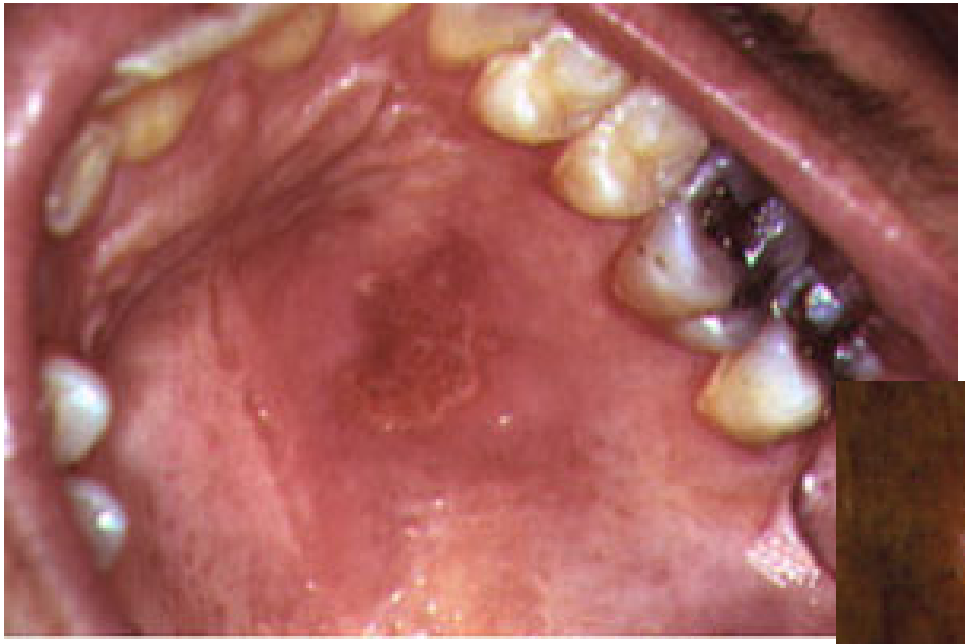


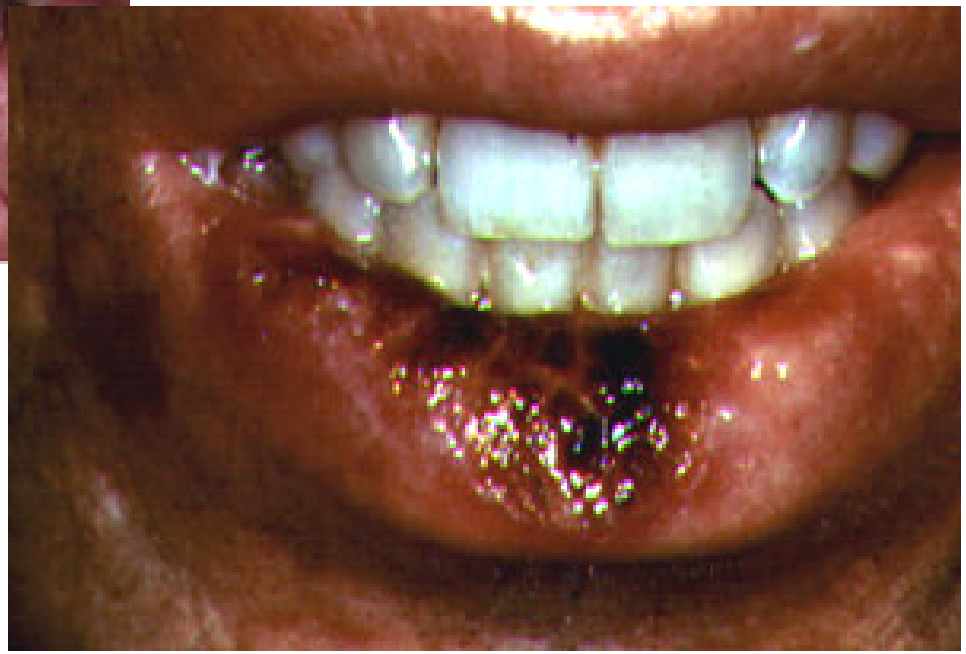
HIV associated Hairy Leukoplakia

Recurrent Viral Infections

- HSV
  - Incidence the same as in general population
  - 10-15%
  - Lesions more widespread
  - Occur in atypical pattern
  - May persist for months
  - Active infection >1 month = AIDS
- VZV
  - Herpes zoster
  - More severe course of infection
  - Lacks dermatomal distribution

