DIPLOMA OF PRIMARY CARE DENTISTRY

-RCSI-

PART – 1

CLINICAL SKILLS

PART 4: ORAL SURGERY & ORAL MEDICINE RELEVANT TO PRIMARY DENTAL CARE

A. ORAL SURGERY:

➢ Asepsis and antisepsis:

- Asepsis is the avoidance of pathogenic microorganisms.
- Surgical technique is aseptic in the use of sterile instruments, clothing, and the 'no touch' technique.
- Antisepsis is an agent or the application of an agent which inhibits the growth of microorganisms while in contact with them.
- Scrubbing up and preparation of operative sites are examples of antisepsis.
- Disinfection: is the inhibition or destruction of pathogens, whereas sterilization is the destruction or removal of all forms of life.
- Prepackaged sterile supplies and the use of an autoclave (121°C for 15min or 134°C for 3min) for resterilizable equipment are the only really acceptable techniques in dentistry.
- Disinfection using glutaraldehyde or hypochlorite is second choice, for use where true sterilization is not feasible.

⇒ Cross-infection and its control:

- Much attention has been focused on this problem in recent years, first with **hepatitis B (Hep B)** and its related agents, **then with HIV**, and now with **prions**.
- Aerosols are easily created and are a potential source of cross-infection.
- Minimize wherever possible by high-vacuum suction.
- Wear glasses and a mask if exposure to an aerosol cannot be avoided.
- Immunization against Hep B is available. Get it and get all staff with clinical contact to do likewise.
- **Needlestick injuries:** If this happens to you, stop the procedure, ensure patient safety, rinse wound under running water, and record date and patient details.
- The patient needs to be informed and will require testing.
- Highly active antiretroviral treatment (HAART) 'prophylaxis' post contamination with HIV has been shown to reduce the risk of seroconverting.

⇒ The extraction of teeth must be viewed as a minor surgical procedure; therefore, the medical history will be pertinent, like bleeding diathesis.

⇒ More common and specific considerations are the sex, age, and build of the patient.

⇒ NICE guidelines currently state that patients at risk of bacterial endocarditis do not require antibiotic cover.

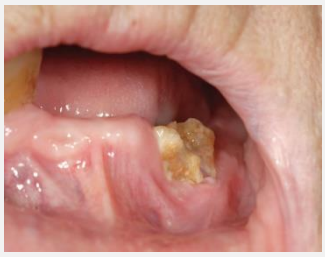
⇒ In all these cases a pre-extraction X-ray can help.

✹ **Common technique of extraction:**

- The tooth is moved depending on its anatomy:
- 1, 2, 3 have conical roots—rotate then pull.
- 4, 5 have either two fine roots or a flattened root—move buccopalatally until you feel them 'give', then pull down and buccally.
- 6, 7 have three large divergent roots—these are moved buccally while maintaining upward pressure, but frequently need a variety of rocking movements before they are sufficiently disengaged to complete extraction.
- 1, 2, 3 can usually be removed with a simple buccal movement, but sometimes need to be rocked or even rotated.
- 4, 5 are rotated and lifted out.
- 6, 7 are two-rooted and can usually be removed by a controlled buccal movement.
- Remember to support the patient's jaw.

Difficulties and complications of extracting teeth:

1. Access
2. Trismus and Pain
3. Inability to move the tooth
4. Breaking the tooth
5. Number of alveolar &/or basal bone
6. Loss of the tooth
7. Oro-antral communication
8. Damage to other teeth/tissues and extraction of the wrong tooth
9. Dislocated jaw
10. Medication-related osteonecrosis of the jaw (MRONJ)



Post-operative bleeding:

■ Principles of management of post-operative bleeding:

- Support the patient. If hypotensive and tachycardic, establish IV access and replace lost blood volume.
- Diagnose each cause, nature, and site of blood loss.
- Control the bleeding point.

■ Management:

- Reassure the patient they won't bleed to death.
- Take a drug history (anticoagulants?).
- Remove any lumps of clot and identify the source of bleeding.
- LA and suturing are needed. If bleeding continues, go for some form of pack.

Suturing:

- Most sutures are suture material fused to a needle, although threaded reusable needles are used in some countries.
- Almost all work is done with a 16–22mm curved cutting or reverse cutting needle held in a needle holder.
- Suture material may be **resorbable** (Dexon®, Vicryl®, or Monocryl®) or **non-resorbable** (silk, nylon, Prolene™, or Novafil®).
- Monofilament **suture (nylon) causes less tissue response than braided** (silk).

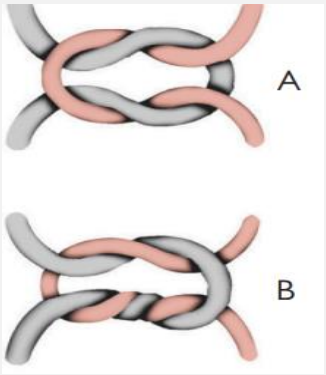
Types of stitch:

⇒ Suture technique:

- Closure of a wound or incision should, whenever possible, be without tension, by closing deep layers and over supporting tissue.
- Hold the needle in the needle holder about two-thirds of the way from its tip.
- Suture from free to fixed tissue taking a bite of 2–3mm on both sides.
- Leave the sutured wound edges slightly everted in apposition.
- Except when swaging tissue to bone, when arresting haemorrhage or when tying vessels, do not overtighten the suture as wound margins become swollen, and you need to allow for this.

