Patient difficult mouth opening
History of Trauma: TMJ Ankylosis
In pt with TMJ Ankylosis, take radiograph. In Malaysia, OPG is called as dental panoramic tomogram.
Reduced joint space

In which ot you see Osteomyelitis What age

How do you describe chronic suppurative osteomyelitis (whenever there is involvement of pus)

Which jaw is more susceptible: mandible -

- more dense
- Less blood supply

If we suspect osteomyelitis, what are the questions that you ask the patient?

- Rule out the causes of osteomyelitis - h/o Trauma & Xn
- Any prodromal symptoms

Differential diagnosis

- Periapical Abscess
- Periodontal Abscess
- Pericoronal Abscess (only if teeth is present)
- Gingival Abscess
- Actinomycosis (rare)

Is lymph node palpable in pt with Osteomyelitis?

- If left side which lymph node is palpable
    - Left submandibular node
    - Then to deep cervical node

Do you expect any paresthesia in such patients?
Why does paresthesia happen?

- Infection has reached the canal and caused irritation of the nerve
- The lesion compress the nerve
- In this process the nerve get demyelinated

Most common antibiotics that you prescribed to patients with Osteomyelitis?

- CANNOT PRESCRIBE AMOX (not enough)
- Give
    - Cephalosporin
    - Augmentin (if does not work shift to cephalosporin)

What are the oral manifestations of AIDS?
Categorized by european council in

- Candidiasis
- Hairy Leukoplakia
- Pseudomembranous candidiasis
- Recurrent aphthous ulcer
- Angular chelitis
- Non hodgkins lymphoma

How do you diagnose pt with AIDS?

- CD4 count
    - helps us to understand to what level the immunity of the patient is compromised
    - Understanding disease progression
    - Deciding on various treatment options

Patient with AIDS will be on which therapy?

- Highly Active Anti-Retroviral Therapy (HAART)

How does it help the pt: Help to fight the immunity of the pt

- Strengthen immunity by increasing cd4 count
- Take care of viral load
- Reduces transmission risk

(Life expectancy of the patient will increase
Classical radiographic feature of:

- Ameloblastoma

- Odontogernic myxoma

Multilocular radiolu
- Soap Bubble
- Honey comb
- Tennis net

Classic features of ameloblastoma:
- Ramus of mandibular
- Benign tumour
- Affinity to tooth displacement

DD:
- Odontogenic myxoma
- CGCG
- OKC

What Radiographic Investigation?
- OPG
- CT
- CBCT
- MRI

Large ulcer induration on the lateral border of the tongue

Why do you use the term Squamous cell?
- You can never use it until you see the histology

Best provisional diagnosis: Malignancy of the tongue

Questions you usually ask?
- Any skin lesions
- Any sharp tooth
- History of trauma

Reddish patch on the tongue
- Erythroplakia (provisional diagnosis)

ONLY WHEN THERE IS A MENTION OF PROLIFERATIVE GROWTH: then you mention carcinoma

However the diagnosis can only be obtained after investigation: Biopsy

Vital staining
- Toludine blue
- Lugols iodine

Identify the site
Look for dysplastic changes (differentiate normal mucosa and pathological mucosa)

Electric Shock like pain on the left side of the pain: Trigeminal Nerve Neuralgia

If no mention of electric shock pain, only disturbing pain (unilateral pain)
DD:
- TGN
- Mx sinusitis
- TMJ disorders
- Odontogenic Infection (Try to split it - periodontal, pericoronal, periapical)

Lean forward
Put your head down
Puffiness on the cheeks
(Mx Sinusitis)

COnventional:
- OPG
- Waters view

Advanced:
- CBCT
- MRI
- CT

Medically compromised patient management (read from Little's and Falace):
- Hypertension
- DM

If there is a diabetic pt OM:

- Candidiasis
    - Angular chelitis
    - Denture stomatitis
    - Median Rhomboid Glossitis
- Periodontitis

Cyclosporins
Nifedipine (CCB)
Phenytoin sodium (Anti-seizure medication)

Cause of Herring Bone Pattern (Tyre Track Appearance)

- Reversed Placement of the Film

Beam will pass through the lead foil. And this happens

Swelling (Odontogenic Infection) - Involved tooth carious

Vestibular obliteration - raise in sulcus

- Hard Tissue examination
    - Percussion
        - Vertical
        - Horizontal
    - Probe the tooth
    - Bidigital Palpation/Backhand of the mirror
- Soft tissue Examination
    - Run the finger along the vestibule to check for vestibular obliteration
    - Check for fluctuant swelling
    - Pus discharge

1. History of Trauma: TMJ Ankylosis

Definition:

- A condition where the mandibular condyle becomes fused to the temporal bone at the glenoid fossa, limiting or preventing mandibular movement.
- Can be **fibrous or bony**, **unilateral or bilateral**.

Etiology:

- **Trauma**: Most common cause (condylar fracture during childhood).
- **Infection**: Otitis media, septic arthritis, or extension of dental infections.
- **Systemic diseases**: Ankylosing spondylitis, rheumatoid arthritis, psoriasis.

Clinical Features:

- History of trauma (fall, RTA) during childhood.
- Reduced mouth opening (<15 mm in severe cases).
- Facial asymmetry (especially in unilateral cases).
- Deviation of jaw toward affected side.
- Bird face appearance in bilateral cases.