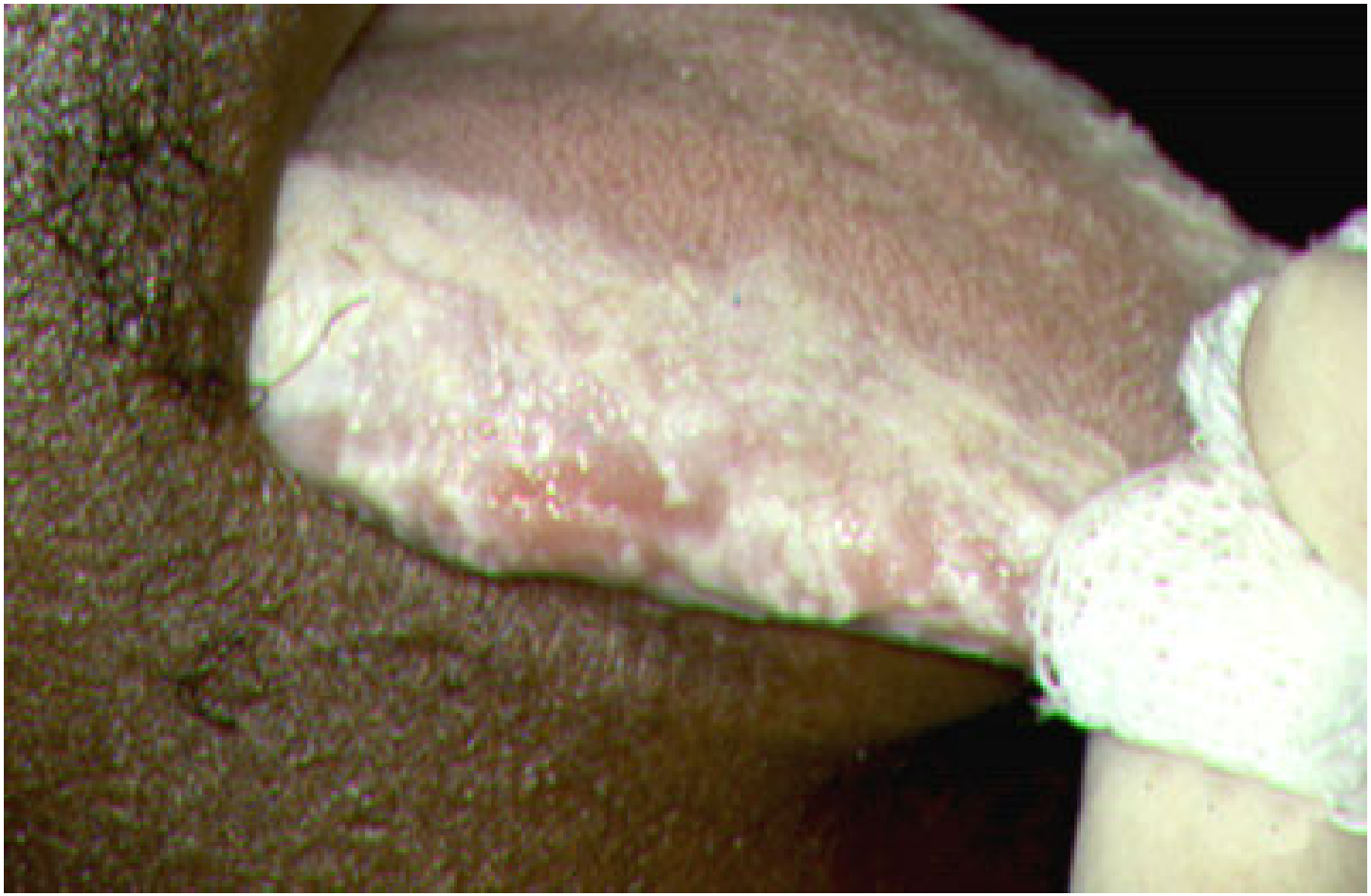
HSV, VZV

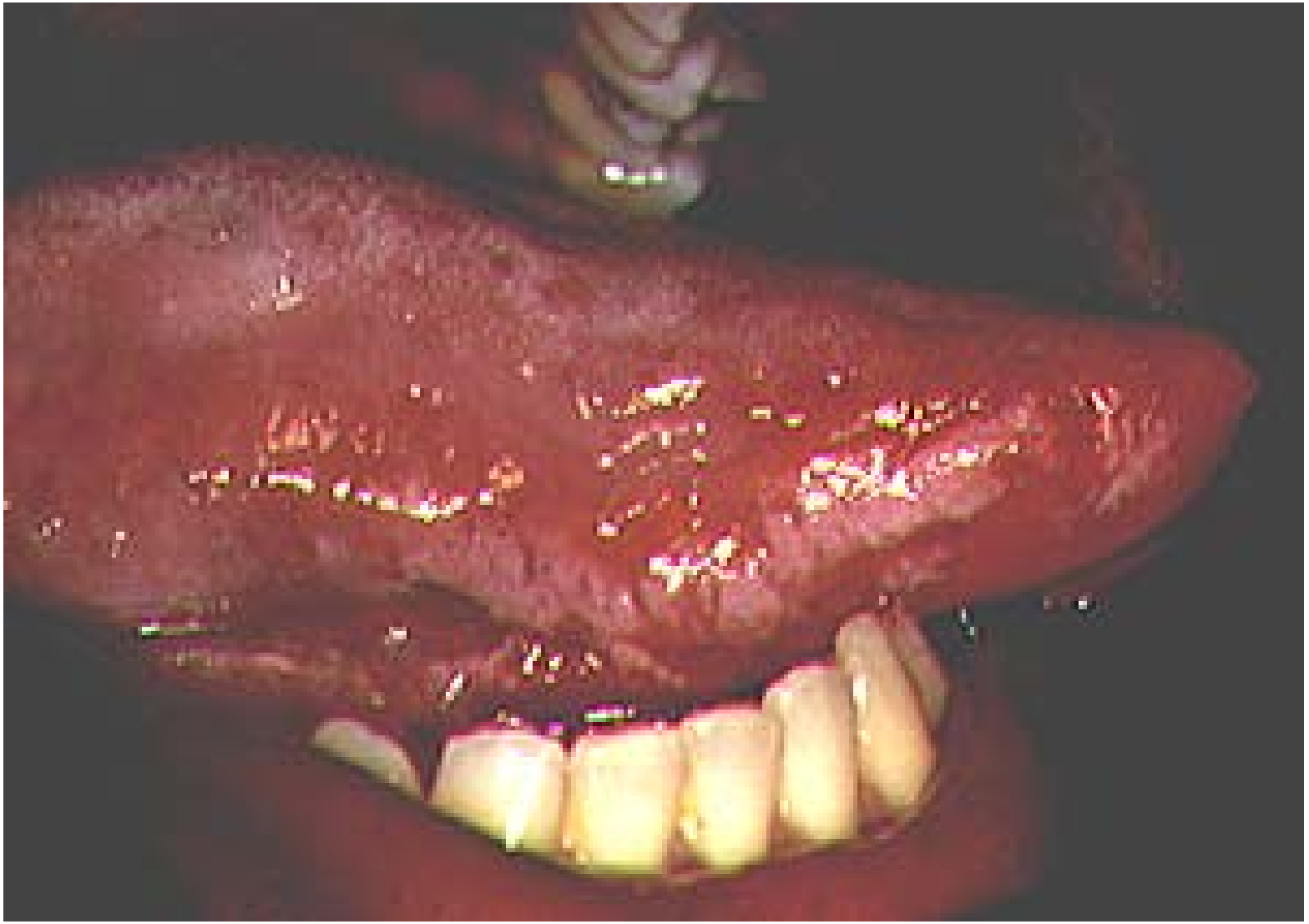




OHL

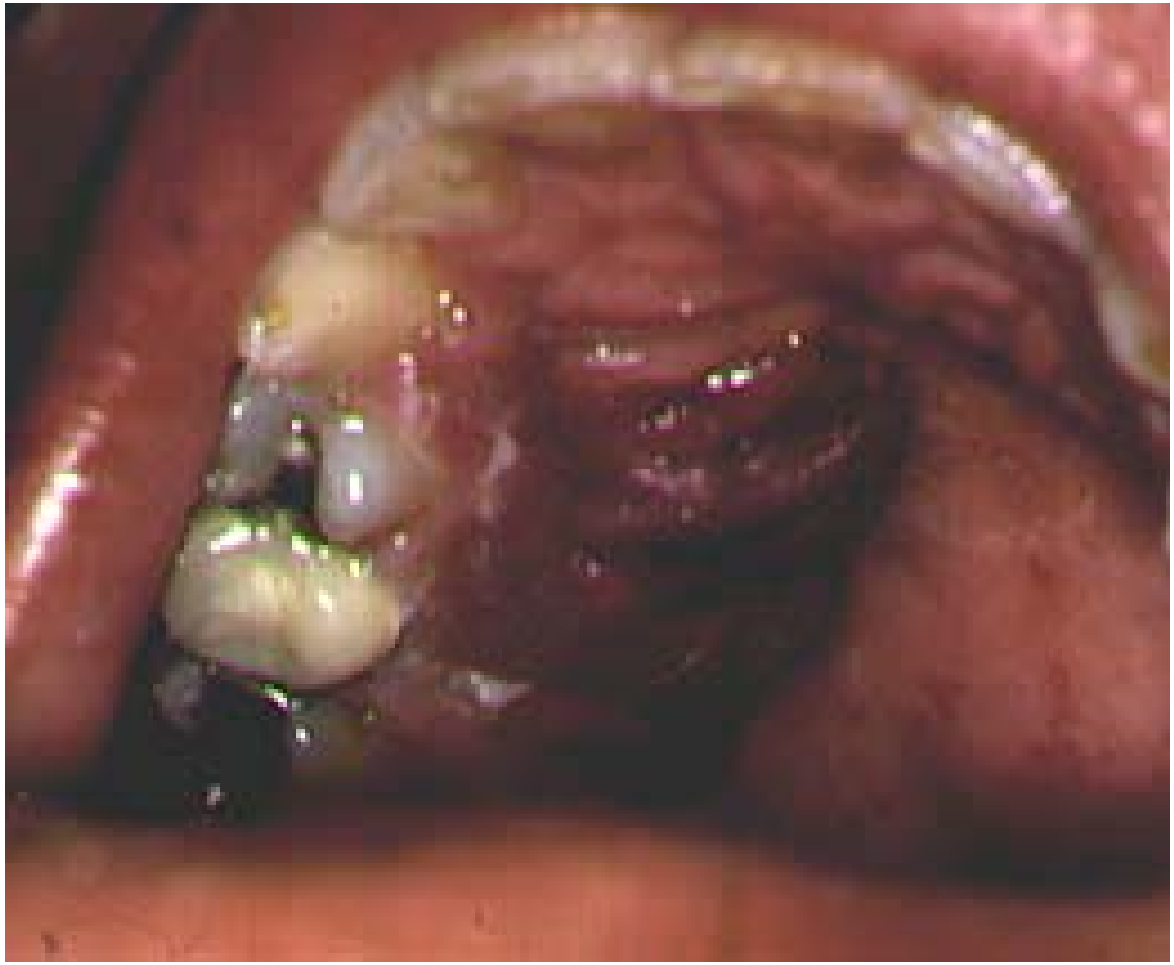
- Oral Hairy Leukoplakia
  - Distinctive pattern of hyperkeratosis on lateral border of tongue (looks hairy)
  - White mucosal lesion that does not rub off
  - Induced by presence of Epstein-Barr virus
  - **Usually** associated with immune suppression or deficiency