⇒ Knot tying:

- The two most useful are the square (reef) knot and the surgeon's knot.



⇒ Instrument tying:

- Instrument tying is easy to learn from a book but needs considerable practice to perfect.
- The knot is started by passing the suture once **(square knot) or twice (surgeon's knot)** around the tip of the needle holders; the knot is tightened and then locked by passing the suture around the needle holder in the opposite direction once.
- It is possible to control the suture tension by completing the knot in three loops instead of two.

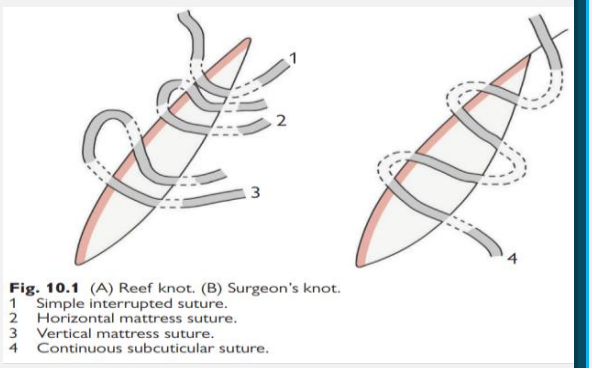


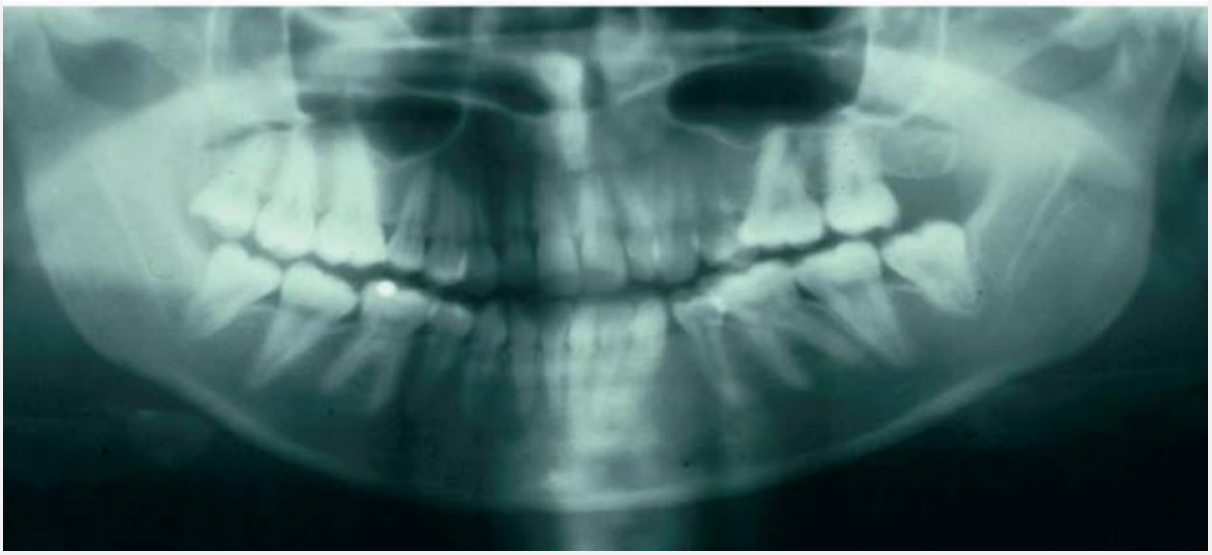
Fig. 10.1 (A) Reef knot. (B) Surgeon's knot.
1 Simple interrupted suture.
2 Horizontal mattress suture.
3 Vertical mattress suture.
4 Continuous subcuticular suture.

⇒ Suture removal:

- Suture removal is not someone else's job to be casually forgotten about.
- Do the stitches need to be removed?
    - In inaccessible sites, difficult patients, or areas in which scar quality is less important, a resorbable suture should be used.
    - An alternative is tissue glue, Dermabond®, Indermil.
    - Facial skin sutures should be removed at 4–6 days.
    - When removing sutures use sharp scissors (avoid 'stitch cutters' if you can), lifting up and cutting a bit of suture that has been in the tissue, thus avoiding dragging bacteria through the incision on removal.

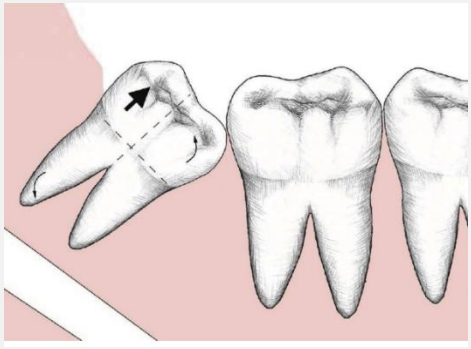
Dento-alveolar surgery: removal of third molars

⇒ An example of simple, vertically impacted, conically rooted third molars suitable for removal in the ambulatory setting:



⇒ A schematic showing planning for third molar removal.

