

## Unit 36 — Mukha Śarīra & Nidāna Pañcaka of Mukharoga

### Unit 36 — Mukha Śarīra & Nidāna Pañcaka of Mukharoga

A) Paribhāṣā of Mukha • B) Mukha-Śarīra • C) Nidāna Pañcaka (common etiological & pathological factors of oral diseases as per contemporary medical science); Enumeration, Classification, Sādhyaśādhyatā, Pathya-Apathya & Sāmānya Cikitsā of Mukharoga

### Learning objectives

After studying this chapter, you should be able to: (1) define **Mukha** in the Śālākya context; (2) describe the applied anatomy of the oral cavity and related structures; (3) write the **Nidāna Pañcaka** (common to Mukharoga) integrating classical logic with contemporary oral pathology; (4) enumerate and classify **Mukharoga**; (5) state **Sādhyaśādhyatā**, **Pathya-Apathya**, and **Sāmānya Cikitsā** suitable for university-level examinations.

**Note on ślokas:** Only verses whose sources are certain should be quoted. This chapter focuses on error-free, exam-oriented prose; add authenticated ślokas during viva or answer writing where you are fully confident of the exact reference.

### A) Paribhāṣā (Definition) of Mukha

In Śālākya-tantra, **Mukha** (oral cavity and contiguous structures) is the **ūrdhva-jatru** gateway for **āhāra-praveśa** (ingestion) and **vāk-pravṛtti** (speech), housing the **Rasanendriya** (organ of taste: chiefly **Jihvā—tongue**) and components required for mastication, articulation, and deglutition. It includes: lips (oṣṭha), cheeks (gaṇḍa), vestibule, teeth (danta), gingiva/dantamūla, alveolar processes, palate (tālu), tongue (jihvā), floor of mouth, retromolar region, and oropharyngeal isthmus leading to **kaṇṭha**. In Ayurvedic nosology, diseases of these parts together constitute **Mukharoga** (with sub-groupings by site).

### B) Mukha-Śarīra (Applied Anatomy & Physiology)

#### 1) Gross anatomy

[3D model of Oropharynx](#)

#### Boundaries & compartments

- **Vestibule:** between lips/cheeks and teeth/gingiva; lined by non-keratinised stratified squamous epithelium; harbours minor salivary glands.
- **Oral cavity proper:** within dental arches; roof—**hard palate** (palatine processes of maxilla & horizontal plates of palatine), posteriorly **soft palate** with uvula; floor—mylohyoid/geniohyoid over which lie sublingual glands & Wharton's duct.

#### Lips (Oṣṭha) & Cheeks

- Core muscles: **orbicularis oris**, **buccinator**; rich vascular supply (superior/inferior labial arteries). The vermilion border is a common site for cheilitis and neoplastic change in tobacco users.

#### Teeth (Danta) & Periodontium (Dantamūla)



- **Tooth:** enamel (acellular, hardest), dentin (tubular), pulp (neurovascular), cementum.
- **Periodontium:** gingiva, periodontal ligament, cementum, alveolar bone.
- **Eruption:** primary (6-24 months); permanent (6-12 years; third molars variable).
- **Occlusion:** molar relation (Angle's), overjet/overbite—useful in trauma and temporomandibular (TMJ) assessments.

### Tongue (Jihvā)

- **Parts:** anterior 2/3 (oral), posterior 1/3 (pharyngeal).
- **Papillae:** filiform (mechanical), fungiform and circumvallate (taste buds), foliate (lateral).
- **Muscles:** intrinsic (longitudinal, transverse, vertical); extrinsic (genioglossus, hyoglossus, styloglossus, palatoglossus).
- **Nerves:**
  - General sensation: **lingual nerve (V3)**—ant. 2/3; **glossopharyngeal (IX)**—post. 1/3.
  - Taste: **chorda tympani (VII)**—ant. 2/3; **glossopharyngeal (IX)**—post. 1/3; **vagus (X)**—epiglottis.
  - Motor: **hypoglossal (XII)** (except palatoglossus—vagus).

### Palate (Tālu)

- **Hard:** keratinised masticatory mucosa; **soft:** muscle (levator veli palatini, tensor veli palatini, palatoglossus, palatopharyngeus, musculus uvulae). Palatal lesions influence speech resonance and deglutition.