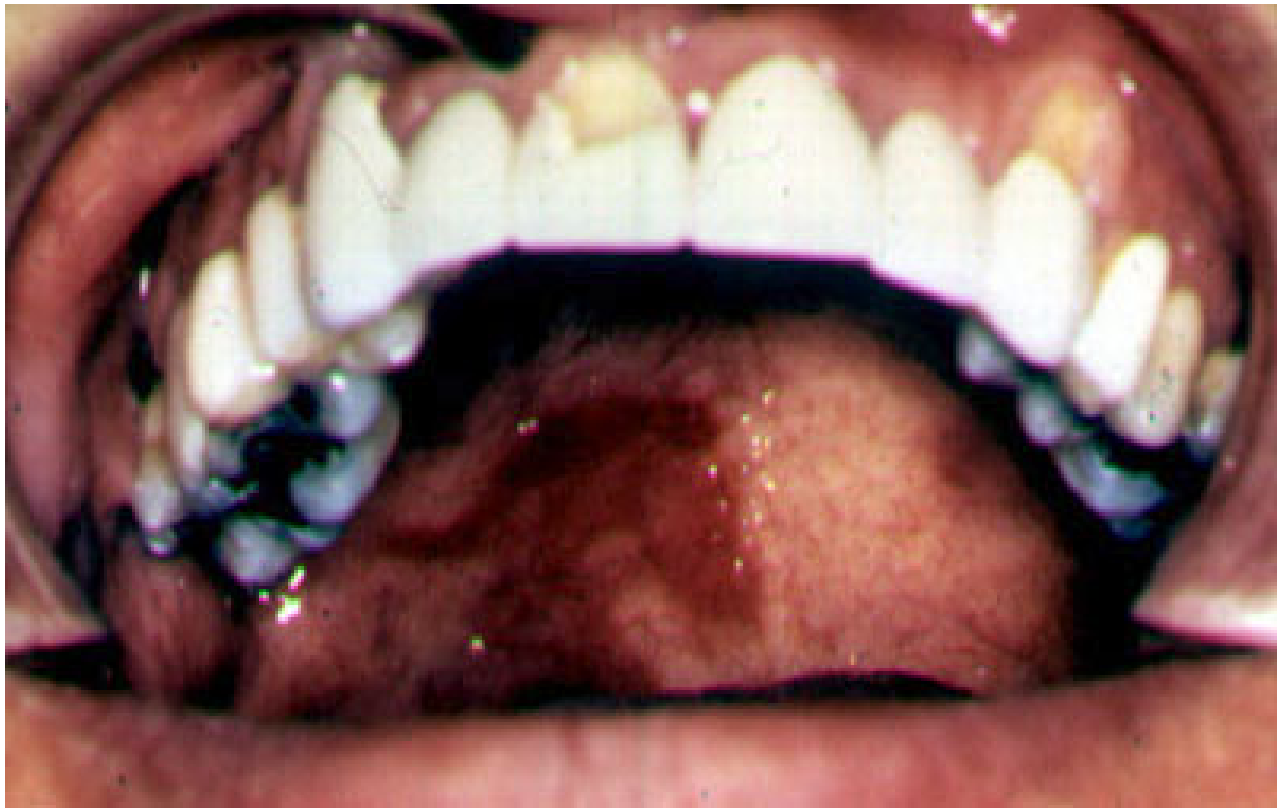




Karposi Sarcoma

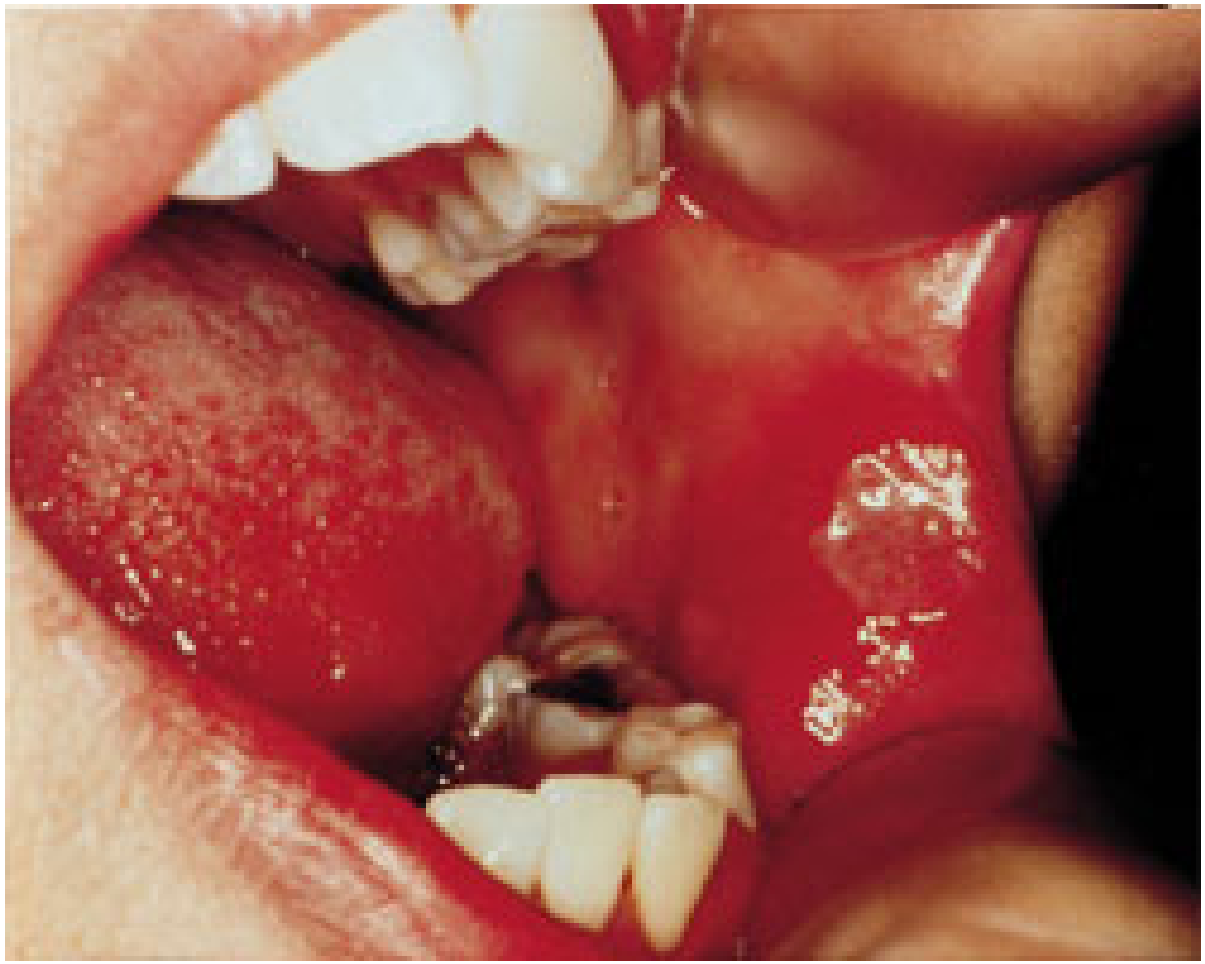
- Kaposi's Sarcoma
- Neoplasm of vascular origin
- Also affects trunk, arms, legs
- Hard palate and gingiva most common intra-orally
- Flat brownish or reddish lesions that eventually may develop into nodules
- Pain, bleeding
- Progressive malignancy that can disseminate
- Caused by HHV 8





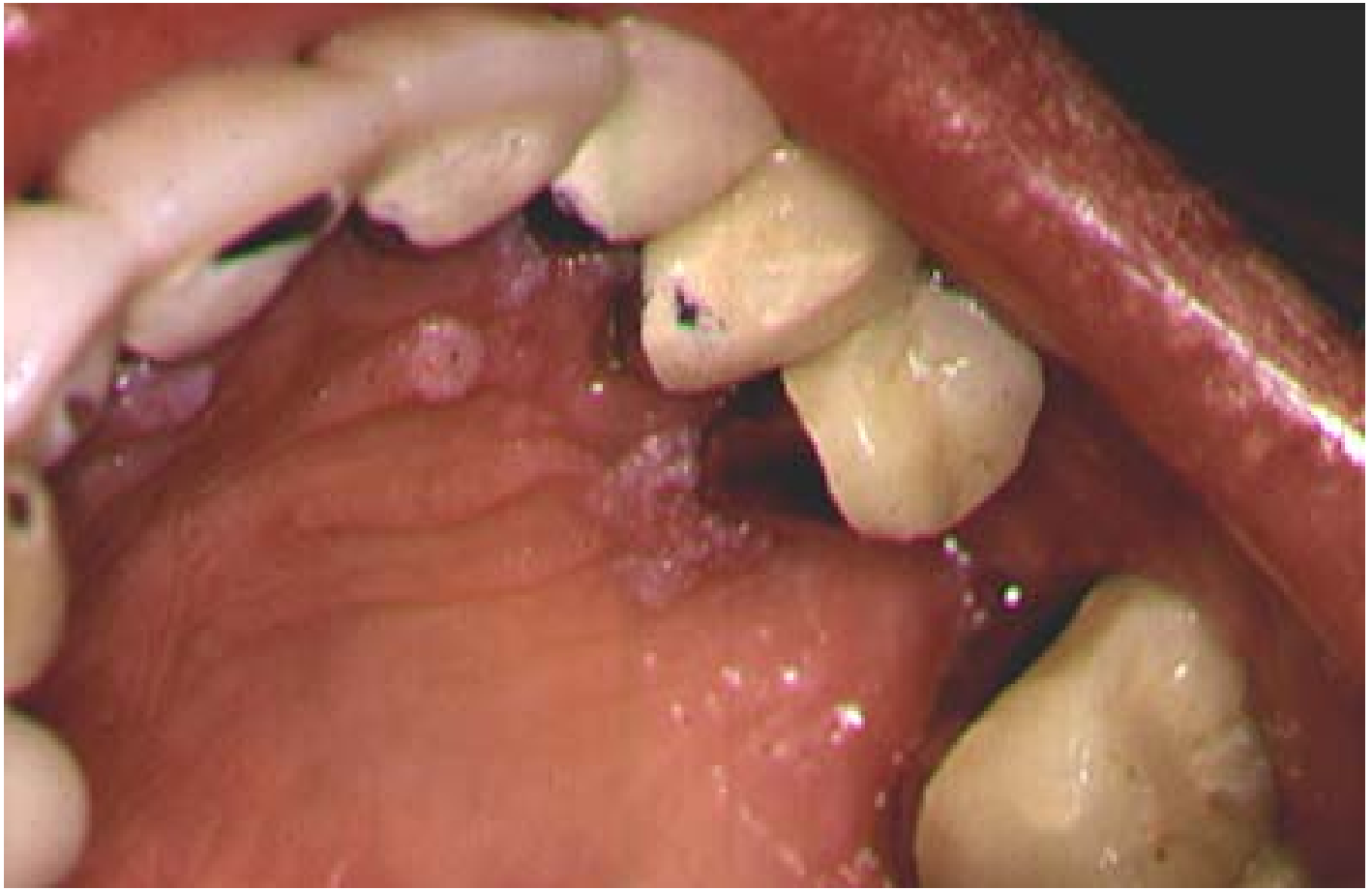
Recurrent Aphthous Stomatitis (RAS)

