

Oral manifestations of systemic conditions

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Lecture objectives

After completing this lecture you should have a basic knowledge on:

- the oral manifestations of gastrointestinal, liver, kidney, haematological, endocrine and immunological disorders
- the effects of these diseases on the oro-facial complex
- when you should refer a patient to a medical or specialist practitioner

Introduction

- Oral disease maybe the first sign of an underlying systemic disorder
- Trigger further investigations or referral to a medical practitioner
- Enable early diagnosis and appropriate clinical care

Gastrointestinal disease

Gastro-oesophageal reflux (healthy individuals)

Term used to describe a backflow of acid from the stomach into the oesophagus

Gastro-oesophageal reflux disorder (GORD)

- Increased frequency and duration of reflux
- Damage caused to oesophageal mucosa by regurgitation of gastric contents

GORD (predisposing factors)

GI disorders

- High acidity of gastric contents
- Impaired gastro-oesophageal motility

Extra-GI conditions

- Obesity
- Large meals
- Smoking
- Excessive alcohol consumption

GORD: Dental aspects

- Gastric contents pH as low as 1 cause dental erosion
- Seen on the palatal aspects of upper anterior teeth and premolars
- Worse if impaired salivation



GORD: management

Diagnosis:

confirmed by
oesophageal pH
monitoring

Symptoms relieved:

- Losing weight
- Raising the head of bed at night
- Frequent small meals with **antacids**

Drugs

H₂ blockers

- cimetidine
- ranitidine

Proton-pump inhibitors

- omeprazole
- lansoprazole

Drug therapy: GORD

H2 Blockers

(histamine H2 receptor antagonist)

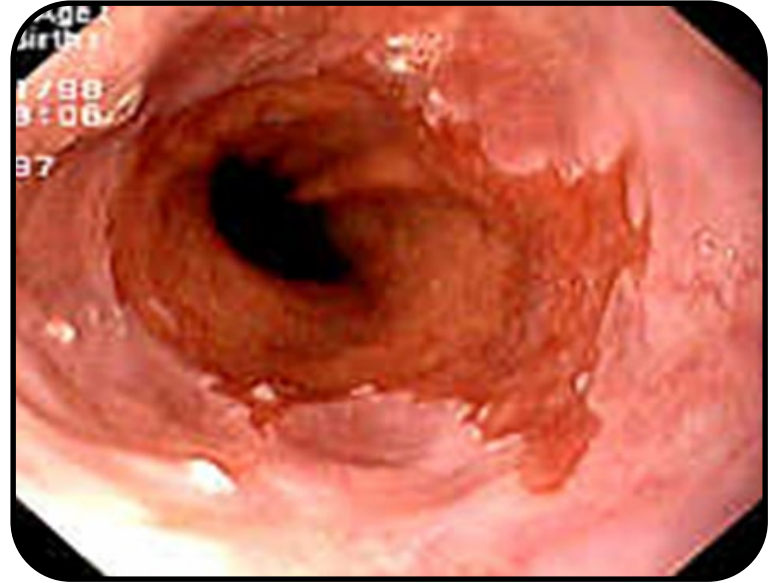
- Histamine stimulates parietal cells to release acid
- H2 blockers stop parietal cells from responding to histamine
- Reduces acid production
- Examples: *cimitidine*, *ranitidine*

Proton pump inhibitors

- Reduce the amount of acid made by stomach
- Block a chemical system: **hydrogen-potassium adenosine triphosphatase**
- Examples: *omeprazole*, *lansoprazole*

Barrett's Oesophagus

- Premalignant condition
- Normal squamous epithelium replaced by metaplastic columnar epithelium
- Consequence of chronic gastro-oesophageal reflux
- Common, under diagnosed entity
- Incidental finding at endoscopy



Pseudomembranous Colitis (antibiotic associated colitis)

- Inflammation of the colon associated with overgrowth of *Clostridium difficile*
- Overgrowth of *C.difficile* related to recent antibiotic use
- Production of enzymes and toxins A and B

Pseudomembranous Colitis (PC)

Clostridium difficile

- Gram+, spore-forming anaerobic rod, seen in the soil, sand and faeces
- Spores formed are implicated in spread of infection
- Colonizes 2-3% of asymptomatic adult and up to 50% of the elderly