### Floor of mouth & salivary excretory apparatus

- **Sublingual** glands (Rivinus ducts and Bartholin duct), **submandibular** gland (**Wharton's duct**—opens beside lingual frenulum), **parotid** gland (**Stensen's duct**—opens opposite upper 2nd molar).
- **Saliva:** 0.5-1.5 L/day; mucous/serous mix; pH ~6.5-7.5; contains water, electrolytes, **bicarbonate, salivary amylase, lingual lipase, lysozyme, lactoferrin, IgA**, mucins; functions—lubrication, buffering, antimicrobial action, remineralisation ( $\text{Ca}^{2+}/\text{PO}_4^{3-}$ ).

### Vessels & lymphatics

- **Arterial:** external carotid branches—facial (labial), **lingual, maxillary** (inferior/superior alveolar, palatine), **ascending pharyngeal**.
- **Venous:** pterygoid plexus → facial/lingual veins → internal jugular.
- **Lymph drainage:** lips (submental/submandibular), anterior tongue (submental/submandibular), lateral tongue (submandibular), posterior tongue & floor (deep cervical), palate/tonsillar ring (jugulodigastric). **Exam favourite:** tip of tongue → **submental** nodes.

### Innervation summary

- **V<sub>2</sub>** (maxillary): palate, upper teeth; **V<sub>3</sub>** (mandibular): lower teeth, cheeks, anterior tongue (general). Parasympathetic secretomotor via chorda tympani (to submandibular/sublingual) and glossopharyngeal (to parotid via otic ganglion).

## 2) Oral physiology (correlate with Rasanendriya)

- **Taste transduction:** tastants interact with receptors (GPCRs for sweet/umami/bitter; ion channels for salty/sour) on taste cells within taste buds; signals → **VII/IX/X** → nucleus tractus solitarius → thalamus → gustatory cortex (insula/frontal operculum).
- **Salivation control:** parasympathetic (watery, enzyme-rich), sympathetic (viscous). Saliva buffers acids, controls microbial growth, and speeds bolus formation.
- **Speech & deglutition:** coordinated action of tongue, palate, lips, buccinator, suprahyoids; velopharyngeal seal prevents nasal regurgitation.

## C) Nidāna Pañcaka of Mukharoga (General Framework)

This section synthesises **Ayurvedic diagnostic logic** with **contemporary oral pathology** to provide a common template applicable across Mukharoga.

### 1) Nidāna (Etiological Factors)

#### Āhāra (dietary)

- **Abhiṣyandī/āma-janaka** foods: excessively sweet, sticky, deep-fried; very hot/spicy or overly sour → mucosal irritation.
- **Deficiencies:** iron, **vitamin B12**, folate, **vitamin C** → angular cheilitis, glossitis, bleeding gums, delayed healing.
- **Dehydration/low salivary flow:** increases caries and mucositis.

#### Vihāra (habits & environment)

- **Tobacco** (smoked/smokeless), **areca nut/betel quid**, alcohol—major carcinogenic/precancer risk (leukoplakia, oral submucous fibrosis, SCC).
- Poor oral hygiene, faulty brushing technique, high-sugar snacking, mouth breathing.
- Ill-fitting dentures/orthodontic trauma; occupational exposure to heat/chemicals.

#### Vyādhi/Medicine related

- **Diabetes mellitus** (periodontal disease, candidiasis, xerostomia), **anemia**, **autoimmune** (lichen planus, pemphigus), **inflammatory bowel disease**, **HIV**.
- **Drugs** causing xerostomia (anticholinergics, antidepressants, antihypertensives), **chemotherapy/radiation** (mucositis, osteoradionecrosis), bisphosphonates (medication-related osteonecrosis of jaw).
- **Infections:** HSV (primary herpetic gingivostomatitis, recurrent herpes labialis), **Candida albicans**, streptococcal pharyngitis, syphilis.

#### Āgantuka (trauma/allergy)

- Biting, sharp tooth edges, chemical burns, contact allergy (cinnamon, dental materials).

### 2) Pūrvārūpa (Prodromal Features; common pool)

- Oral/facial **burning/tingling**, taste change (dysgeusia), **dryness**, halitosis, mild soreness at commissures, transient mucosal blanching/erythema, sensitivity to hot/spicy foods.