Radiographic Investigation:

- **Dental Panoramic Tomogram (OPG/DPT)**:
    - Flattened condyle.
    - Loss of joint space.
    - Evidence of bony fusion across joint.
- **CT Scan**:
    - Best for evaluating extent of bony ankylosis.
    - Detects intracapsular vs extracapsular ankylosis.
- **MRI**:
    - For soft tissue ankylosis and disc displacement evaluation.

---

2. Osteomyelitis

Definition:

- Inflammatory condition of bone and bone marrow, commonly of bacterial origin, leading to bone destruction.

Predilection for Jaw:

- **Mandible > Maxilla**
    - Mandible is more dense (cortical bone), with reduced vascular supply, making it more prone.
    - Maxilla is more porous and better vascularized.

Types:

- **Acute Suppurative**
- **Chronic Suppurative**
- **Chronic Sclerosing**
- **Garre's Osteomyelitis** (in children, with periosteal new bone)

---

3. Chronic Suppurative Osteomyelitis

Pathophysiology:

- Follows unresolved or inadequately treated acute osteomyelitis.
- Bacteria persist → necrosis of bone (sequestrum formation) → pus discharge through sinus tracts.

Clinical Features:

- Pain (dull, persistent)
- Swelling (hard or fluctuant)
- Pus discharge (intraoral or extraoral sinus)
- Exposed necrotic bone
- Trismus (if near ramus or coronoid)
- Loosening of teeth
- Halitosis

Radiographic Features:

- **Moth-eaten radiolucency**
- **Sequestrum**: radiopaque dead bone
- **Involucrum**: periosteal new bone formation
- **Cloaca**: pus-draining channels

---

4. History and Evaluation of Suspected Osteomyelitis

Questions to Ask:

- Recent dental extraction or trauma?
- History of untreated infection or swelling?
- Pus discharge? Duration and site?
- Any fever, malaise, or weight loss?

- Sensory changes like paresthesia?
- Systemic diseases? (e.g. diabetes, immunosuppression)
- Medications? (bisphosphonates → MRONJ)

Physical Examination:

- Swelling, tenderness
- Extraoral sinus tracts
- Palpate lymph nodes
- Look for exposed bone

---

5. Lymphadenopathy in Osteomyelitis

- **Yes**, commonly palpable.
- Usually **submandibular nodes** involved first (same side as lesion).
- Can spread to **deep cervical nodes** in chronic infections.

---

6. Paresthesia in Osteomyelitis

Why It Occurs:

- Infection spreads to involve **inferior alveolar canal**
- Compression or infiltration of the **inferior alveolar nerve**
- Leads to demyelination → **numbness or tingling in lower lip or chin (Vincent's symptom)**

---

7. Antibiotic Management

Avoid:

- **Amoxicillin alone** – often ineffective due to resistant organisms.

Recommended Antibiotics:

- **First line**:
    - **Augmentin (Amoxicillin + Clavulanate)** – oral or IV
    - **Metronidazole** – anaerobic coverage (combine with Augmentin)
- **If unresponsive**:
    - **Cephalosporins** (Cefuroxime, Ceftriaxone)
- **Severe/Chronic**:
    - **Clindamycin** (good bone penetration)

    - **IV therapy + surgical debridement**

---

8. Oral Manifestations of AIDS

Fungal Infections:

- **Pseudomembranous candidiasis**: white, curd-like, easily wiped.
- **Erythematous candidiasis**: red, flat lesions.
- **Angular cheilitis**
- **Median rhomboid glossitis**

Viral Infections:

- **Oral Hairy Leukoplakia**: EBV-induced, lateral tongue, corrugated white patches.
- **Herpetic ulcers** (non-keratinized mucosa)
- **HPV-related warts**

Neoplasms:

- **Kaposi's sarcoma**: red to purple macules, hard palate or gingiva.
- **Non-Hodgkin's lymphoma**

Others:

- Recurrent aphthous ulcers
- Necrotizing ulcerative gingivitis/periodontitis
- Dry mouth due to salivary gland disease

---

9. Diagnosis and Management of AIDS

Tests:

- **CD4 count**:
    - Normal: 500–1500 cells/mm³
    - <200 → AIDS diagnosis
- **Viral load**: amount of HIV RNA in blood

Treatment: HAART:

- **Highly Active Antiretroviral Therapy**
- Increases CD4 count
- Decreases viral load
- Delays disease progression
- Reduces oral manifestations
- Increases life expectancy

---

10. Radiographic Features

Ameloblastoma:

- Multilocular radiolucency (“soap bubble” / “honeycomb” / “tennis racket”)
- Buccal and lingual cortical expansion
- Tooth displacement or root resorption
- Occurs in **mandibular molar-ramus region**

Odontogenic Myxoma:

- Similar multilocular appearance
- Fine trabeculations in "tennis racket" pattern
- Slower growth, often asymptomatic

Investigations:

- **OPG** – initial screening
- **CBCT/CT** – better bony detail
- **MRI** – soft tissue extension and marrow involvement

---

11. Large Ulcer on Tongue

Provisional Diagnosis:

- **Malignancy (SCC)** if indurated and chronic
- Only confirm as **squamous cell carcinoma** after **biopsy and histology**

History Taking:

- Duration
- History of trauma (sharp tooth, ill-fitting prosthesis)
- Tobacco/alcohol use
- Bleeding, pain, weight loss
- Skin lesions (systemic disease?)