- Clinically similar to RAS occur with increased frequency in HIV patients
- 2/3 have uncommon major and herpetiform variants
- May not be RAS
  - Fungal
  - CMV
  - Neoplasia



HPV

- Human Papilloma Virus
- Induces many oral lesions, the most common is the common wart and oral squamous papilloma
- Seen with increased prevalence in HIV patients

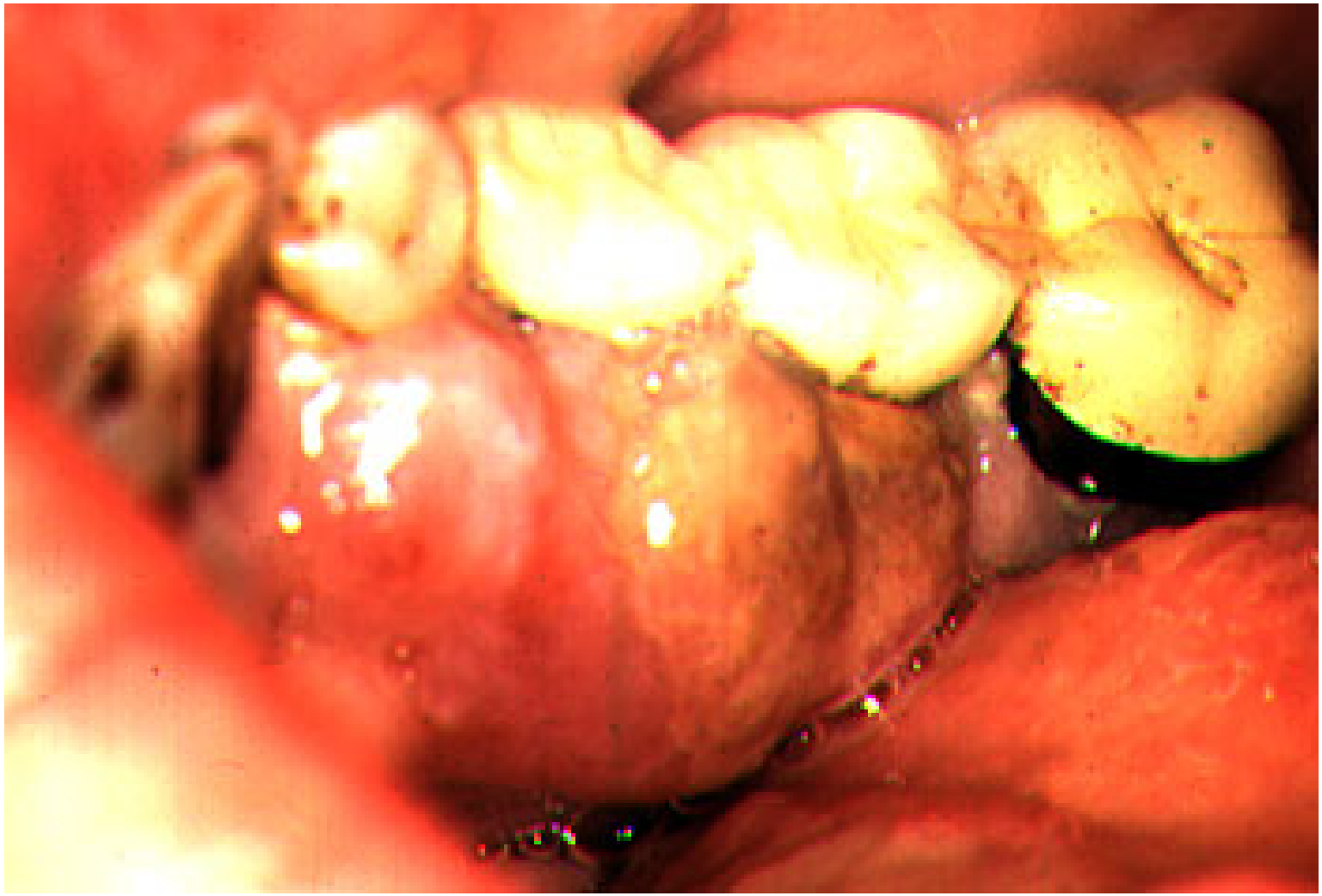


HIV-Associated Salivary Gland Disease

- Main sign is gland enlargement
- Parotid
- Decreased production of saliva
- Cyst formation

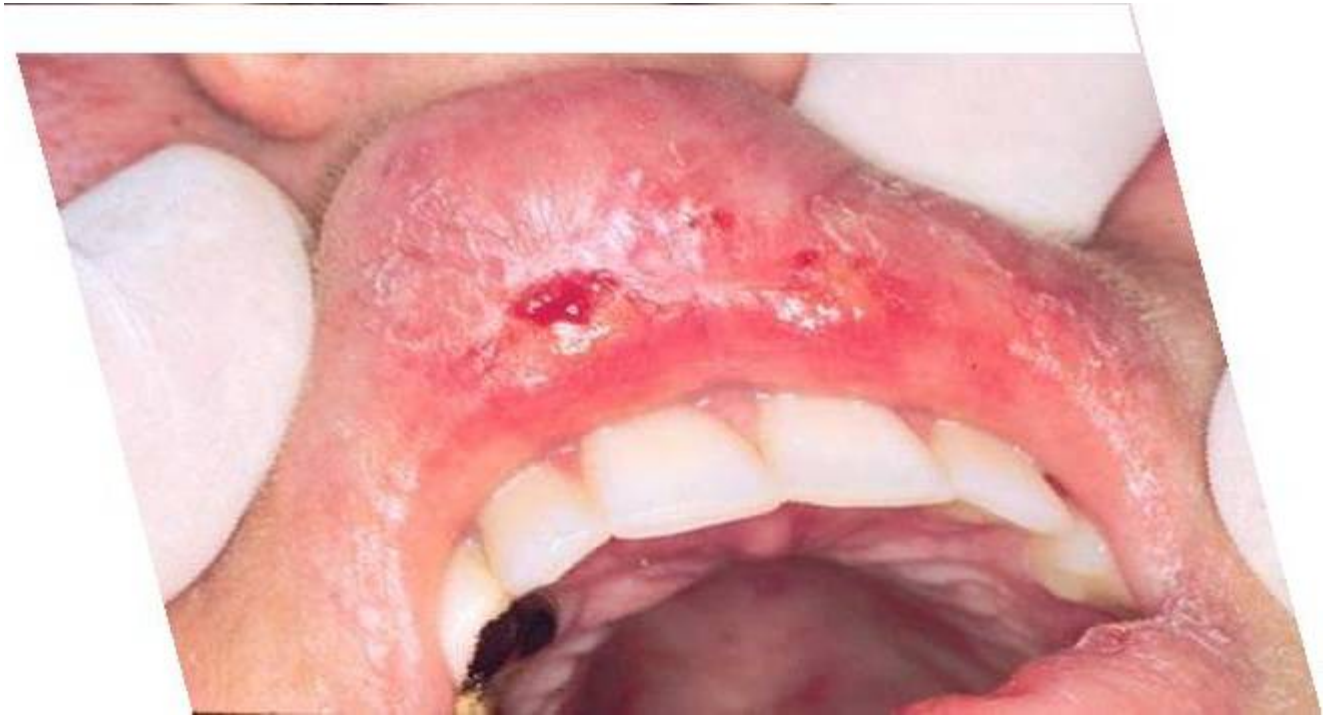
Lymphoma

- Aggressive malignancies that can appear anywhere
- 3% HIV+ (60x greater than the normal population)
- Present as nodal soft tissue enlargements