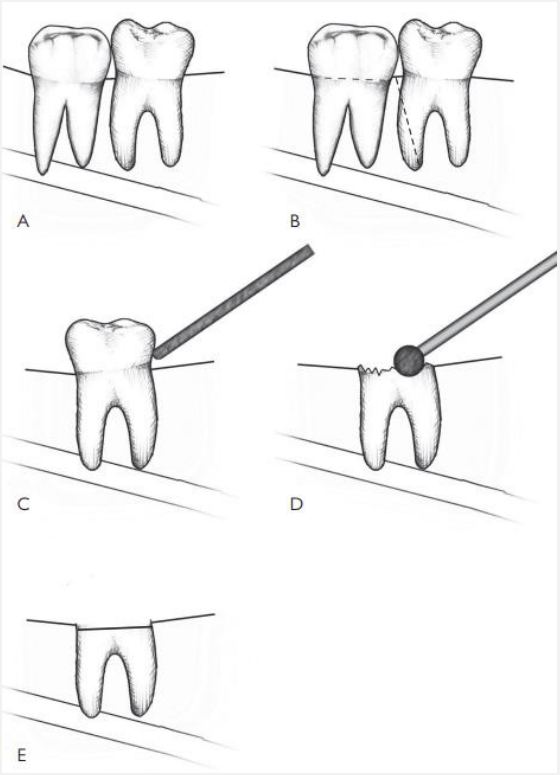
- Bold arrow— natural path of withdrawal, this causes impaction against second molar.
- Dashed lines are the lines of tooth sectioning.
- Top curved arrow—rotational movement to disimpact.
- Lower curved arrow—compensatory rotational movement which puts nerve at risk if tooth is not sectioned vertically.



Coronectomy:

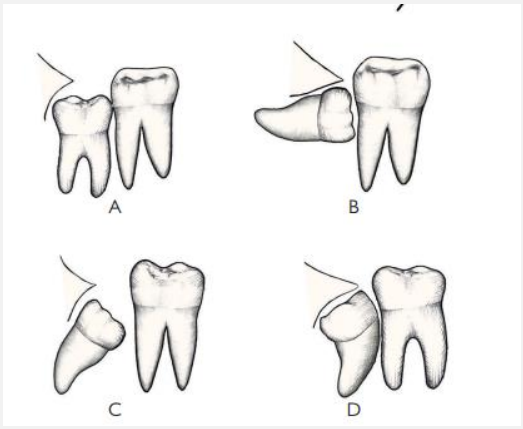
- This is used as an alternative to the complete removal in selective cases only.
- It involves removal of the crown of a lower 8, with deliberate retention of the roots.
- This may be indicated if the roots of the lower 8 are radiographically assessed as being closely involved with the ID canal.
- Radiographic signs of increased risk of nerve damage include:
    - Proximity to nerve canal.
    - Narrowing or diversion of canal.
    - Darkening of root/interrupting white lines of canal.
    - Interruption of lamina dura.
    - Juxta-apical area

⇒ A step-by-step coronectomy:



A. Vertical impaction with high likelihood of nerve involvement.
B. Gingival incision.
C. Crown is sectioned through ADJ.
D. Remaining root is reduced 3–4 mm below the alveolar crest.
E. The residual roots (now lying below the surrounding bone) are then covered with the mucosal flap.

Types of 3rd molar impactions:



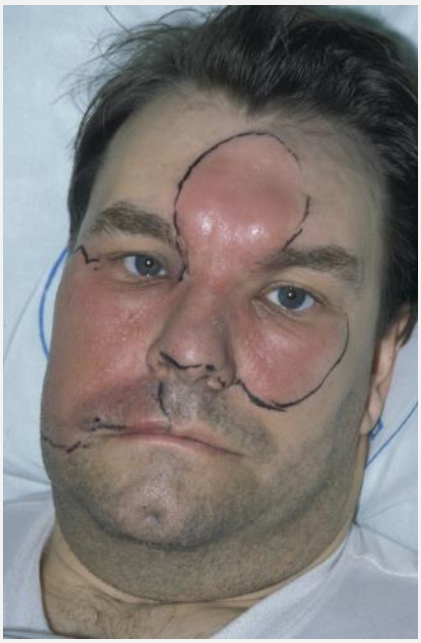
A. Vertically impacted third molar.
B. Horizontally impacted third molar.
C. Mesio-angular impaction of a third molar.
D. Disto-angular impaction of a third molar

Dento-facial infections:

- Infection is associated with teeth is rarely, if ever, treated definitively by antibiotics and analgesics.
- Ask about the airway.
- Anyone having difficulty swallowing their own saliva should be admitted immediately as the airway is at risk.
- People can die from these infections.
- The vast majority of infections in this area requiring surgical treatment are bacterial, usually arising from necrotic pulps, periodontal pockets, or pericoronitis.
- They can be life-threatening if allowed to progress, to the fascial spaces of the neck, mediastinum, or the cavernous sinus, or as a focus for infective endocarditis.
- There has been a substantial increase in the number of hospital admissions for severe cervicofacial infection of dental origin in the UK over the last decade.