Investigations:

- **Vital staining**:
  - **Toluidine blue** – stains dysplastic cells
  - **Lugol’s iodine** – normal mucosa stains brown
- **Incisional biopsy**: gold standard
- Imaging: CT/MRI for local invasion

---

12. Red Patch on Tongue

- **Provisional Diagnosis**: **Erythroplakia**

- Red, velvety lesion with high malignant potential
- 90% show dysplasia or carcinoma on biopsy

---

13. Trigeminal Neuralgia (TGN)

Symptoms:

- Sudden, sharp, electric shock-like pain
- Triggered by speaking, chewing, wind, or touch
- Affects V2 or V3 unilaterally
- No neurological deficit

Differential Diagnosis (if no electric pain):

- **Maxillary sinusitis**:
  - Fullness, heaviness in cheek
  - Worsens on bending forward
  - Puffy cheeks
- **TMJ Disorders**
- **Odontogenic Infections**
  - Periapical (non-vital tooth, pain on percussion)
  - Periodontal (deep pockets)
  - Pericoronal (associated with impacted 3rd molars)

Investigations:

- **OPG**, **Water's view** – sinus
- **CBCT**, **MRI** – neural origin or space-occupying lesions

---

14. Medically Compromised Patients

Diabetic Patients:

- Increased risk of:
  - **Candidiasis**
  - **Angular cheilitis**
  - **Denture stomatitis**
  - **Median Rhomboid Glossitis**
  - **Chronic Periodontitis**
- Poor wound healing and higher post-op infection risk

Drugs Causing Gingival Enlargement:

- **Cyclosporin** (immunosuppressant)

- **Nifedipine** (calcium channel blocker)
- **Phenytoin** (anticonvulsant)

---

14. Medically Compromised Patients (Expanded)

A. Diabetes Mellitus

Oral Manifestations:

- Candidiasis (especially erythematous type)
- Angular cheilitis
- Denture stomatitis
- Median rhomboid glossitis
- Chronic periodontitis (rapid progression, increased severity)
- Delayed wound healing
- Burning mouth syndrome

Dental Considerations:

- Appointments preferably in the morning, short duration
- Ensure the patient has eaten and taken their insulin/meds
- Monitor for signs of hypoglycemia (confusion, sweating, tremors)
- Avoid invasive procedures if poorly controlled (HbA1c >8%)
- Antibiotic prophylaxis may be needed in poorly controlled diabetics

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B. Hypertension

Definition:

- Persistent elevation of systemic arterial blood pressure.
- Categories (as per *AHA*):
    - Normal: <120/80 mmHg
    - Elevated: 120–129/<80 mmHg
    - Stage 1: 130–139/80–89 mmHg
    - Stage 2: ≥140/90 mmHg
    - Hypertensive crisis: ≥180/120 mmHg

Common Medications:

1. **ACE Inhibitors** (e.g., Enalapril, Lisinopril)
    - Side effect: **angioedema**, dry cough

2. **Beta-blockers** (e.g., Atenolol, Metoprolol)
    - May cause **xerostomia**, **altered taste**
3. **Calcium Channel Blockers** (e.g., Amlodipine, Nifedipine)
    - **Gingival hyperplasia** (important oral side effect)
4. **Diuretics** (e.g., Hydrochlorothiazide)
    - May cause **xerostomia**, **lichenoid reaction**

Oral Manifestations:

- Gingival enlargement (especially with **Nifedipine**)
- Xerostomia → increased risk of caries, halitosis
- Burning mouth
- Lichenoid drug reactions (white striated lesions)

Dental Management:

- **Take BP at every dental visit**
- Avoid stress: Short, morning appointments
- Limit **epinephrine in LA** to 1:100,000 or lower
    - Maximum 2 cartridges for Stage I–II
    - Avoid if BP uncontrolled or >180/110 mmHg
- **Avoid NSAIDs** (e.g., Ibuprofen) long-term — can interfere with antihypertensive meds
- Monitor for drug interactions:
    - Macrolides (e.g., erythromycin) can increase levels of CCBs
- Avoid postural hypotension:
    - Slowly raise the dental chair
- Medical consult if:
    - Uncontrolled hypertension
    - BP ≥160/100 (defer elective care)
    - BP ≥180/110 (emergency only with physician approval)

Hypertensive Crisis:

- Medical emergency
- Symptoms: Severe headache, dizziness, blurred vision, chest pain
- Immediate referral to ER or call EMS

C. Drugs Causing Gingival Enlargement

- **Cyclosporin** – Immunosuppressant (e.g., post-transplant)
- **Nifedipine** – Calcium channel blocker
- **Phenytoin sodium** – Antiepileptic

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15. Radiographic Errors

Herringbone or Tyre-Track Pattern:

- **Cause**: Film placed in reverse direction.
- Beam passes through the **lead foil backing**, imprinting the pattern.
- Result: Underexposed image with reticulated pattern.