Pseudomembranous colitis

- Symptoms usually begin after a few days of antibiotic therapy or as long as several weeks after finishing taking the antibiotic
- Abdominal cramps, pain or tenderness
- Pus or mucous in stool
- Watery diarrhea (5 to 10 times per day) or even bloody

Dental Consideration

- Have a good knowledge of frequently used antibiotics that predisposes to PC in elderly, debilitated and those with previous history of PC
- PC following short-term use of Clindamycin has not been reported after use of AHA prophylactic regimen
- No elective treatment until resolution of PC
- Oral candidiasis following PC therapy

Coeliac disease

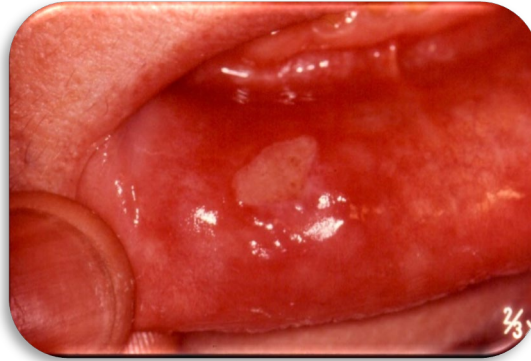
- Not uncommon
- Ethnic group-Celts
- Not recognised, if not severe
- Genetically determined hypersensitivity to gluten
- Affects the jejunum

Coeliac disease-clinical features

- Patients may appear healthy
- Manifestations of malabsorption
- 3% of patients with aphthae have coeliac disease
- Diarrhoea, weight loss, weakness

Coeliac disease-oral features

- Ulcers
- Angular cheilitis
- Glossitis or
burning mouth
syndrome
- Dental hypoplasia



Orofacial granulomatosis

Not a disease entity

Regarded as a provisional diagnosis

Condition includes:

1. Localised disorders affecting mouth and face
2. Oral manifestations of systemic disease

2a. Sarcoidosis

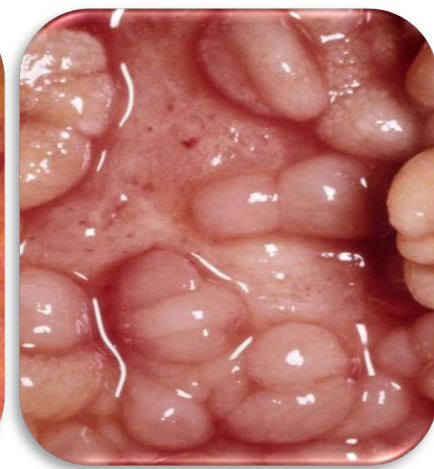
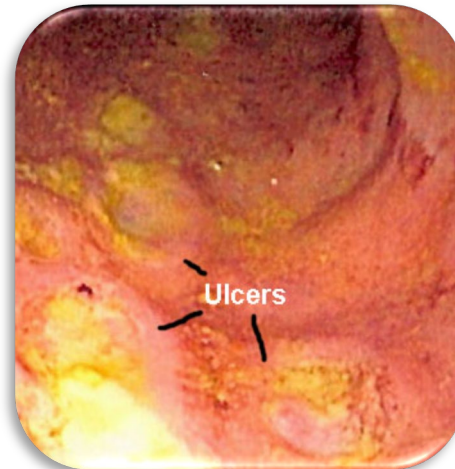
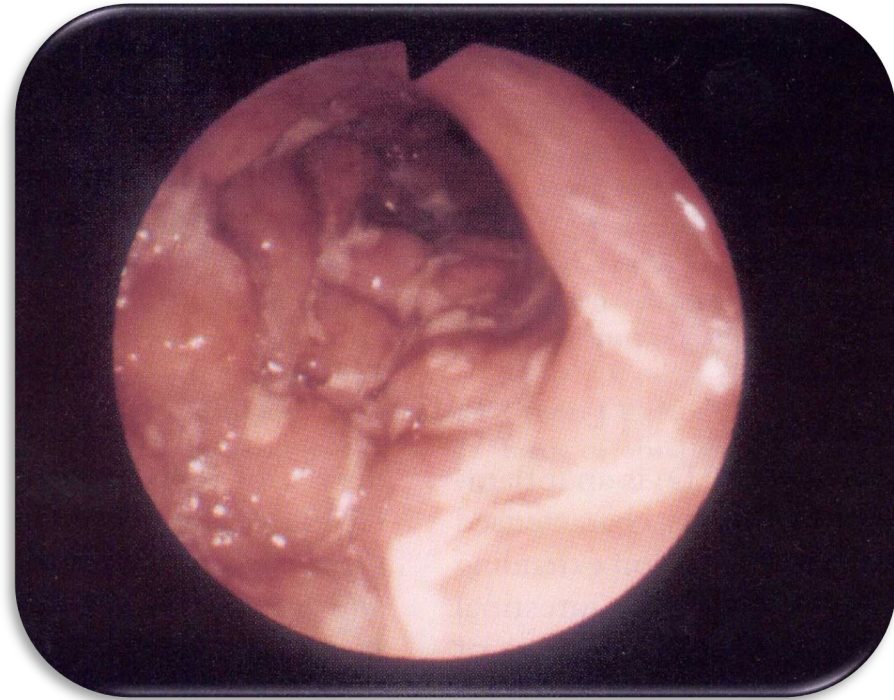
2b. Crohn's disease