Types of infection:

- Apical abscess
- Periodontal abscesses
- Pericoronitis
- Dry socket
- Actinomycosis
- Staphylococcal lymphadenitis
- Atypical mycobacteria
- Ludwig's angina
- Necrotizing fasciitis
- Abscess
- Cellulitis
- Head and neck infections

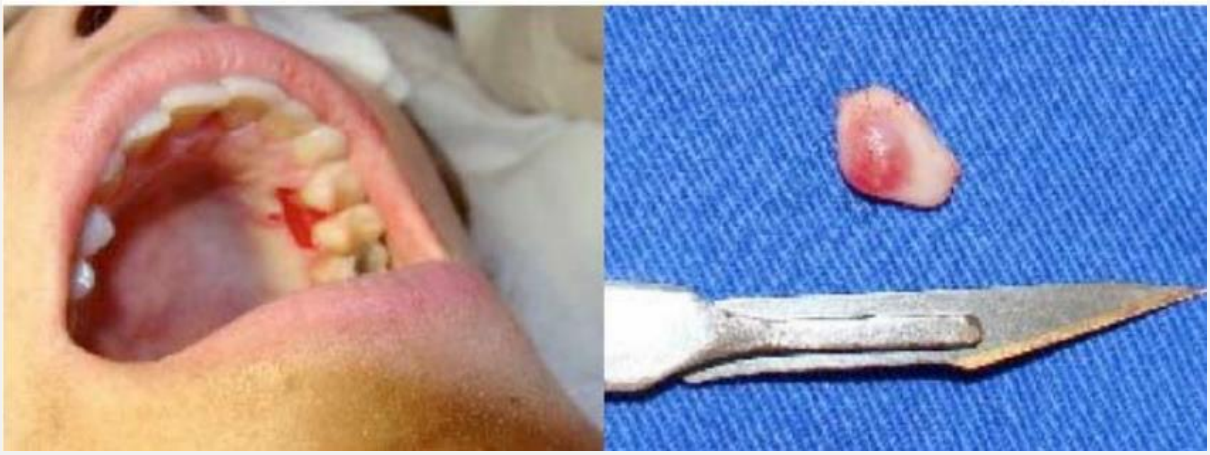


Biopsy:

- A biopsy is a sample of tissue taken from a patient for histopathological examination.
- Types of biopsy Biopsies may be incisional or excisional.
- Examples of incisional biopsies are fine-needle aspirate (really cytology), punch biopsy, trephines, and 'true-cut' needle biopsy.
- The commonest technique is to excise an ellipse of tissue that includes a portion of the lesion and surrounding normal tissue.
- Excisional biopsy provides after the fact information on the excised sample (reserve for very small lesions).

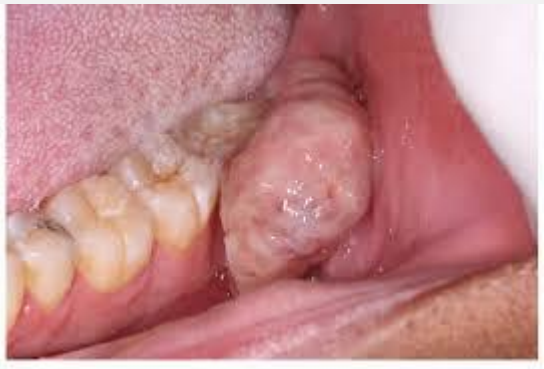
⇒ How it is done:

- LA or GA.
- For simple incisional biopsy, stabilize the tissue to be sampled.
- Transfixing with a 3/0 BSS helps avoid crush artefact and orientates the specimen.
- Cut an ellipse of tissue, including lesion and normal surrounding tissue, lift up and dissect out, then close primarily with sutures.



Non-tumour soft tissue lumps in the mouth:

- Abscess
- Brown 'tumour'
- Dermoid cyst
- Congenital epulis
- Peripheral giant cell granuloma (Giant cell epulis.)
- Pregnancy epulis
- Pyogenic granuloma
- Fibroepithelial polyp
- Irritation (denture) hyperplasia
- Mucoceles
- Ranula
- Granulomata
- Haemangioma
- Lymphangioma
- Vascular malformations
- Warts/squamous papillomata



Non-tumour hard tissue lumps:

- Cysts
- Tori
- Giant cell granuloma
- Brown 'tumour'
- Paget's disease of bone
- Fibrous dysplasia
- Cherubism

Cysts of the jaws:

- Cysts are abnormal epithelium-lined cavities which often contain fluid but only contain pus if they become infected.
- Jaw cysts predominantly arise from odontogenic epithelium and grow by a means not fully understood but involving epithelial proliferation, bone resorption by prostaglandins, and variations in intracystic osmotic pressure.