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16. Swelling in Odontogenic Infection

Examination Protocol:

Hard Tissue:

- **Percussion**:
    - Vertical → periapical pathology
    - Horizontal → periodontal pathology
- **Probing**: pocket depth
- **Pulp vitality test**
- **Check for carious lesion**

Soft Tissue:

- **Vestibular obliteration**: indicates underlying abscess
- **Bidigital palpation**: temperature, tenderness, fluctuation
- **Mirror back palpation**: to assess temperature
- **Pus discharge**, sinus tract, erythema

ORAL MEDICINE

1. Red and White Lesion
2. Orofacial Pain
3. Salivary Gland
4. TMJ
5. Vesiculobulous Lesions
6. Oral cancer
7. Investigations
8. Medically Compromised Patients
9. Benign Tumors
    a. Radiographic features
    b. AOT
    c. COF
    d. Cemento-osseous Dysplasia
10. Inflammatory Lesion of the Jaw
    a. c/f
    b. r/f
11. Benign tumor has some comparison with cyst
    a. OKC, radicular cyst (differentiate)
12. Syndromes
    a. Gardners
    b. Ramsay Hunt
    c. Sturge Weber syndrome

ORAL RADIOLOGY

1. Radiation protection
    a. How do you reduce dose
    b. Collimator
    c. Filter
2. Extraoral radiograph
    a. Indication
3. OPG magnification errors
    a. What do you see due to patient position
    b. What happens to the opg/teeth
        i. magnified/ blurred
4. Foreign Body Localization
    a. SLOB
    b. Clark's tube shift (take occlusal view - retrograde restoration
    c. OPG
    d. Extraoral view - lateral skull

RED & WHITE LESION

- Lichen planus
- Erythroleukoplakia
- Leukoplakia
- Lichenoid reaction
    - Reaction to:
        - Drugs
        - Restorative material
- Lupus (white striae)

What if lichenoid reaction is not there, what can you call it?

- Allergic stomatitis
- Why will you think its not lichen planus (because lc is usually bilateral

Trigeminal Neuralgia (electric shock pain)

- Read the drugs (first line of drugs & next options)

Burning Mouth Syndrome

- Burning Sensation
- Most of the time these patients will have reduced Hb
- What investigation will you do?
    - CBC
    - Iron levels
- If pt Hb is normal - etiology unknown
- Sometimes can be bc of medications taken by diabetic patients (long term medications

Salivary glands

- Xerostomia
- Drugs (Topical)
- Pharmacotherapy

Sjogrens Syndrome

- Pri: only xerostomia
- Sec: mouth, eyes, ct will be involved
- Investigations to confirm diagnosis:
    - Ultrasound (released patient from dental setting)
    - Best is Sialendoscopy

TMD

- Displacement
    - With Reduction
        - clicking sound
        - Mouth opening will be reduced (can still chew normally)
        - Normal is 45mm reduced to 40mm
    - Without Reduction
        - Severe mouth opening reduction (20mm)
        - Can’t eat properly
        - trismus
- Cause?
    - Degeneration of retrodiscal tissue
- Osteoarthritis
    - Classic features
        - Flattening of the condyle
        - Erosion of the condyle
        - Condyle reduction
- How to differentiate Rheumatoid Arthritis and Osteoarthritis (Rh factor is positive in Rheumatoid Arthritis

Vesicullobullos

- Viral
    - Herpes Zoster
    - Herpangina
    - Prodromal Syndrome
- Immunologically mediated
- Antiviral
    - Acyclovir
- If not viral give corticosteroid

Oral cancer

- How to manage
- Oral mucositis

- Radiation caries

White lesion - go for the next course
- Check for dysplastic features (Vital staining)
- Look out for the word MOST
    - Investigation
    - Management
    - Immediate treatment

Normal range of:
- red blood cells
    - 4.2 to 5.3 million UL
- WBC
    - 4000-1000 UL
    - Abnormal: Leukemia
- Platelet
    - 150k-400k
    - Drop to 50k thrombocytopenia

Leukemia
- Swollen gums
- Bleeding
- Bone pain
- Best is bone marrow biopsy

Medically compromised management
- Safest drug is PARACETAMOL
- Don't give NSAIDS

Benign Tumours
- Radiographically (AOT, COF, COD)
- COD tooth is still vital

Impacted tooth delayed eruption of the tooth: Odontoma
- See some structures enamel and dentin (compound)
- Does not resemble (complex)

Inflammatory lesions of the Jaw
- Pulpitis
- Acute pulpitis
- Chronic pulpitis
- Intermediate
- If lamina dura is still intact pdl space widen: Apical Periodontitis - check the duration

Radiolucency apically
- Granuloma
- Body may deposit additional bone in that area
- If there is radiopacity in the area (CONDENSING OSTEITIS - CHRONIC FOCAL SCLEROSING OSTEOMYELITIS)

OSTEORADIONECROSIS
- Some extraction has been done
- Post radiation
- If clinically there is pus dont go for this

TENDERNESS ON TMJ OF PT
- Accident/blow to the TMJ
- Reverse Townes - review condyle

ZYGOMATIC ARCH
- Submentovertex
- If submentovertex is not there choose a variation

DIfferentiate viral and immune mediated

INVESTIGATIONS
- Vesicolubullous lesions
    - MOST CONFIRMATORY:
        - Biopsy
    - Advanced (choose if the question say the MOST)
        - DIF

SPLINTS
- Anterior repositioning splint

    - Most important thing is the patient's compliance
    - Wear 3 to 4 months

TNM Staging & Grading

Fractionation

Hyperfractionation

Fluid filled Blisters mostly

What if there is blood in the blisters?