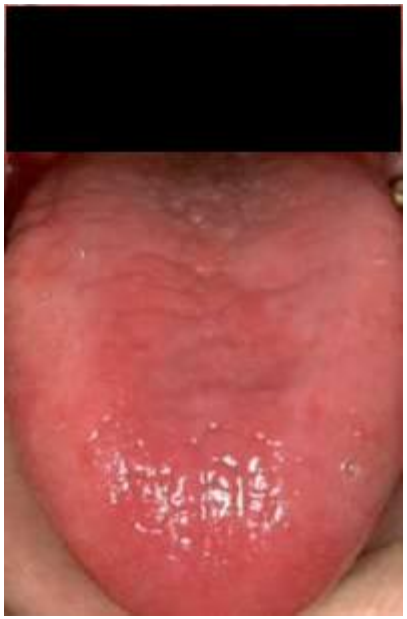
Lupus

- Systemic Lupus Erythematosus
- Involves skin, mucosa, CV, GI, lungs, kidneys, joints, nervous system
- Fever, fatigue, weight loss, lymphadeopathy, debilitation
- 30-45% have oral lesions
- Painful erosions or ulcers surrounded by reddish or white zone
  - Palate, lips, buccal mucosa
- Also petechiae, xerostomia, haemorrhage



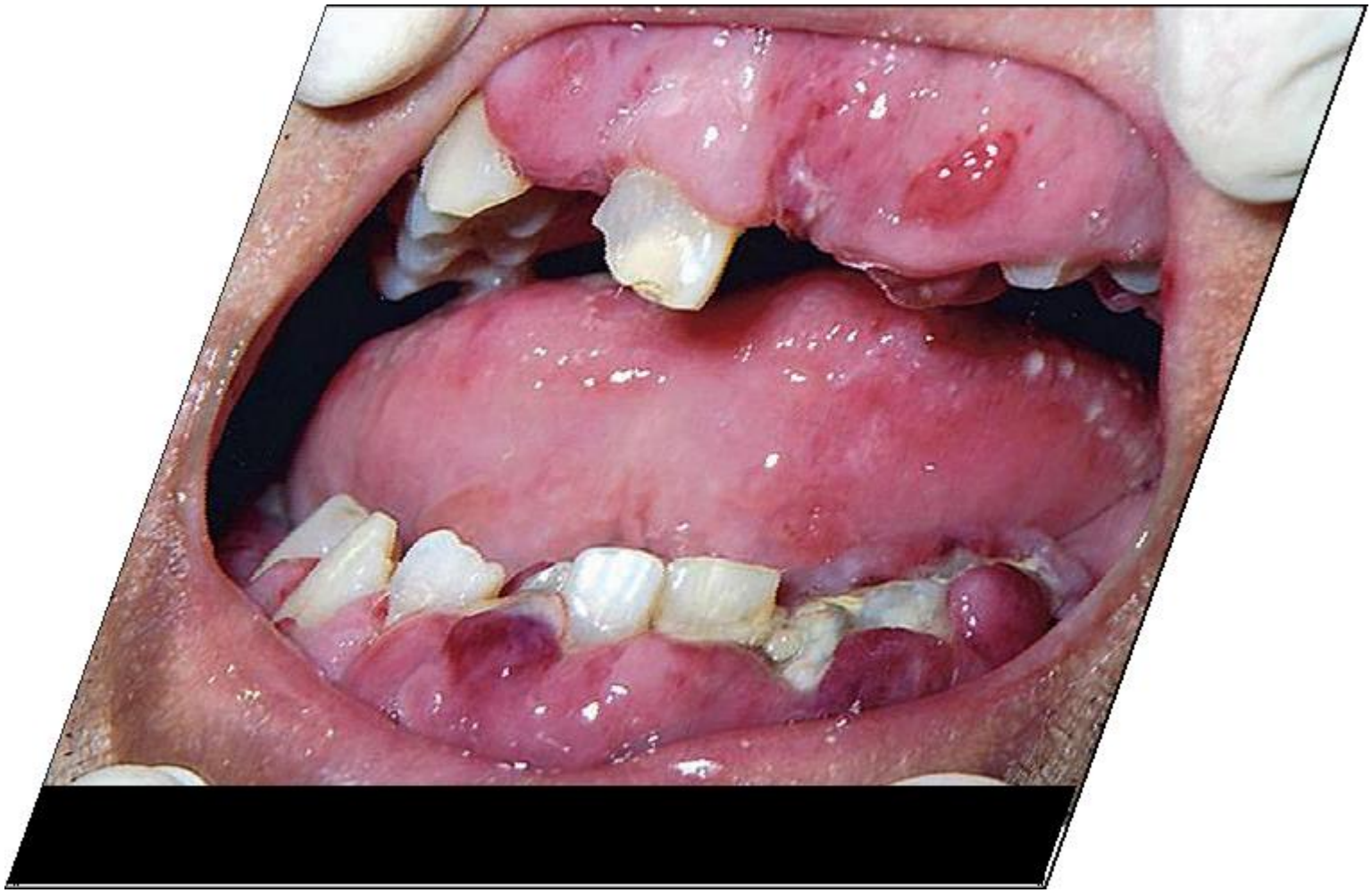
Anaemia

- Many causes
  - Iron deficiency
  - B12 deficiency (pernicious)
- Tongue changes most obvious
- Depapillation and progressive smoothing of tongue surface
- Burning sensation
- Loss of taste



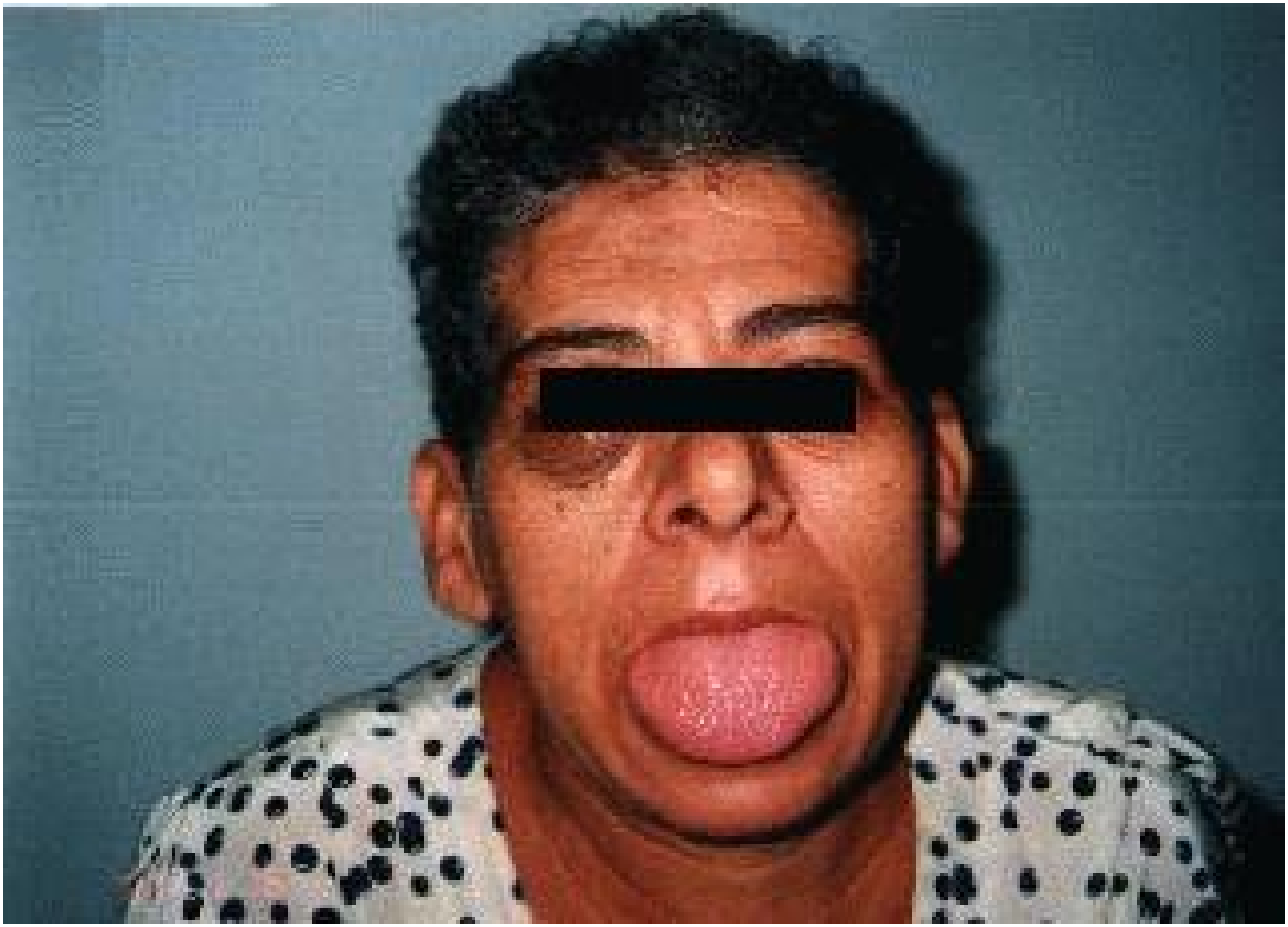
Leukaemia

- Malignancy of white blood cells
- Many different types, each with varying prognoses
- Spontaneous haemorrhage of the gingiva often presenting sign
- Also ulcers, bacterial infections and periodontitis