⇒ Treatment:

◊ Enucleation with 1° closure is commonest and generally the Rx of choice. It consists of removing the cyst lining from the bony walls of the cavity and repositioning the access flap. Any relevant dental pathology is treated at the same time, by apicectomy.

◊ Enucleation with packing and delayed closure is used when badly infected cysts, particularly very large ones, are unsuitable for 1° closure. Pack with Whitehead's varnish or BIPP.

◊ Enucleation with 1° bone grafting. Rarely useful.

◊ Marsupialization. This is the opening of the cyst to allow continuity with the oral mucosa; healing is slower than with enucleation and a cavity persists for some time. It is useful to allow tooth eruption through the cyst or where enucleation is contraindication.

〉 **Always submit cyst lining for histopathology.**

Types of cysts:

1. Inflammatory dental cysts:
   - ◊ These are very common and may also be called radicular cysts.
   - ◊ Described as apical or lateral depending on position in relation to tooth root, or residual if left behind after tooth extraction.
   - ◊ Necrotic pulp is the stimulus, and the epithelium comes from cell rests of Malassez.
   - ◊ Treatment: enucleation plus endodontics or extraction.

2. Eruption cysts
3. Dentigerous cysts:

◊ These form around the crown of an unerupted permanent tooth and arise from reduced enamel epithelium.
◊ May delay eruption.
◊ Treatment: marsupialization or enucleation, depending on position and desired fate of the tooth.

4. Keratocysts:

◊ Keratocystic odontogenic tumour is an odontogenic cyst that can be rapidly growing.
◊ In 2005 the WHO reclassified the lesions as KCOT due to their propensity to reoccur and invade local tissues.
◊ This term was not used commonly and in 2017 the name reverted to odontogenic keratocyst.
◊ They are lined by parakeratinized epithelium derived from the remnants of the dental lamina and are thought to replace a missing tooth.
◊ They have a fluid filling with a protein content.
◊ Their multiloculated appearance on X-ray may confuse them with an ameloblastoma.
◊ Treatment: careful enucleation, &/or cryotherapy &/or Carnoy's solution, or aggressive curettage of the cavity.
◊ Rarely, excision is needed if recurrent.

5. Calcifying epithelial odontogenic cysts:

◊ These are rare and distinguished by areas of calcification and 'ghost cells' on histology.
◊ Treatment: enucleate.

6. Solitary bone cysts:

◊ These are usually an incidental finding on X-ray and devoid of a lining but may contain straw-coloured fluid.
◊ They probably arise following breakdown of an intraosseous haematoma and are distinguished by a scalloped upper border on X-ray where the cyst pushes into cancellous bone between teeth but spares the lamina dura. Opening the cyst, gentle curettage, and closure heals these 'cysts'; associated teeth need no treatment.

7. Aneurysmal bone cysts:

◊ These are expansile lesions full of vascular spongy bone.
◊ They present as a symptomless swelling, unless traumatized, when bleeding causes pain and rapid expansion.

◊ Small ones can be carefully enucleated, but larger aneurysmal bone cysts need excision and possible reconstruction since they will recur if incompletely excised.

8. Fissural cysts:

◊ These are not associated with dental epithelium but arise from embryonic junctional epithelium.
◊ They are rare and include incisive canal cysts, incisive papilla cysts, and nasolabial cysts.
◊ Treatment: enucleation.

Benign tumours of the mouth:

a. Non-odontogenic tumours:

χ Epithelial: Squamous cell papilloma.
χ Connective tissue:
- Fibroma.
- Lipoma.
- Osteoma.
- Neurofibroma.
- Neurolemmoma (schwannoma).
- Granular cell myoblastoma.
- Ossifying fibroma.

b. Odontogenic tumours:

- Ameloblastoma
- Adenoameloblastoma
- Calcifying epithelial odontogenic tumour (Pindborg tumour)
- Myxoma
- Ameloblastic fibroma
- Odontomes

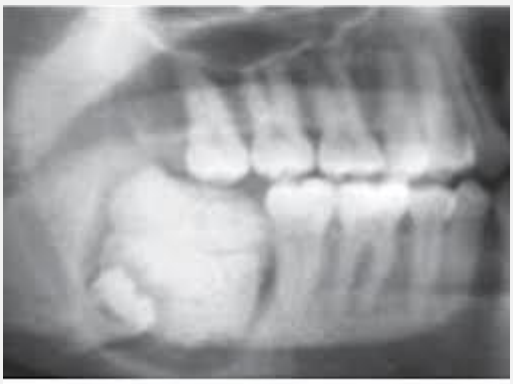


Fig. 3: Radiograph of complex odontome

B. ORAL MEDICINE:

⇒ **Bacterial infections of the mouth:**

a. Scarlet fever: an infectious disease of 4–8yr-olds, may be due to a delayed-type hypersensitivity to streptococcal erythrogenic toxin.
   - ω Symptoms include sore throat, general malaise, fever, and characteristic red rash.
   - ω The oral mucosa is reddened, and the tongue undergoes pathognomonic changes; the dorsum develops a white coating through which white oedematous fungiform papillae project—the 'strawberry tongue' of scarlet fever.
   - ω Later the white coating is shed, and the dorsum becomes smooth and red with enlarged fungiform papillae— 'raspberry tongue'.
   - ω Treatment is directed towards the systemic condition with penicillin.
   - ω **The oral manifestations resolve within 14 days.**