### 3) Rūpa (Cardinal Signs & Symptoms; pattern sets)

- **Gingivitis/periodontitis:** red, swollen, bleeding gums; pocketing; tooth mobility.
- **Caries/pulpitis:** sensitivity to sweets/cold → lingering pain (irreversible pulpitis).
- **Aphthous ulcers:** shallow, round/oval, yellowish floor with erythematous halo; painful.
- **Candidiasis:** white curd-like plaques (wipeable) or erythematous depapillation (denture stomatitis).
- **OSMF:** blanching, fibrotic bands, reduced mouth opening, burning; betel nut history.
- **Leukoplakia/erythroplakia:** white/red patches—non-scrapable; potential premalignancy.
- **Sialadenitis/sialolithiasis:** painful swelling (especially on meals), ductal tenderness; decreased salivary flow.
- **TMJ dysfunction:** preauricular pain, clicking, limited opening.
- **Neoplasia (SCC):** non-healing ulcer/indurated mass, bleeding, weight loss, neck nodes.

### 4) Upaśāya-Anupaśāya (Relieving/Aggravating)

- Relief with **saline/triphala gargles**, bland soft diet, topical demulcents (ghṛta, ghee-based gels), avoidance of irritants; aggravation with **tobacco**, areca nut, alcohol, hot/spicy foods, sharp edges, dehydration, stress, sleep loss.

## 5) Samprāpti (Pathogenesis; integrative view)

- **Doṣa-dūṣya** interplay differs by lesion, yet common threads are:
  - **Kapha-meda āvaraṇa** & **krimi/bioburden** → plaque-mediated gingivitis/periodontitis.
  - **Pitta-rakta duṣṭi** → erosions/ulcers, burning mouth, active inflammation.
  - **Vāta kṣobha** with rūkṣatā (xerostomia) → fissuring, mucosal fragility, pain.
  - **Āma** and nidāna persistence maintain a pro-inflammatory milieu, tipping to chronicity (e.g., OSMF fibrosis; dysplasia in leukoplakia).
- Contemporary micro-model: dysbiosis (*S. mutans* in caries; **red complex** bacteria in periodontitis), **biofilm-host immune** imbalance, oxidative stress, and matrix degradation.

## Enumeration & Classification of Mukharoga

### Classify by site (Āśraya) in classical Śālākya style

1. **Oṣṭhagata roga** (lip disorders): cheilitis, fissures, herpes labialis, neoplasms.
2. **Dantagata roga** (tooth): caries, pulpitis, hypersensitivity, fractures.
3. **Dantamūlagata roga** (gingiva/periodontium): gingivitis, periodontitis, abscess.
4. **Jihvāgata roga** (tongue): glossitis, geographic tongue, fissured tongue, median rhomboid glossitis, leukoplakia/erythroplakia, carcinoma.
5. **Tālūgata roga** (palate): ulcers, torus, clefts (developmental), candidiasis, neoplasia.
6. **Mukhagata—sarvasāra** (general mucosal disorders): aphthae, lichen planus, OSMF, traumatic ulcers, burns, mucositis.
7. **Śleṣma-granthi & Srotas/Śleṣma-vaha (salivary) vikāra**: sialadenitis, sialolithiasis, mucoceles, xerostomia, Sjögren's.
8. **TMJ & masticatory system**: myalgia, internal derangements, arthritis (clinic correlation).

In classical papers, examiners expect the **site-wise approach** above. Exact numerical counts of Mukharoga vary by text and recension; cite cautiously only if you are certain of the source.

## Sādhyāsādhyatā (Prognosis — general rules)

- **Sādhyā (good prognosis)**: plaque-induced gingivitis, aphthae (minor), simple cheilitis, traumatic ulcers (when nidāna removed), uncomplicated sialadenitis, early candidiasis.
- **Kṛcchra-sādhyā/Yāpya**: chronic periodontitis with bone loss, recurrent aphthae (major/herpetiform), OSMF (fibrosis), lichen planus (autoimmune), TMJ disorders, xerostomia due to systemic disease/drugs.
- **Asādhyā/High-risk**: oral epithelial dysplasia with high-risk leukoplakia/erythroplakia, squamous cell carcinoma, osteoradionecrosis, medication-related osteonecrosis of jaw—require multidisciplinary oncologic care.