- Angina hemoragica bullosa

Rural clinic and you want to take an X-ray machine? No door

- Safest way to take an X-ray. What do you call the method?
    - Position-Distance Rule
        - Applied when there is no barrier/door
        - 6ft distance
        - 90 to 135 degree angle
    - Where can the operator stand

✅ 1. Red and White Lesions

Lesion	Description	Key Clinical Features	Diagnostic Approach
Lichen Planus	Chronic, immune-mediated condition affecting mucous membranes	- Bilateral, symmetrical- Wickham's striae- Reticular (most common), erosive, atrophic, plaque-like	Clinical diagnosisBiopsy for confirmation (esp. erosive)
Erythroleukoplakia	Mixed red and white lesion	- Non-scrapable- Irregular borders- High risk of dysplasia or carcinoma	Biopsy mandatoryVital staining (Toluidine blue)

Leukoplakia	White patch not attributed to other pathology	- Non-scrapable- Can be homogenous or non-homogenous- Found on buccal mucosa, tongue, FOM	Clinical exclusionBiopsy required
Lichenoid Reaction	Unilateral lesions resembling LP	- Often adjacent to restorations- Can occur due to drug or material allergy- Asymmetrical	Patch testBiopsy for differentiation from LP

🔍 If Lichenoid Reaction not fitting:

- **Allergic Stomatitis**: Consider if lesion is not bilateral.
- **Clues it's NOT LP**:
    - Unilateral
    - Close to restorations
    - No striae, or asymmetrical appearance

🧪 Investigations:

- Biopsy (gold standard for dysplasia)
- Vital Staining (Toluidine Blue, Lugol's Iodine)

✅ 2. Trigeminal Neuralgia (TGN)

Feature	Details
Pain	Sudden, sharp, electric-shock like painTriggered by touch, chewing, speakingUnilateral (V2 or V3)
First-line Drug	**Carbamazepine (Tegretol)**
Alternative Drugs	- Oxcarbazepine- Gabapentin- Baclofen- Lamotrigine- Phenytoin
Investigations	MRI (to rule out structural causes like tumor or MS)
Surgical Options (resistant cases)	- Gasserian ganglion block- Microvascular decompression- Balloon compression

✅ 3. Burning Mouth Syndrome (BMS)

Feature	Description
Symptoms	Burning sensation, dry mouth, altered taste, mostly on tongueOften in postmenopausal females
Etiology	Idiopathic or secondary to systemic causes:- **Iron/B12 deficiency**- **Diabetes**- **Medications (e.g., antihypertensives, metformin)**- **Psychological (anxiety/depression)**

Investigations	- **CBC**- **Iron profile**- **Vitamin B12**- **HbA1c**- Thyroid panel
Treatment	- Treat underlying cause- Clonazepam topical- Capsaicin rinses- Psychological support

✅ 4. Salivary Gland Disorders / Xerostomia

Feature	Description
Common Causes	- Medications: Anticholinergics, antidepressants- Sjögren's Syndrome- Radiation
Symptoms	Dry mouth, difficulty swallowing, burning, fissured tongue, dental caries
Topical Therapy	- Salivary substitutes- Sugar-free gum (xylitol)- Pilocarpine (sialogogue)
Systemic Pharmacotherapy	- Pilocarpine- Cevimeline- Frequent hydration
Complications	- Candidiasis- Rampant caries- Taste alteration- Difficulty speaking/swallowing

✅ 5. Sjögren's Syndrome

Type	Features
Primary	Only **xerostomia** & **keratoconjunctivitis sicca** (dry eyes)
Secondary	Associated with systemic CTDs (e.g., SLE, RA)
Tests	- **Schirmer's Test**- **Sialometry**- **ANA, SSA, SSB antibodies**
Best Imaging	- **Sialendoscopy** (diagnostic & therapeutic)- Salivary gland **ultrasound/MRI sialography**
Biopsy	Minor salivary gland (labial) – for periductal lymphocytic infiltrate

✅ 6. Temporomandibular Disorders (TMD)

Subtype	Features
Disc Displacement with Reduction	Clicking soundMouth opening slightly reduced (~40 mm)Normal function
Disc Displacement without Reduction	No clickingSevere opening limitation (~20 mm)TrismusMay result from trauma
Causes	- Retrodiscal tissue degeneration- Internal derangement- Osteoarthritis

Radiographic Features	- **Condyle flattening**- Erosion or osteophyte formation- Joint space narrowing
Differentiation from RA	RA = Bilateral, positive **Rheumatoid Factor** and **ESR elevated**

✅ 7. Vesiculobullous Lesions

Type	Examples	Management
Viral	- Herpes simplex- Herpes zoster- Herpangina	- **Acyclovir** (start early)- Analgesics
Immunological	- Pemphigus vulgaris- MMP- Erythema multiforme	- Systemic **steroids**- Immunosuppressants

🔍 Investigations:

- **Biopsy**
- **Direct Immunofluorescence (DIF)** = MOST CONFIRMATORY (for autoimmune)
- **Tzanck smear** (for HSV)

✅ 18. Hemorrhagic Blisters

Term	Description
Angina Bullosa Hemorrhagica	- Spontaneous blood-filled blister- Usually on soft palate- No systemic disease- Ruptures easily, heals without scarring

✅ 8. Oral Cancer and Management

Feature	Description
Provisional diagnosis	Suspect malignancy in indurated ulcers, red/white patches, proliferative lesions
Investigations	- **Biopsy**- **Vital staining**- Imaging: CT/MRI for staging
Staging	**TNM Classification**
Treatment	- Surgical excision- Radiation therapy- Chemotherapy (cisplatin)
Complications	- **Oral mucositis**- **Radiation caries**- **Xerostomia**- **Osteoradionecrosis**

✅ 9. Osteoradionecrosis (ORN)

Feature	Description
Cause	Bone necrosis after radiation, often following dental extraction
Signs	Exposed necrotic bone >3 monthsPainNon-healing socket
Don't Confuse With	Suppurative infection (pus = infection, not ORN)