b. Tuberculosis (TB):
   - ω TB is a re-emerging infectious disease caused by **Mycobacterium tuberculosis.**
   - ω It is commonly seen in immunocompromised patients, including elderly persons.
   - ω The oral lesion presents as a deep, painful ulcer with raised borders, gradually increase in size.
   - ω Any part of the oral mucosa may be involved, although the posterior aspect of the dorsum of the tongue is the commonest site.

c. Syphilis:
   - ω Syphilis is a sexually transmitted disease cause by Treponema pallidum.
   - ω 1° lesion: a chancre (a firm, painless ulcerated nodule) develops at the site of inoculation.
   - ω 2° lesion: develops 2–4 months after the 1° with a cutaneous rash, condylomata, and systemic features such as malaise, fever, headache, and weight loss.
   - ω 3° lesion: develops several years later in 30% of patients and is marked by gumma formation. Lesions are non-infectious.

d. Congenital syphilis: Due to T. pallidum crossing the placental barrier leading to the classical appearance of saddle nose, frontal bossing, sensorineural deafness**, Hutchinson incisors (peg-shaped with notch), and mulberry (Moon) molars.**

e. Gonorrhoea:

- Gonorrhoea is 15 times more common than syphilis.
- It results from oro-genital contact with an infected partner and presents as a non-specific stomatitis or pharyngitis with frequent persisting superficial ulcers and purulent gingivitis caused by **Neisseria gonorrhoeae.**
- Treatment is with high-dose penicillin; sexually transmitted infections should be referred to a genitourinary medicine specialist.

Viral infections of the mouth:

1. Human papilloma virus (HPV)
2. Herpes simplex virus (HSV) (Human herpesvirus type 1 and 2): Most common viral infection affecting the mouth:
   - ω Primary HSV: This varies widely in severity (increase with age); it is often subclinical, and asymptomatic in 80%.
   - ω Recurrent HSV infections: These are seen in up to 30% of patients affecting the mucocutaneous junction of the lips (herpes labialis, cold sore) and result from reactivation of the 1° infection which is believed to lie dormant in the dorsal root, and autonomic or cranial nerve ganglia (trigeminal or geniculate).
3. Varicella zoster (Human herpesvirus 3.): This is a neurogenic DNA virus which causes chickenpox as a 1° infection (varicella) and shingles as a reactivation (zoster).
4. Chickenpox: Classically, an itchy, vesicular, cutaneous, centripetal rash affects children with a peak age of 5–9yrs, rarely affecting the oral mucosa.
5. Shingles: is commoner in the immunocompromised, alcoholics, and elderly people. It is confined to the distribution of a nerve, the virus staying either in the dorsal root ganglion of a peripheral nerve or the trigeminal ganglion. Facial or oral lesions may arise in the area supplied by the branches of the trigeminal nerve.
6. Herpangina: caused by Coxsackie A virus, is confined to children, and presents with widespread small ulcers on the oral mucosa with fever and general upset.

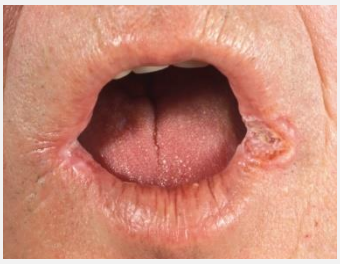
7. **Measles:** The prodromal phase of measles may be marked by small white spots with an erythematous margin on the buccal mucosa, **known as Koplik spots.**
8. Glandular fever (infectious mononucleosis) : this is seen mostly in children and young adults and is spread by infected saliva.

Oral candidosis (candidiasis):

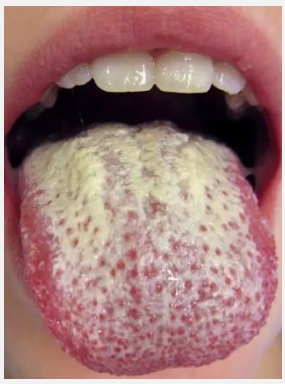
⇒ Acute candidosis:

- **Pseudomembranous candidosis (thrush):** appears as creamy, lightly adherent plaques on an erythematous oral mucosa, usually on the cheek, palate, or oropharynx. Occasionally symptomless, but more commonly cause discomfort on eating and also may cause a burning sensation and bad taste.
- **Erythematous candidosis:** This is an opportunistic infection following the use of broad-spectrum antibiotics, sometimes inhaled steroids, and in patients with HIV as well as those with xerostomia. It is painful and exacerbated by hot or spicy foods.