Acromegaly

- Excess production of growth hormone after closure of epiphyseal plates
- Most common cause is functional pituitary tumour
- Enlargement of small bones in hands and feet
- Mandibular prognathism
- Coarse facial features

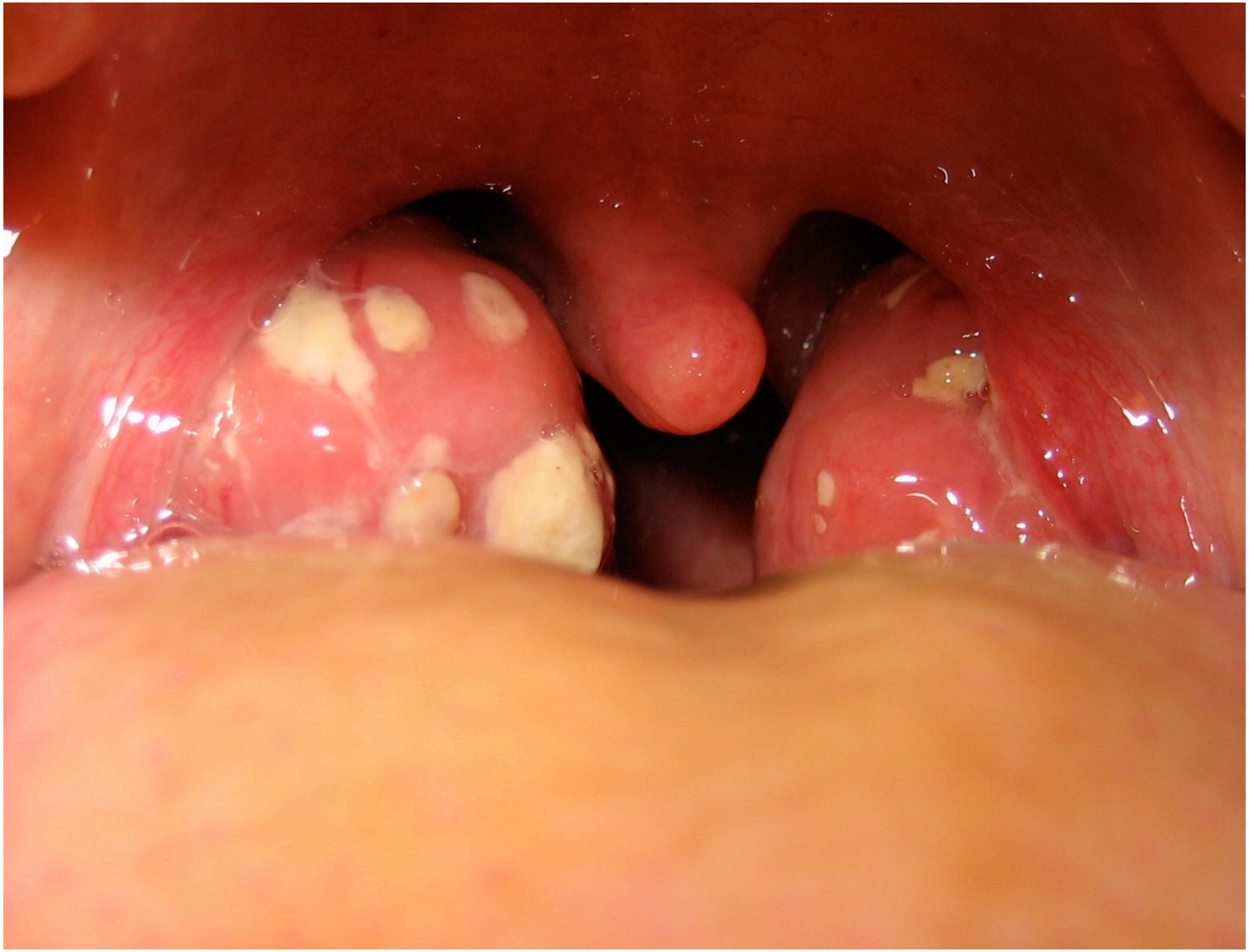


Crohn’s Disease

- 20-30 years of age
- Abdominal pain, diarrhoea, weight loss, vomiting, rectal bleeding
- Oral lesions 20%
- Granulomatous changes in buccal mucosa
- ‘cobblestone’ appearance
- Mucosal tags
- Persistent lymphadenopathy
- Regress when intestinal symptoms subside

Tonsillitis

- Bacterial or viral cause
- Streptococcal most common (25%)
- Sore throat, fever, dysphagia
- Hyperplasic tonsils
- Yellow tonsillar exudate

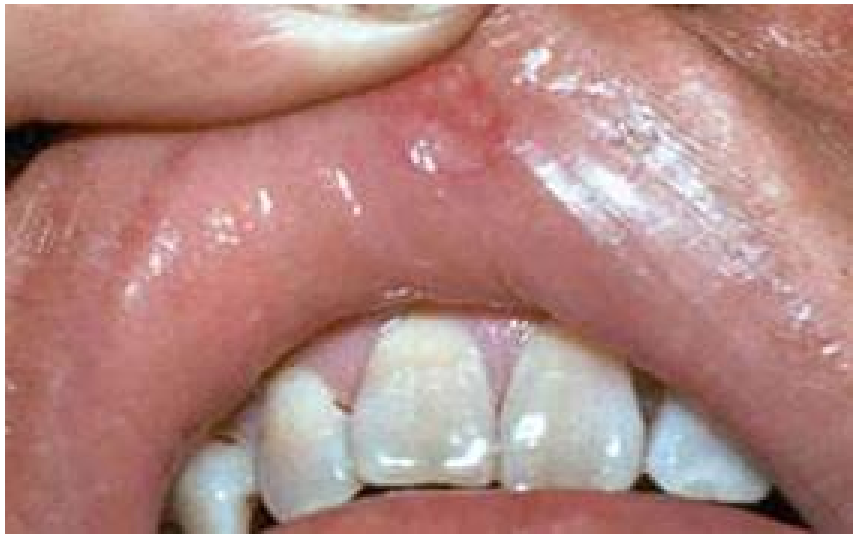


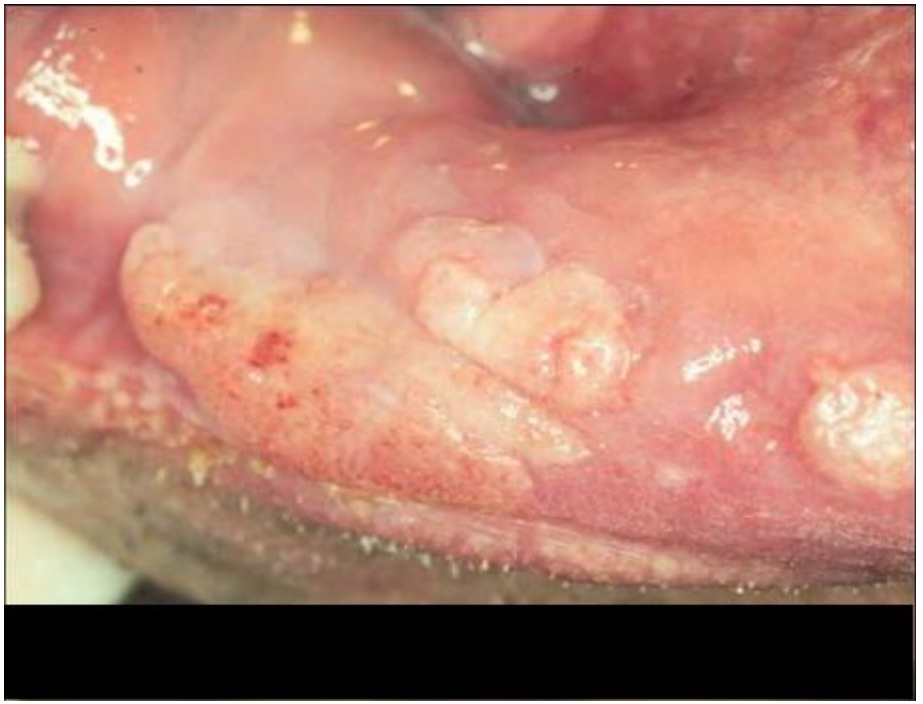
Syphilis

- Complicated disease with three distinct stages
- *T. pallidum*
- Primary
  - Chancre appears at site of inoculation
- Secondary
  - Lymphadenopathy, sore throat, malaise, diffuse maculopapular rash
  - Oral: Mucous patches and snail-track ulcers