2c. Melkersson-Rosenthal syndrome

2d. Cheilitis granulomatosa

Crohn's disease

- Mucosal inflammation with ulceration & fistulae formation
- Lymph node hyperplasia-obstructive oedema
- Granulomatous lesions
- Abdominal pain, diarrhoea and malaise



Clinical manifestations-oral crohn's

- Swelling of lips & face
- Lip fissures
- Perioral erythema and scaling of skin



Crohn's disease

- Mucosal tags or cobblestoning
- Oral ulceration
- Angular cheilitis
- Persistent lymphadenopathy
- Full-width gingivitis

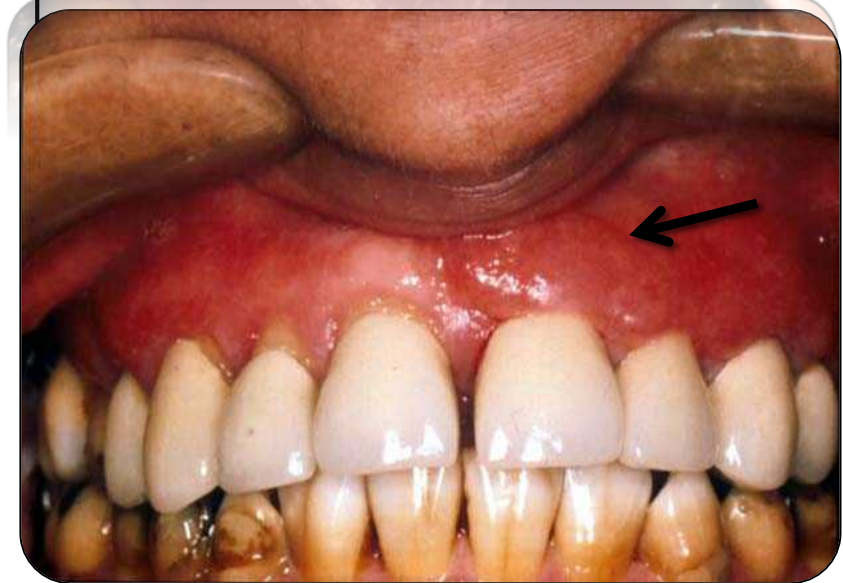
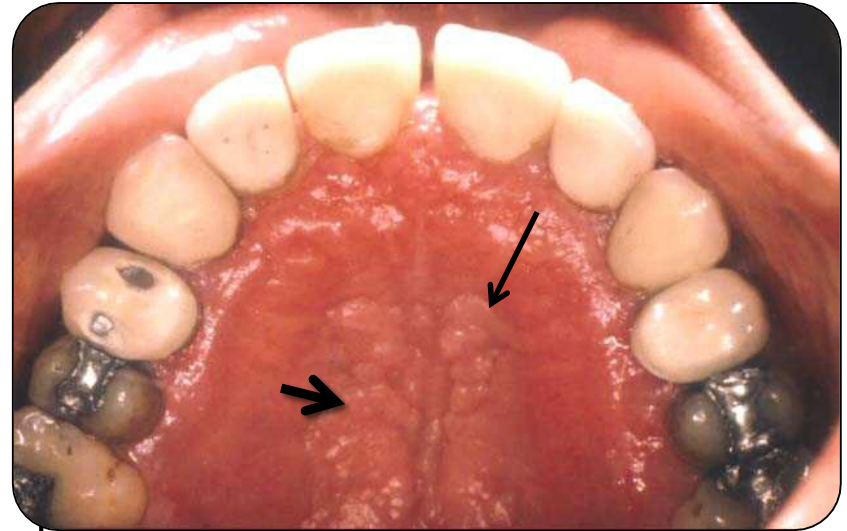