Management	- Conservative debridement- Hyperbaric oxygen therapy (HBO)- Antibiotics only if secondary infection

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✅ 10. Blood Investigations & Hematology

Parameter	Normal Range
RBC	4.2–5.3 million/μL
WBC	4000–10000/μL
Platelet	150,000–400,000/μL
<50k Platelets	→ Thrombocytopenia (bleeding risk)

Leukemia Signs:

- Spontaneous bleeding
- Swollen gingiva
- Petechiae
- Bone pain
- Fatigue
- Investigation: **Bone marrow biopsy**

✅ 11. Radiology Essentials

Benign Tumours:

Tumor	Radiographic Features
Adenomatoid Odontogenic Tumor (AOT)	"Snowflake" calcificationsMaxillary canine region
Cemento-Ossifying Fibroma (COF)	Well-circumscribed, radiolucent to mixed
Cemento-Osseous Dysplasia (COD)	Mandibular anterior regionVital teethMixed lesion with peripheral radiolucency

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✅ 12. Delayed Tooth Eruption & Odontoma

Type	Features
Compound Odontoma	Tooth-like structures (enamel + dentin)
Complex Odontoma	Irregular radiopaque mass, no resemblance to teeth
Common Site	Maxillary anterior (compound)Posterior (complex)

✅ 13. Inflammatory Jaw Lesions

Lesion	Radiographic Features
Pulpitis	- Early = normal- Chronic: widened PDL, loss of lamina dura
Apical Periodontitis	- Radiolucency at apex- Intact lamina dura early
Granuloma	Radiolucency, no symptoms
Condensing Osteitis	Focal radiopacity at apex of non-vital toothAKA **Chronic focal sclerosing osteomyelitis**

✅ 14. TMJ Trauma & Imaging

Symptom	Radiograph
TMJ tenderness after trauma	**Reverse Towne's view**
Zygomatic arch fracture	**Submentovertex view (SMV)**
No SMV? → Choose **jug handle view (variant)**	

✅ 15. Radiographic Safety in Rural Settings

Concept	Details
Position-Distance Rule	- Stand **6 feet (2 meters)** away- At **90°–135° angle** from beam- No barrier needed if this is followed- Apply in field practice where no door or barrier

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✅ 16. TMJ Splints

Splint	Use
Anterior Repositioning Splint	- For disc displacement with reduction- Requires **3–4 months** usage- **Patient compliance is critical**

✅ 17. Radiotherapy Terms

Term	Definition
Fractionation	Total radiation dose split into multiple smaller doses
Hyperfractionation	Smaller doses more than once daily
Purpose	Reduce side effects and allow healthy tissue to repair

✅ Comprehensive List of Benign Tumors in the Oral and Maxillofacial Region

1. Ameloblastoma

- **Type**: Odontogenic epithelial tumor
- **Location**: Posterior mandible
- **Clinical Features**: Painless swelling, slow-growing, facial asymmetry
- **Radiographic**: Multilocular ("soap bubble" or "honeycomb"), well-defined radiolucency
- **Tooth Vitality**: Vital
- **Management**: Resection with margin, enucleation has high recurrence

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2. Adenomatoid Odontogenic Tumor (AOT)

- **Type**: Odontogenic epithelial tumor
- **Location**: Anterior maxilla, commonly associated with impacted canine
- **Clinical Features**: Slow-growing, painless, mostly in females (10–20 yrs)
- **Radiographic**: Unilocular radiolucency with "snowflake" calcifications
- **Tooth Vitality**: Vital
- **Management**: Conservative surgical enucleation (low recurrence)

3. Odontoma

- **Type**: Hamartoma of dental origin
- **Compound**: Multiple small tooth-like structures (common in anterior maxilla)
- **Complex**: Mass of enamel, dentin, cementum (posterior mandible)
- **Radiographic**: Mixed radiolucent-radiopaque
- **Tooth Vitality**: Vital tooth delayed eruption
- **Management**: Surgical removal

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4. Cemento-Ossifying Fibroma (COF)

- **Type**: Benign fibro-osseous lesion
- **Location**: Mandibular premolar-molar area
- **Clinical Features**: Bony hard swelling, asymptomatic
- **Radiographic**: Well-demarcated mixed radiolucent-radiopaque lesion
- **Tooth Vitality**: Vital
- **Management**: Enucleation or curettage

5. Cemento-Osseous Dysplasia (COD)

- **Types**:

    - Periapical COD (anterior mandible)
    - Focal COD
    - Florid COD (multiple quadrants)
- **Clinical Features**: Asymptomatic
- **Radiographic**: Early radiolucent, then mixed, then radiopaque
- **Tooth Vitality**: **Tooth is still vital**
- **Management**: No treatment unless secondarily infected

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6. Central Giant Cell Granuloma (CGCG)

- **Type**: Reactive lesion (can mimic tumor)
- **Location**: Anterior mandible
- **Clinical Features**: Swelling, expansion of cortex
- **Radiographic**: Radiolucent, unilocular or multilocular
- **Tooth Vitality**: Vital
- **Management**: Curettage, intralesional steroids

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7. Fibrous Dysplasia

- **Type**: Developmental, not a true neoplasm
- **Location**: Maxilla > Mandible
- **Clinical Features**: Painless swelling, facial asymmetry
- **Radiographic**: "Ground glass" appearance, poorly defined margins
- **Tooth Vitality**: Vital
- **Management**: Conservative, surgical contouring if disfiguring