Syphilis

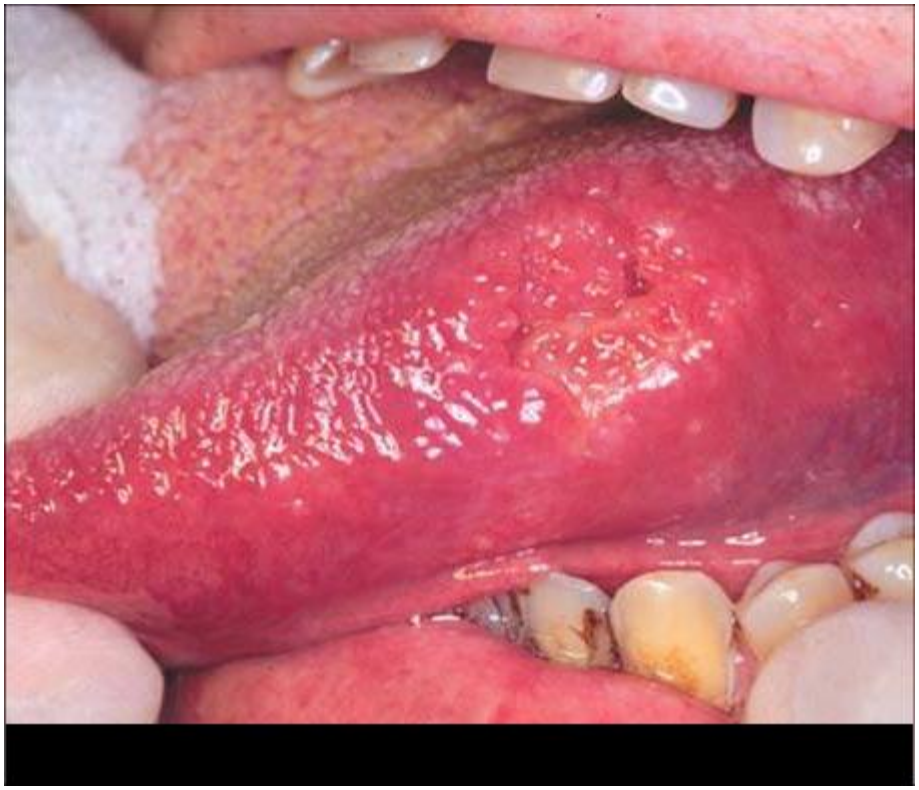
- Tertiary
  - Up to 30 years after initial infection
  - Scattered foci of granulomatous inflammation
  - Gumma
  - Rubbery nodular lesions
  - Palate or tongue
- Congenital
  - Hutchinson’s Incisors
  - Mulberry molars





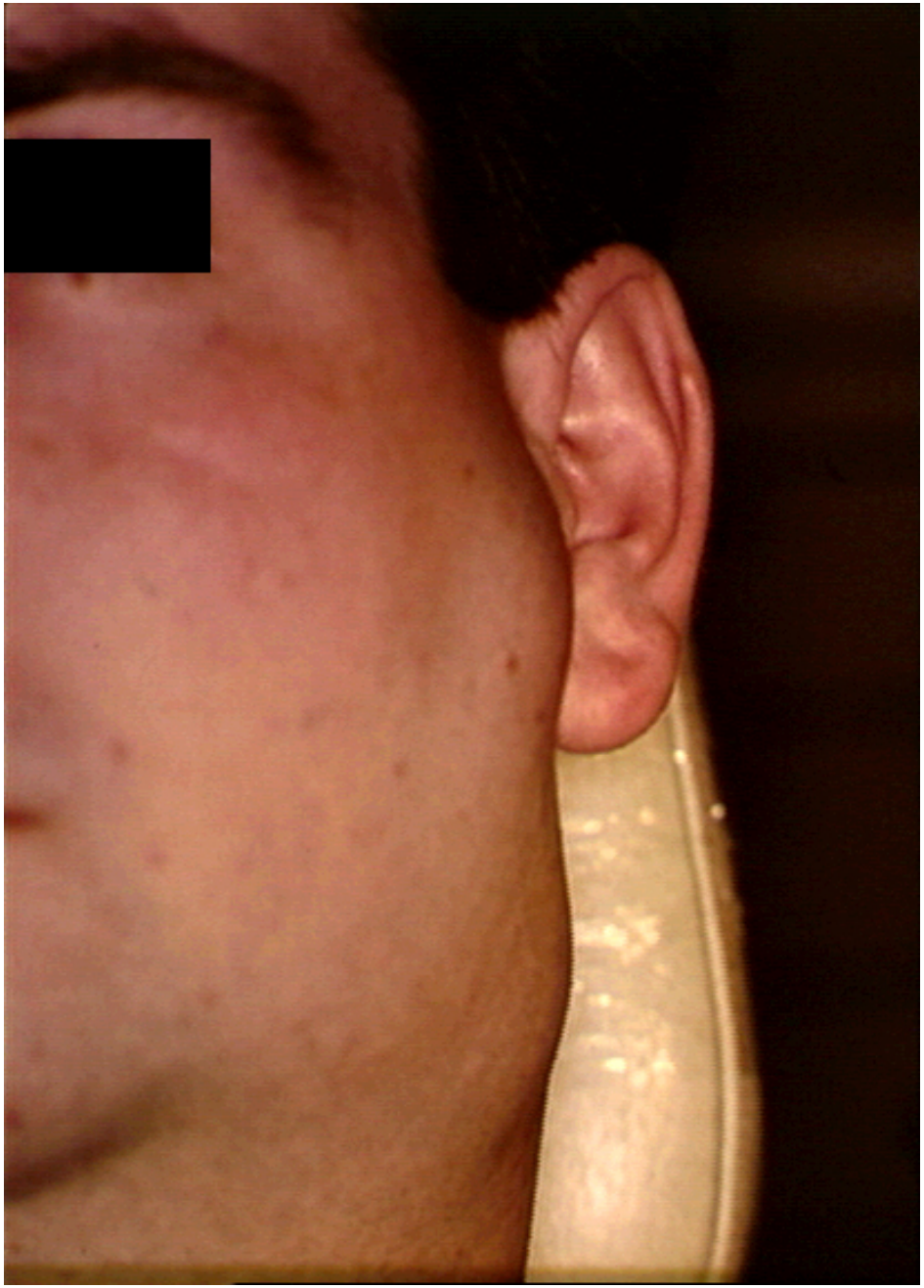
Tuberculosis

- Chronic infectious disease
- Lung type most well known, but lots of other types
- Area of infection known as a tubercle
- Chronic ulceration, granularity
- Gingiva, mucobuccal fold
- Secondary lesions: tongue, palate, lip



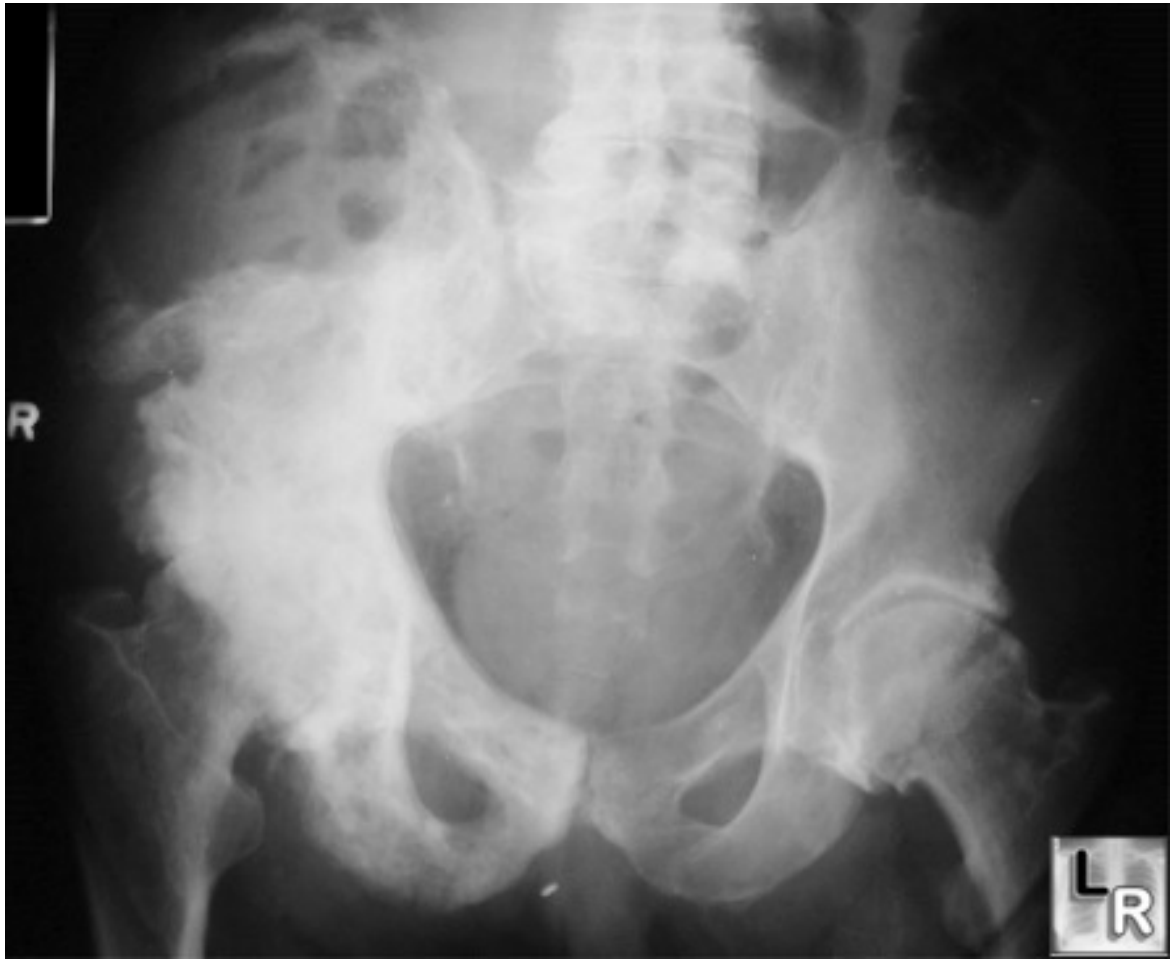
Cat-Scratch Disease

- Begins in skin, travels to adjacent lymph nodes
- Swelling of affected node
- May be intra-oral
- Usually submandibular when face is scratched