Sarcoidosis

- Multi-system granulomatous disorder of unclear aetiology
- Affects young adult females, especially Afro-Caribbeans
- Granulomas form in lungs, lymph nodes, salivary glands, mouth
- Causes bilateral hilar lymphadenopathy
- Erythema nodosum

Orofacial features: sarcoidosis

- Heerfordt's syndrome
(salivary and lacrimal glands swelling, facial palsy, uveitis)
- Xerostomia
- Mucosal nodules
- Gingival swelling
- Labial swelling



Melkersson-Rosenthal syndrome



Lip or facial swelling



Fissured tongue



Lower motor neurone facial palsy

Ulcerative colitis

- Widespread ulceration of the colon
- Complicated by-
haemorrhage, perforation,
malignancy
- Oral lesions-severe apthae,
candida also seen
- Secondary to nutritional
deficiency resulting from
malabsorption



Pyostomatitis vegetans

- Rare disorder
- Bowel symptoms precede oral involvement by several months or years
- Pustular lesions on the oral mucosa & gingiva
- Pustular lesions rupture-lead to erosions & ulceration-snail track ulceration
- Topical steroids successful
- Management of associated IBD-improvement of oral lesions



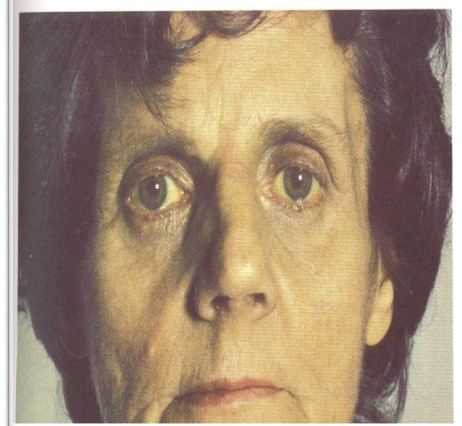
Pyostomatitis vegetans is an important oral marker for inflammatory bowel disease



Liver disease

Signs of liver disease: clinical examination

- Dupuytren's contracture
- Finger clubbing
- Parotid swelling
- Jaundice
- Spider naevi
- Gynaecomastia
- Ascites
- Scratch marks (itching)



Hepatitis: causes

Infections	Viral: Hepatitis A,B,C,D,E Other infections: malaria, yellow fever
Drugs	Alcohol Herbal medications Paracetamol, statins, anti TB drugs
Metabolic	Wilson's disease Haemochromatosis
Autoimmune	Autoimmune hepatitis

Prescribing for patients with liver disease

- Discussion with the patient's physician
- Hepatic impairment lead to failure of drug metabolism: toxicity
- Haemostasis may be affected
- Miconazole, erythromycin, metronidazole, tetracyclines avoided
- Fluconazole, paracetamol dose reduced
- NSAID increase risk of GI bleeding: best avoided

Renal disease

Dental aspects of renal diseases

- Renal function

- Chronic renal failure-Oral manifestations

- Renal patient undergoing dialysis-dental management

- Renal transplant patients-oral complications

- Pyelonephritis, renal calculi

- Kidney tumours-Wilm's tumour, renal cell carcinoma

Chronic renal failure (CRF)

Progressive kidney damage

Early CRF: patient notice a need to urinate frequently at night
(nocturia)