⇒ Chronic candidosis:



- **Chronic atrophic candidosis** (denture stomatitis)
- **Angular cheilitis:** A combined staphylococcal, β-haemolytic streptococci, and candidal infection, involving the tissues at the angle of the mouth.
- **Median rhomboid glossitis:** This is a form of chronic atrophic candidosis affecting the dorsum of the tongue. It is seen in patients using inhaled steroids and smokers. Some patients have lesions in the centre of the dorsum of tongue and palate (kissing lesions).
- **Chronic hyperplastic candidosis (candidal leucoplakia)**: This is more commonly seen in middle-aged men who are heavy smokers. It typically presents as a white patch on the oral commissural buccal mucosa bilaterally or dorsum of tongue.
- **Chronic mucocutaneous candidosis**: A rare syndrome complex with several subgroups, including candidal endocrinopathy, where skin and mouth lesions occur in conjunction with endocrine abnormalities; granulomatous skin candidosis, a late-onset predominantly male-affecting group; and an AIDS associated group.



Recurrent aphthous stomatitis (ulcers):

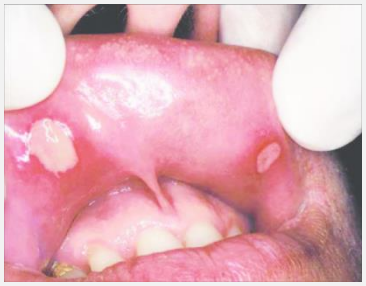
- Recurrent aphthous stomatitis (RAS) is the term given to a fairly well-defined group of conditions characterized by recurrent oral ulceration.
- There are three subgroups:

1. Minor aphthous ulcers:

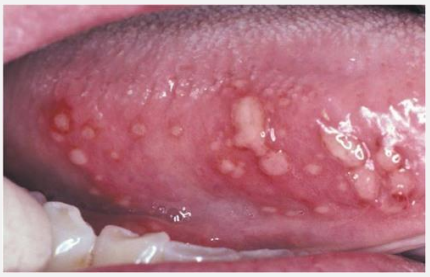
- A very common condition (~25% of population) affecting ~80% of RAS patients.
- Start at childhood or adolescence.
- Usually appear as a group of 1–6 ulcers at a time, of variable size (2–5mm diameter).
- Mainly occur on non-keratinized mucosa and heal within 1–2 weeks without scarring.
- Usually recur at an interval of 1– 4 months.
- Prodromal discomfort may precede painful ulcers.
- Exacerbated by stress, local trauma, menstruation (fall in progesterone level), sodium lauryl sulfate (in some toothpastes), drugs (NSAIDs, alendronic acid, and nicorandil), smoking, allergy to some foods, and may be an oral 'marker' of iron, vitamin B12, or folate deficiencies. In some cases, they are a manifestation of Crohn's disease, ulcerative colitis, or gluten enteropathy.

2. Major aphthous ulcers:

- Seen in 10% of RAS patients.
- A more severe and more frequent variant with fewer, but larger ulcers >10mm which may last 5–10 weeks and most commonly affect keratinized mucosa.
- Associated with tissue destruction and scarring, and any site in the mouth and oropharynx may be affected.
- There is an even higher association between major aphthae and gastrointestinal and haematological disorders.
- They are also seen in AIDS.



3. Herpetiform ulcers:



- Least common. So named due to their resemblance to 1° herpetic stomatitis; however, they are not related to viral infection.
- Commoner in older females.
- Manifest as a crop of small but painful ulcers (up to 100) which usually last 1–2 weeks, the commonest site being the floor of mouth, lateral margins, and tip of tongue, occurring on both keratinized and non-keratinized surfaces.
- Rarely, they merge to form a large ulcer which heals with scarring.

Vesiculo-bullous lesions—intraepithelial:

- Vesicle: A vesicle is a small blister, a few millimetres in diameter.
- Bulla: A bulla is a larger blister (0.5cm or more).
- Intraepithelial bullae: Intraepithelial bullae are caused by loss of attachment between individual cells (acantholysis).
- Subepithelial bullae: Subepithelial bullae separate the epithelium from the underlying corium.
- Ulcer: An ulcer is a breach in the mucous membrane.

- **Pemphigus:**
  - Pemphigus is a chronic skin disease which can be rapidly fatal if not treated (mortality 10%).
  - Affected patients have immunoglobulin G (IgG) autoantibodies against desmosomal components like desmoglein-1 and desmoglein-3.
  - Oral mucosa is affected in 95% of patients with pemphigus vulgaris (most common type) and may be the initial presentation of pemphigus in 50%.
  - Autoimmune in aetiology, there are circulating autoantibodies to epithelial desmosome tonofilament.
  - Acantholysis and intercellular IgG &/or C3 are typical and cause separation of epithelium above the basal cell layer, and oedema into this potential space produces a superficial, easily burst, fluid-filled bulla.
  - Rupture leaves a large superficial, easily infected ulcer. The first identifiable lesions are quite often found in the mouth, especially on the palate, although these are usually seen as ulcers because the bullae break down rapidly.