Paget’s Disease

- Abnormal resorption and deposition of bone
- Distortion and weakening of affected bones
- On x-ray, bone has ‘cotton-wool’ appearance
- Jaw involvement 17%
- During active phases, bone very vascular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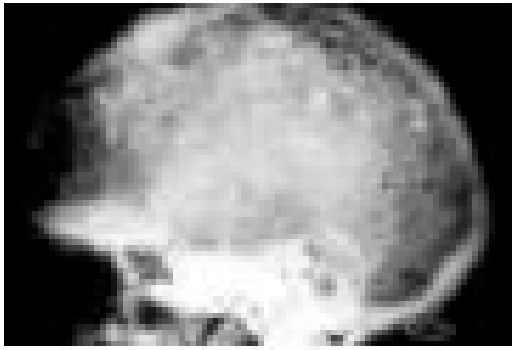
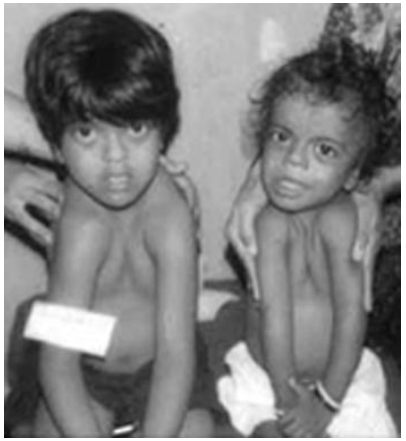
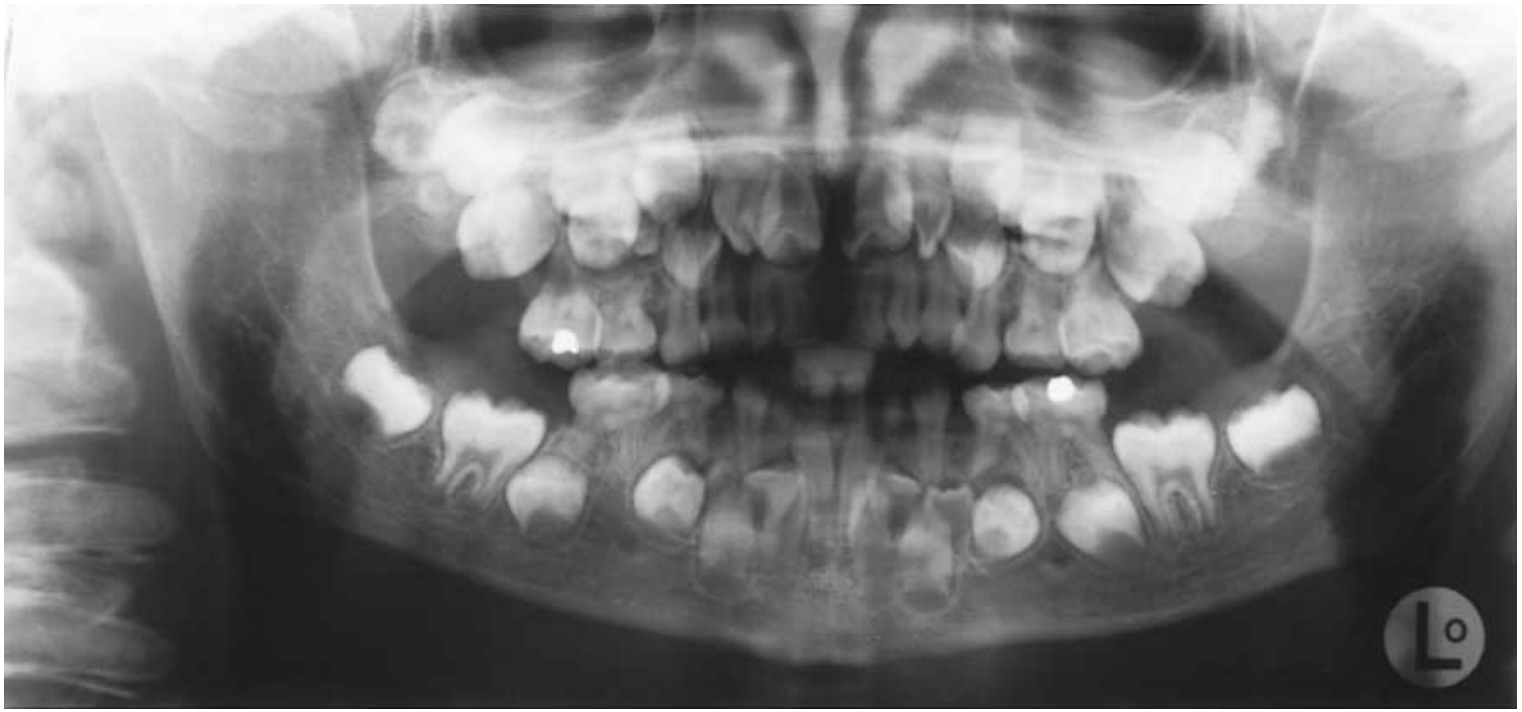


Cleidocranial Dysplasia

- Defective bone gene
- Clavicles either malformed or absent
- Long neck, narrow shoulders
- Short stature pronounced frontal and parietal bossing
- Narrow high arched palate
- Prolonged retention of deciduous teeth
- Failure of or delayed eruption of permanent teeth
- Distorted crown / root shapes, supernumeraries





Osteonecrosis of the Jaws (ONJ)

Osteonecorsis of the jaws may occur as a result of radiation related damage

Higher risk of ONJ following bisphosphonate therapy (mainly IV bisphosphonates)

Bisphosphonates used for treatment of osteoporosis, multiple myeloma, Paget's disease and chronic bone pain.

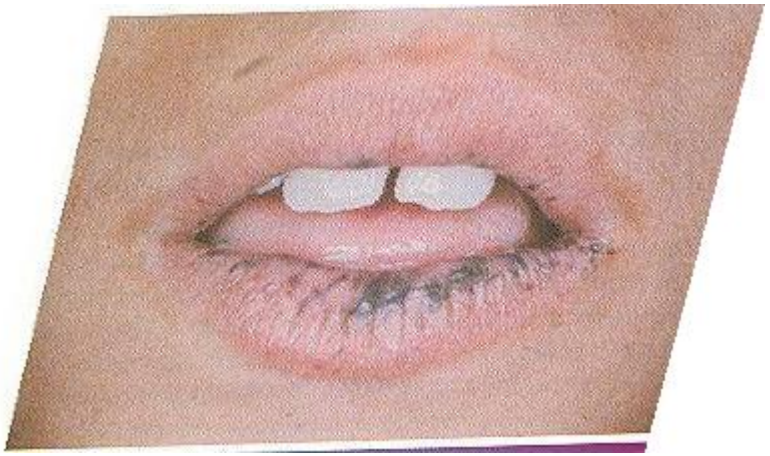
There have been cases of other medications that cause similar necrosis of the jaws to bisphosphonates so the term drug associated osteonecrosis of the jaws may be more appropriate (DRONJ)

Others!

- Immune-mediated : Vesicullobullous disorders (Pemphigus, pemphigoid, Lichen planus, Erythema Migrans, Lupus, Erythema Multiforme)
- Dermatologic disease : White sponge Nevus, Peutz-Jeghers syndrome, Ehlers-Danlos Syndrome)
- Allergies- drug reactions

Others!

- Peutz-Jeghers syndrome- Freckle-like lesions of hands, perioral and oral mucosa, intestinal polyposis and predisposition to developing cancer
- Ehlers-Danlos syndrome- Group of inherited CT disorders – Classical type (defect in college type I & V--- Hyperelasticity of skin, cutaneous fragility, hypermobile joints,



Thank You