Notice uncharacteristically poor appetite

Adult CRF leads to hypertension and uraemia

CRF can affect diverse body systems

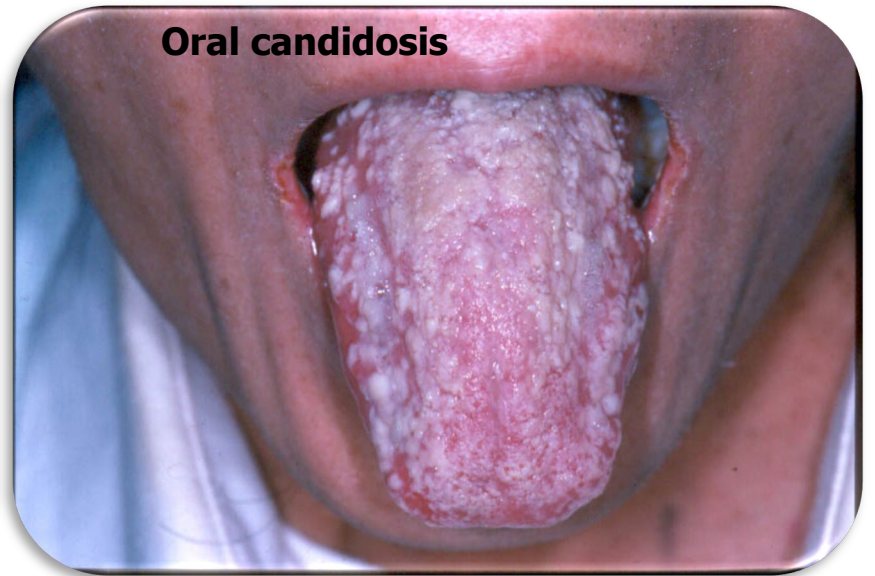
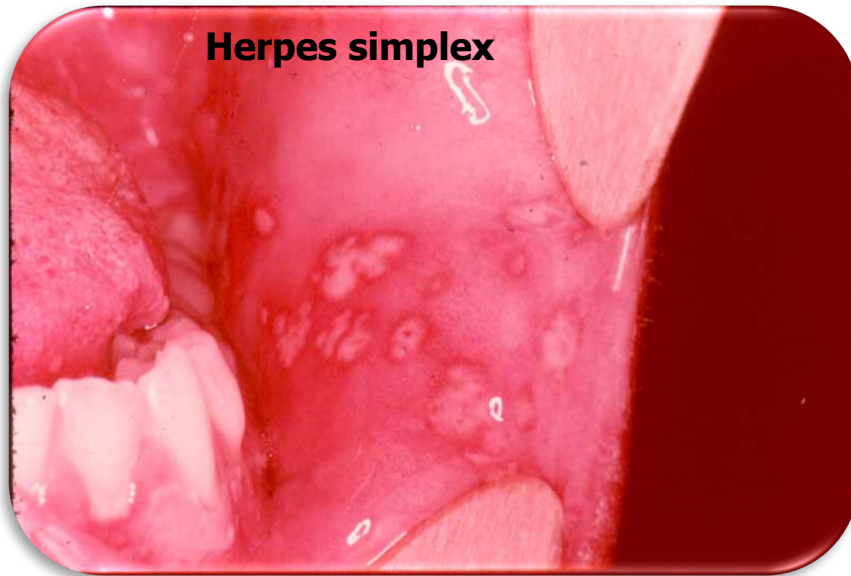
Orofacial manifestations (CRF)

- Dry mouth
- Mucosal ulceration
- Bacterial & fungal plaques
- Pallour of the mucosa
- Oral purpura
- Uraemic stomatitis
- Osteolytic lesions in jaws



Oral complications of renal transplantation

- Drug induced gingival overgrowth
- Bacterial & fungal plaques
- Increased incidence of oral malignancy (cyclosporin) reported
- Oral candidosis
- Herpes simplex infections (secondary)