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8. Neurofibroma / Schwannoma

- **Type**: Nerve sheath tumors
- **Location**: Tongue, buccal mucosa, palate
- **Clinical Features**: Painless nodules, solitary or part of NF1
- **Radiographic**: Rarely shows unless intraosseous → radiolucent
- **Management**: Excision, evaluate for systemic involvement (NF)

9. Hemangioma

- **Type**: Vascular tumor
- **Location**: Tongue, lips, buccal mucosa
- **Clinical Features**: Red-blue compressible lesion, blanching on pressure
- **Radiographic**: Phleboliths may be seen
- **Management**: Observation, sclerosing agents, laser, or surgery if needed

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10. Lymphangioma

- **Type**: Benign lymphatic tumor
- **Location**: Tongue (macroglossia), lips, buccal mucosa
- **Clinical Features**: Pebbly surface, translucent vesicles
- **Radiographic**: Not visible unless intraosseous
- **Management**: Surgical excision, recurrence is common

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11. Lipoma

- **Type**: Benign tumor of adipose tissue
- **Location**: Buccal mucosa, tongue, floor of mouth
- **Clinical Features**: Soft, yellowish, doughy swelling, asymptomatic
- **Radiographic**: Not radiographically evident
- **Management**: Surgical excision

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12. Papilloma

- **Type**: Benign epithelial tumor caused by HPV
- **Location**: Soft palate, uvula, tongue
- **Clinical Features**: Exophytic, cauliflower-like, pedunculated
- **Radiographic**: No radiographic change
- **Management**: Excision

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13. Torus Palatinus / Torus Mandibularis

- **Type**: Bony exostoses
- **Location**:
  - **Palatinus**: Midline of hard palate
  - **Mandibularis**: Lingual premolar region
- **Clinical Features**: Hard bony outgrowths, asymptomatic unless traumatized
- **Radiographic**: Dense radiopaque mass
- **Management**: No treatment unless for prosthetic reasons or trauma

14. Myxoma (Odontogenic Myxoma)

- **Type**: Odontogenic mesenchymal tumor
- **Location**: Mandible > Maxilla
- **Clinical Features**: Painless swelling, slow-growing
- **Radiographic**: Multilocular "tennis racket" or "soap bubble"
- **Tooth Vitality**: Vital
- **Management**: Surgical resection

15. Calcifying Epithelial Odontogenic Tumor (Pindborg Tumor)

- **Type**: Odontogenic epithelial tumor
- **Location**: Posterior mandible
- **Clinical Features**: May be associated with impacted tooth
- **Radiographic**: Mixed radiolucent-radiopaque lesion with "driven snow" calcifications
- **Management**: Enucleation, local resection

🔍 Summary Table (Tooth Vitality Focus)

Lesion	Tooth Vitality	Key Radiographic Feature
Ameloblastoma	Vital	Multilocular radiolucency
AOT	Vital	Snowflake calcifications
Odontoma	Vital	Mixed opacity, tooth-like or amorphous
COF	Vital	Mixed, well-defined border
COD	Vital	Early radiolucent to late radiopaque

CGCG	Vital	Unilocular/multilocular radiolucency
Fibrous Dysplasia	Vital	Ground-glass appearance
Neurofibroma / Schwannoma	Vital	Rarely visible unless intraosseous
Hemangioma	Vital	May show phleboliths
Lymphangioma	Vital	Clinical diagnosis
Lipoma	Vital	Soft tissue lesion
Papilloma	Vital	No bony involvement
Torus Palatinus / Mandibularis	Vital	Radiopaque, dense
Myxoma	Vital	Tennis racket / multilocular pattern
CEOT (Pindborg)	Vital	Driven snow appearance

🔴 ORAL MEDICINE

1. Red and White Lesions

Lesion	Clinical Features	Common Sites	Investigation	Management
Leukoplakia	White patch, non-scrapable	Buccal mucosa, floor of mouth	Biopsy	Remove irritants, biopsy dysplasia, monitor
Erythroplakia	Red patch, velvety, asymptomatic, higher dysplasia risk	Floor of mouth, tongue, soft palate	Biopsy mandatory	Excision, close follow-up
Lichen Planus	Bilateral, Wickham's striae, erosive/reticular/plaque types	Buccal mucosa, tongue	Biopsy, DIF if erosive	Topical steroids (Clobetasol), antifungals if co-infected
Lichenoid Reaction	Unilateral, linked to drugs/restoration	Adjacent to restoration	History, removal of suspected cause, biopsy	Eliminate cause, topical steroids
Lupus (oral)	White striae with central erythema, may resemble LP	Buccal mucosa, palate	ANA, Anti-dsDNA, biopsy	Systemic treatment (prednisolone, hydroxychloroquine)
Allergic Stomatitis	Diffuse erythema/white patches	Generalised	Patch test, history	Eliminate allergen, antihistamines

⚠️ *If it's unilateral and associated with drugs/restoration — think Lichenoid Reaction. If bilateral and symmetrical — think Lichen Planus.*

2. Orofacial Pain

A. Trigeminal Neuralgia

- **Pain**: Electric shock-like, unilateral, lasts seconds, trigger zones present
- **Dx**: Clinical, MRI to rule out MS/tumor
- **Tx**:
    - First line: *Carbamazepine*
    - Others: Gabapentin, Baclofen, surgery (microvascular decompression)