## Pathya-Apathya (Diet & Conduct)

### Pathya (Do's)

- **Local care**: gentle brushing (soft brush; modified Bass technique), interdental cleaning; tongue scraping; warm **saline or triphalā** gargles twice daily; protect sharp edges/restorations.
- **Diet**: soft, warm, non-irritant meals; adequate hydration; citrus in moderation if non-ulcerative; **protein** and **micronutrient** sufficiency (iron, B12, folate, C).
- **Habits**: tobacco and areca cessation; limit alcohol; stress management; adequate sleep; denture hygiene (night

removal; chlorine-free cleansing).

- **Prophylaxis:** periodic dental scaling; fluoride for caries risk; vaccine counselling (hepatitis B, HPV awareness for oropharyngeal cancers).

### Apathya (Don'ts)

- Tobacco (any form), areca/betel quid, frequent alcohol; very hot/spicy/sour foods during active mucositis; frequent refined sugar snacks; prolonged mouth breathing; self-medication with steroid pastes without diagnosis.

## Sāmānya Cikitsā (General Management Framework)

### 1) Nidāna-parivarjana (cornerstone)

- Remove local irritants: plaque/calculus (professional scaling), sharp tooth edges, ill-fitting dentures, faulty restorations; correct habits (tobacco/areca, alcohol, high sugar).

### 2) Śodhana-Śamana logic (adapted to oral cavity)

- **Local śodhana:** warm saline/herbal **kavala/gandūṣa** (e.g., triphalā, khadira, yaṣṭimadhu in watery decoctions) to reduce biofilm and inflammation.
- **Śamana:** demulcents/soothing agents (ghṛta-based gels, honey-ghṛta for aphthae), anti-inflammatory **kaṣāyas** (triphala, guḍūcī, nimba) internally where appropriate; correct **āma** and **agni** with deepana-pācana if dyspeptic.
- **Snehana:** oil application for angular cheilitis/xerostomia; **taila-gandūṣa** (e.g., tila-taila) as supportive hygiene.
- **Ropaṇa/Pratiśāraṇa** (topical): **yaṣṭimadhu, triphala** fine powder with ghṛta/honey for ulcers; **tankan-madhu** cautiously in candidiasis (short course, thin layer).
- **Kleda-hara/Lekhana** measures in plaque-rich states (under supervision).
- **Systemic correlations:** treat diabetes, anemia, nutritional deficits; antifungals for candidiasis; antivirals for HSV; immunomodulatory/biopsy-directed care for OSMF/lichen planus/dysplasia as per specialist protocols.

### 3) Salivary care

- Hydration; sugar-free chewing to stimulate saliva; saliva substitutes (carboxymethylcellulose gels) in xerostomia; sialagogues (lemon drops) if not ulcerative; warm massage & sialogogue foods in sialolithiasis (plus ductal care).

### 4) Pain & infection control

- Analgesics when required; topical anaesthetics (short course) before meals; antibiotics only for spreading infection/abscess with systemic signs—**judicious use**.

### 5) Oncologic vigilance

- Any **non-healing ulcer >2 weeks**, induration, unexplained bleeding, or neck node → **urgent biopsy and ENT/Maxillofacial referral**. Early detection saves life.

## Viva-facing tables

### A. Site-wise DDX at a glance

Site	Common benign	Infective	Premalignant/Malignant
Lip	Angular cheilitis, actinic cheilitis	HSV labialis	SCC (lower lip)
Gingiva	Plaque gingivitis	Acute necrotising ulcerative gingivitis	Verrucous carcinoma (rare)
Tongue	Geographic/fissured tongue	Candidiasis	Leukoplakia, erythroplakia, SCC (lateral border)



Site	Common benign	Infective	Premalignant/Malignant
Palate	Aphthae, torus	Candidiasis	Minor salivary gland tumours
Floor	Mucoceles, ranula	Sialadenitis	SCC; OSMF involvement
Salivary —		Bacterial/viral (mumps)	Neoplasms (pleomorphic adenoma, mucoepidermoid)