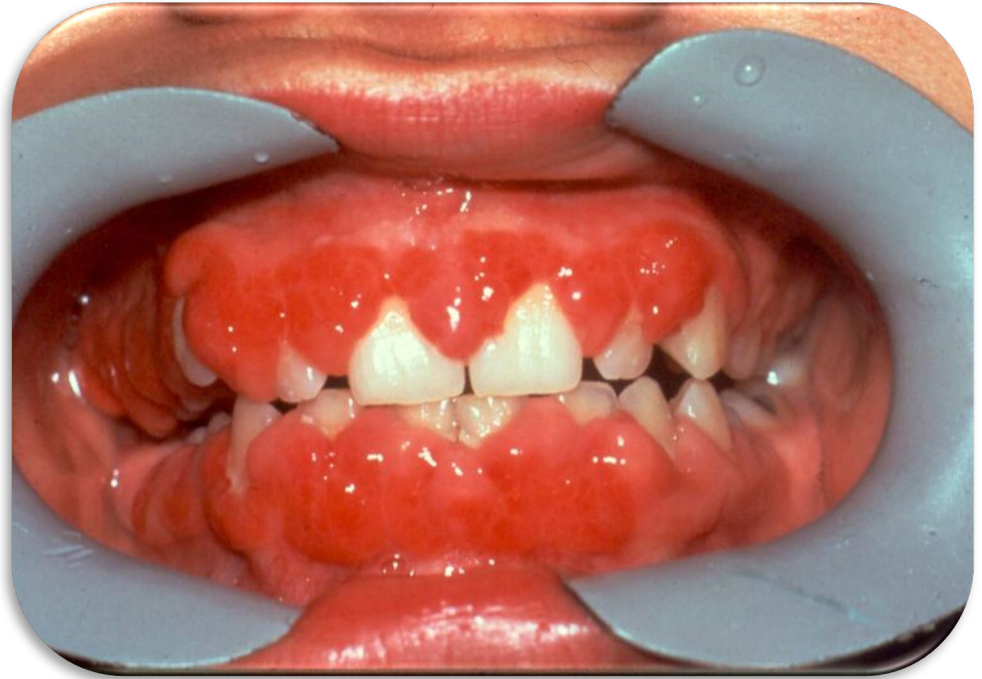


Oral complications of renal transplantation

Haematological disease

Haematological disease

- Anaemia
- Leukaemia
- Leukopaenia
- Lymphomas



Oral signs & symptoms of haematinic deficiencies

Glossitis

1. Smooth, depapillated tongue (Fe def.)
2. Raw, beefy tongue (Vit B₁₂, folic acid def.)



Amyloidosis

- Rare condition
- Amyloid deposited in tissues
- Macroglossia, oral blood-filled bulla
- Myeloma associated
- Biopsy-Congo red staining
- Urine analysis-Bence-Jones proteinuria
- FBC, ESR, marrow biopsy



Immunodeficiency

Human immunodeficiency virus infection

RNA retrovirus infection

Spread through:

- sexual contact
- parenteral exposure to blood
- mother to foetus
- Immune deficiency due to damage to CD4 T-lymphocytes

Predisposition to infections with:

- Viruses and virally induced malignancies
- Fungi
- Mycobacteria
- Autoimmune disease
- Neurological damage



Oral Lesions in HIV disease

Candidosis

Hairy leukoplakia

Kaposi's sarcoma

Gingival and periodontal disease

Ulcers

Other orofacial conditions

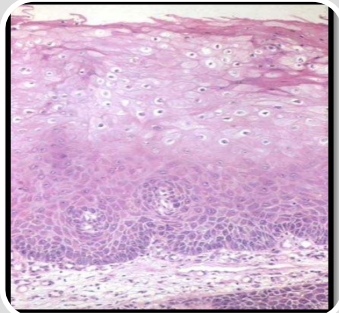
Hairy leukoplakia



White patch which cannot be removed
Vertical white folds on the lateral aspects of tongue
Associated with EBV



Lesion not premalignant
Usually superimposed by candida
Common in patients with late stage HIV infection
Development may herald onset of AIDS

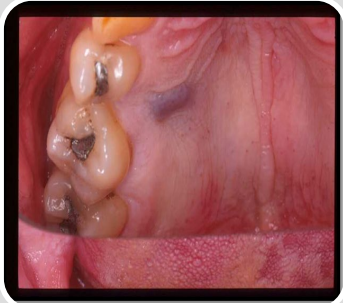


Development may herald onset of AIDS
Diagnosis: Clinical
Biopsy: ballooned cells with perinuclear vacuoles, swollen cells contain EBV

Kaposi's Sarcoma



Most common malignancy in HIV patients,
Involves skin and mucosal surfaces
Tip of the nose frequent facial site
Caused by human herpes type 8



Common in homosexuals, can occur in all risk groups
Arises from vascular endothelial cells
Hard palate and gingiva are common sites
Presents as a reddish-purple patches



Presents as a reddish-purple patches
Becomes nodular and ulcerate
Diagnosis must be supported by biopsy

Classification of oral lesions in HIV



Group I

Lesions **strongly associated** with HIV infections
HIV associated candidosis



Group II

Lesions less commonly associated with HIV infection
HIV associated CMV ulcer



Group III

Lesions possibly associated with HIV infection
HIV associated wart

Acquired immunodeficiency syndrome (AIDS)