B. Burning Mouth Syndrome

- **C/F**: Burning tongue/lips with no visible lesion, usually postmenopausal women
- **Investigations**: CBC, Ferritin, Iron, B12, HbA1c
- **If Hb normal?** Consider idiopathic or drug-induced (metformin, ACE inhibitors)
- **Tx**: Reassurance, clonazepam lozenges, salivary substitutes, treat deficiencies

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3. Salivary Gland Disorders

A. Xerostomia

- **Causes**: Drugs (antihistamines, antidepressants), Sjögren's, diabetes
- **Investigations**: Sialometry, USG, Sialography

B. Sjogren's Syndrome

Type	Features	Tests
Primary	Xerostomia, dry eyes	Schirmer's test, USG of gland
Secondary	With other CTDs (RA, SLE)	Sialendoscopy, ANA, Anti-SSA/SSB

- **Gold Standard**: Lip biopsy (minor salivary glands)
- **Best imaging**: **Sialendoscopy**

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4. Temporomandibular Joint Disorders (TMD)

Type	Key Signs	Mouth Opening	Imaging	Management
With reduction	Clicking, deviation	Slightly reduced (~40 mm)	MRI	Physiotherapy, splints
Without reduction	No click, painful, limited (~20 mm), trismus	MRI	Splint, NSAIDs, sometimes surgery	
Arthritis	Flattened condyle, joint pain	MRI, Rh factor if suspect RA	NSAIDs, stabilization splint	

Anterior repositioning splint improves disc-condyle relation. **Compliance** critical (3–4 months).

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5. Vesiculobullous Lesions

Type	Cause	Examples	Key Tests	Treatment
Viral	HSV, HZV	Herpetic gingivostomatitis, Herpangina	Tzanck smear, PCR	Acyclovir
Immune-mediated	Pemphigus, MMP	Fluid-filled blister, positive Nikolsky	**Biopsy + DIF (gold standard)**	Prednisolone
If blood-filled blister: Think **Angina Bullosa Hemorrhagica**				

6. Oral Cancer and Related Complications

Condition	Features	Management
Oral Cancer	Ulcer with indurated margins, non-healing	TNM staging, biopsy
Oral Mucositis	Painful erythema → ulcer during chemo/radiation	Magic mouthwash, saline rinses
Radiation Caries	Cervical, rapid caries	Fluoride varnish, dietary care
Osteoradionecrosis	Post-radiation exposed bone	Avoid extraction, Pentoxifylline + Tocopherol, HBO

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7. Investigations

Lesion	Most Confirmatory
Vesiculobullous	**Biopsy with DIF**
Trigeminal neuralgia	MRI (to rule out structural cause)
Burning mouth	Blood tests (CBC, iron, B12)
Leukemia	Bone marrow biopsy
Suspected cancer	Incisional biopsy
Dry mouth	Sialometry, sialendoscopy

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8. Medically Compromised Patients

- **Analgesic of choice**: *Paracetamol*
- **Avoid**: NSAIDs in CKD, bleeding disorders
- **Antibiotics**: Avoid tetracyclines in renal impairment
- **Anxiety**: Midazolam (cautious use)
- **Uncontrolled diabetes**: Delay elective procedures

9. Benign Tumors

Tumor	C/F	R/F
Adenomatoid Odontogenic Tumor (AOT)	Anterior maxilla, teenage females, canine region	Radiolucency with "snowflake" calcifications
Central Ossifying Fibroma (COF)	Slow-growing swelling	Well-demarcated, mixed lesion
Cemento-Osseous Dysplasia (COD)	Middle-aged black females, vital teeth	Early radiolucent → mixed → radiopaque
Odontoma (compound/complex)	Delayed eruption	Radiopaque masses (tooth-like in compound)

Differentiate from cysts: Tumors displace teeth; cysts rarely resorb roots unless inflamed.

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10. Inflammatory Lesions of Jaw

Lesion	C/F	R/F
Acute pulpitis	Sharp pain, heat sensitivity	No radiographic change
Chronic pulpitis	Mild pain	Large caries, widened PDL
Periapical granuloma	Non-vital tooth	Periapical radiolucency
Condensing osteitis	Asymptomatic	Localized radiopacity near root

11. Syndromes

Syndrome	Oral Manifestation	Other Features
Gardner's	Multiple odontomas, jaw osteomas	GI polyps, epidermoid cysts
Sturge-Weber	Gingival vascular lesions	Port-wine stain, epilepsy
Ramsay Hunt	Facial palsy, vesicles in ear/mouth	Reactivated HZV in geniculate ganglion

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📸 ORAL RADIOLOGY

1. Radiation Protection

- **Collimator**: Reduces beam size (rectangular preferred)
- **Filter**: Removes soft x-rays (<70kVp → 1.5mm Al)
- **Position-Distance Rule**:
    - Operator: 6 ft away
    - 90–135° angle from primary beam

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2. Extraoral Radiographs

View	Indication
OPG	General survey, impacted teeth, jaw fracture
Lateral Ceph	Orthodontics
PA skull	Midline fractures
Submentovertex	Zygomatic arch, base of skull
Reverse Towne	Condylar fracture

3. OPG Errors

Error	Effect
Chin too low	Exaggerated smile
Chin too high	Flat/reverse smile
Forward	Anterior teeth appear narrow
Backward	Anterior teeth appear wide/blurry
Head tilted	One side magnified

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4. Foreign Body Localization

- **SLOB Rule**: Same side = lingual; opposite = buccal
- **Clark's Rule**: Tube shift technique
- **Occlusal view**: Useful for detecting restorations