**B. Red flags (write any four)**

- Non-healing ulcer > 2 weeks, indurated margins
- Unexplained bleeding/paresthesia
- Dysphagia/odynophagia, persistent otalgia with normal ear
- Neck lymphadenopathy
- Trismus or progressive restricted mouth opening (OSMF/malignancy)

**Assessment****Long Essays (10 marks each)**

1. **Mukha-Śarīra**: Describe the gross anatomy of the oral cavity with arterial supply, lymphatic drainage and nerve supply. Add clinical correlations relevant to Mukharoga.
2. **Nidāna Pañcaka (general) of Mukharoga**: Write etiological factors, pūrvārūpa, rūpa, upaśaya-anupaśaya and samprāpti integrating classical logic with contemporary oral pathology.
3. **Management essay**: Enumerate and classify Mukharoga. Discuss **Sāmānya Cikitsā** and **Pathya-Apathya**. Add points on prognosis and oncologic vigilance.

**Short Essays (5 marks each)**

1. Physiology of taste and salivation with applied anatomy of tongue.
2. Periodontal disease—pathogenesis in Ayurvedic and modern terms.
3. Oral submucous fibrosis—etiology, features and prognosis.
4. Write a note on **xerostomia**—causes, complications and management.

**Short Answers (2 marks each)**

- Enumerate contents of the floor of mouth.
- List nerve supply of anterior two-thirds of tongue (taste & general).
- Write two causes of recurrent aphthae.
- Name two premalignant lesions of the oral cavity.
- Mention lymphatic drainage of tip and lateral border of tongue.
- State two upaśaya measures for acute aphthous ulcers.

**MCQs (1 mark each; choose one)**

1. Taste from anterior two-thirds of tongue is carried mainly by:  
A. Glossopharyngeal (IX) B. Vagus (X) C. **Chorda tympani (VII)** D. Trigeminal (V)
2. Which habit most strongly predisposes to **OSMF**?  
A. Alcohol B. **Areca nut chewing** C. Smoking only D. Spicy food
3. A **non-wipeable** white patch on buccal mucosa in a smoker is most likely:  
A. Candidiasis B. Aphthous ulcer C. **Leukoplakia** D. Traumatic ulcer
4. Submandibular duct (Wharton's) opens:  
A. Opposite upper 2nd molar B. **Beside lingual frenulum** C. Posterior hard palate D. Tonsillar fossa
5. Tip of tongue drains chiefly to:  
A. Jugulodigastric B. **Submental** C. Retropharyngeal D. Parotid nodes

**Answer key:** 1-C, 2-B, 3-C, 4-B, 5-B.



## References

### Classical sources

- **Suśruta Saṃhitā, Uttara-tantra:** adhyāyas on **Mukhagata roga** (site-wise descriptions of oṣṭha, danta, dantamūla, jihvā, tālu, kaṇṭha, and general mouth disorders).
- **Aṣṭāṅga Hṛdaya, Uttara-sthāna:** adhyāyas on **Mukharoga-vijñāniya** and **-pratiṣedha; Sūtrasthāna** (Dinacaryā) for **dantadhāvana, jihvā-nirlekhana, kavala/gandūṣa** regimens.
- **Aṣṭāṅga Saṃgraha, Uttara-sthāna:** parallel sections on site-wise Mukharoga and kriyākalpa for oral cavity.

(Quote specific verses in your written answers only when you can verify the exact śloka and adhyāya/śloka number from your edition/commentary.)

### Modern resources

- **Shafer's Textbook of Oral Pathology**, latest ed.
- **\*Burket's Oral Medicine**, latest ed.
- Dhingra & Dhingra, *Diseases of Ear, Nose & Throat & Head-Neck Surgery* (oropharynx & salivary disorders).
- **Neville** et al., *Oral & Maxillofacial Pathology*, latest ed.
- Guyton & Hall, *Textbook of Medical Physiology* (Taste & salivation).

### 3-minute end-review (self-check)

- Can you **draw and label** the ducts (Stensen vs Wharton) and state their openings?
- Can you **list five etiological clusters** (dietary, habits, systemic, drug-induced, infective/traumatic) for Mukharoga?
- If an OSCE presents a **non-healing ulcer**, do you remember **two red flags** and the immediate **referral** pathway?

End of Unit 36 — Mukha Śarīra & Nidāna Pañcaka of Mukharoga.