- AIDS is the final stage of HIV disease
- CD4 cell count: <200 cells/mm³
- CD4 cell %: $<14\%$
- Highly active antiretroviral therapy (HAART) has improved the quality and length of survival for many

Key points: HIV infection

Caused by retrovirus

Transmitted sexually, IV drug abuse, blood & blood products

Progressive deterioration of cell-mediated immunity

Oral signs and symptoms may be the initial manifestation

Oral candidosis most prevalent oral lesion

Hairy leukoplakia may indicate progression to AIDS

Kaposi's sarcoma and lymphomas often in the oral regions

Neurological and psychological disorders

Death mainly due to opportunistic infections

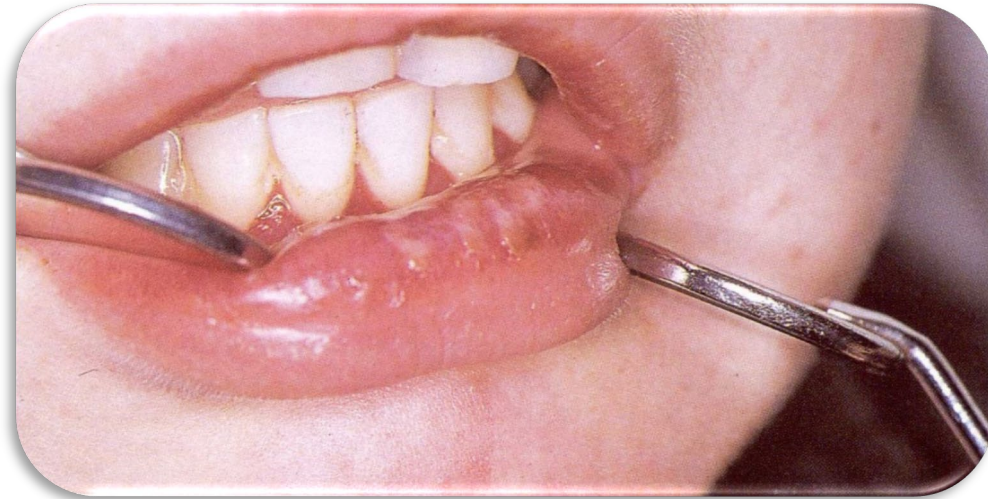
Connective tissue disease

Lupus erythematosus

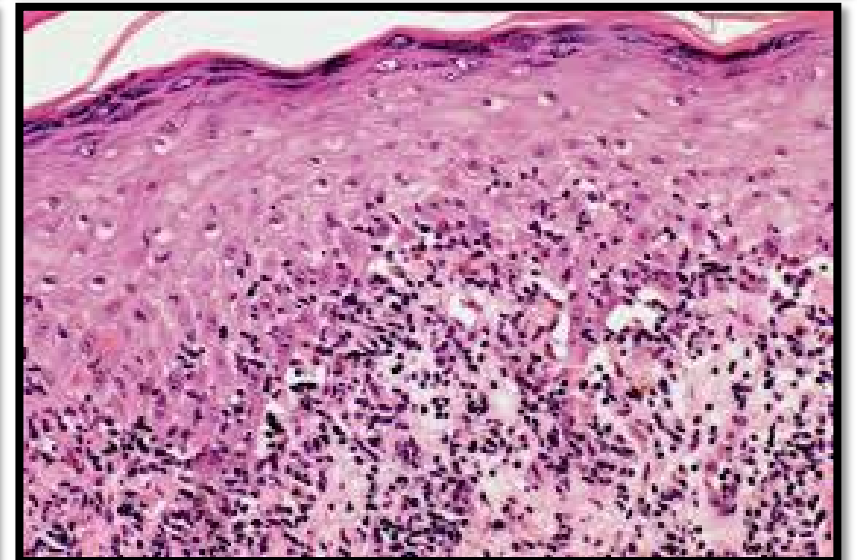
- Connective tissue disease-systemic & discoid
- Females affected more
- Both give rise to oral lesions-similar to OLP
- SLE-joint pain, rashes, any organ affected
- DLE-skin & mucocutaneous

Lupus erythematosus: oral lesions

- Area of erythema or ulceration surrounded by white border
- Any part of mucosa involved
- Vermilion border of lips affected



Clinical case



Histopathology of lichen planus