- **Epidermolysis bullosa (Simplex is most common form.)**
  - Other variants are subepithelial.
  - A group of uncommon bullous conditions that are inherited with an autosomal dominant or recessive pattern.
  - Skin blisters due to mild trauma, leading to scarring and disfigurement.
  - Great care should be taken to prevent IO lesions during dental treatment.
  - Simplex type is due to mutations in the K5 or K14 gene, leading to disruption of basal cells and formation of bullae.
  - No cure and Rx is symptomatic and preventive.

Vesiculo-bullous lesions—subepithelial:

- Angina bullosa haemorrhagica: An acute, localized oral blood blister of unknown aetiology, although trauma may cause break in epithelium–connective tissue junction leading to bleeding from superficial capillaries and formation of bulla.

- Mucous membrane pemphigoid: Commonest in females >60yrs. Presents as mucous membrane bullae which rupture and heal with scar formation. Rare to see skin bullae. Conjunctiva may be affected and if scarring occurs can lead to loss of vision, therefore regard oral signs as a warning to prevent ocular damage.

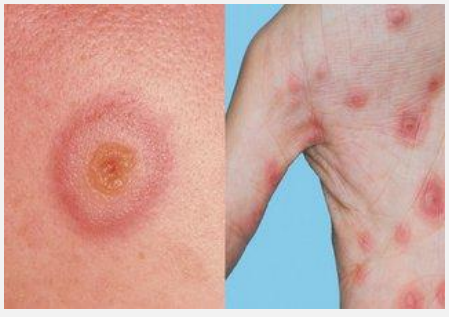
- Bullous pemphigoid: This affects the >60yrs age group. Subepithelial bullae form which are firm and less likely to break down than those in pemphigus; it is due to autoantibodies (IgG) to the epithelial basement membrane. The oral mucosa is only affected in ~20% of patients.

- Dermatitis herpetiformis :This is a rare chronic condition of unknown aetiology, but often associated with gluten sensitivity with autoantibodies against reticullin, gliadin, endomysium, and transglutaminase.

- Lichen planus: This affects both skin and mucous membranes. Bullous lichen planus is a rare variant in which subepithelial bullae form and break down, leaving large erosions.

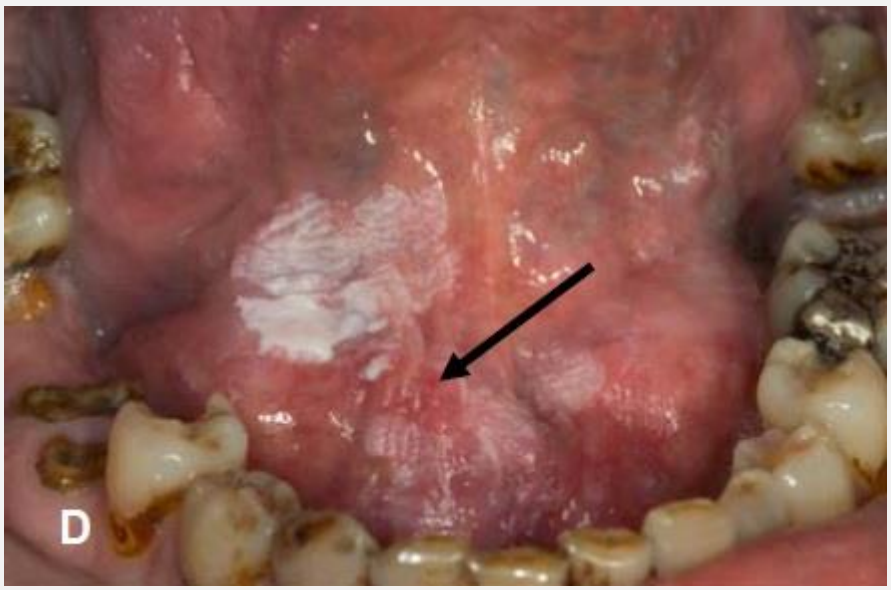
- Epidermolysis bullosa: This is a rare skin disease which exists in numerous different forms. The dystrophic autosomal recessive form is most likely to present with oral manifestations and appears shortly after birth. Associated with bullae formation after minor trauma to skin or mucosa; these break down leaving painful erosions. Dentine may be affected leading to hypoplasia and high susceptibility to caries.

- Erythema multiforme: This is an immunologically mediated hypersensitivity reaction affecting skin and mucous membrane, usually in young adult males. Trigger agents can be identified in half of the cases, and these include drugs (carbamazepine, penicillins, NSAIDs), infection (HSV, mycoplasma pneumonia), pregnancy, malignancy, sunlight, and chemicals such as perfumes and food additives.



Premalignant lesions:

1. Leucoplakia
2. Erythroleucoplakia (speckled leucoplakia)
3. Erythroplakia
4. Erosive lichen planus
5. Submucous fibrosis
6. Dyskeratosis congenita
7. Patterson–Brown–Kelly syndrome (Plummer–Vinson syndrome)



The End