Unit 34. Nasa Shareera, Ghranendriya and Nidana Panchaka of Nasaroga

Nāsā Śarīra, Ghrāṇendriya & Nidāna Pañcaka of Nāsaroga

Learning objectives

By the end of this chapter you should be able to: (1) describe the anatomy of the nose and paranasal sinuses, (2) explain the physiology of olfaction and its Ayurvedic mapping to Ghrāṇendriya, (3) enumerate Nāsaroga and present their **Samanya** (general) Nidāna Pañcaka, **Samanya Cikitsā**, Pathya–Apathya and Prognosis with classical references.

A) Nāsā & Ghrāṇendriya Śarīra

Classical foundation

श्लोक

> उर्ध्वजत्रुविकारेषु विशेषान् नस्य मिष्यते ।
> नासा हि शिरसो द्वारं तेन तद्व्याप्य हन्ति तान् ॥
> *(Aṣṭāṅga Hṛdaya, Sūtrasthāna 20 – Nasya-vidhi)*

Meaning: Nasya is specially indicated for disorders above the clavicle; the nose is the **gateway to the head**, and medicines reach and act on the cephalic organs through it.

This dictum underpins all of Śālākya-tantra for Nāsā: the nose interfaces with Śiras (head), Prāṇa Vāyu, and the **Ghrāṇendriya** (olfactory sense organ).

Applied gross anatomy

3D Interactive Model – Nose & Nasal Cavity

External nose

- Framework: nasal bones; upper & lower lateral cartilages; septal cartilage.
- Surfaces: dorsum, tip, alae; columella.
- Skin: sebaceous over tip/alae (furuncles, vestibulitis clinically relevant).

Nasal cavity

- **Extent:** from nares → choanae (opens into nasopharynx).
- **Divisions:** vestibule (hair–bearing), respiratory region (turbinates/meatuses), olfactory region (roof & upper septum).
- **Septum:** cartilage (anterior), vomer & perpendicular plate of ethmoid (posterior); common deviation site: anteroinferior cartilage.

Lateral wall & turbinates

- Superior, middle (ethmoidal), inferior (independent) conchae create meatuses for sinus drainage and air conditioning.
- **Key openings (Right-for-Viva):**
  - Sphenoethmoidal recess → sphenoid sinus
  - Superior meatus → posterior ethmoids

- **Middle meatus (ostiomeatal unit):** frontal via frontonasal duct, maxillary ostium, anterior ethmoids via infundibulum/hiatus semilunaris
- Inferior meatus → nasolacrimal duct

Roof & floor

- Roof: cribriform plate (olfactory filae pass), body of sphenoid.
- Floor: palatine processes of maxilla & horizontal plates of palatine bones (important for nasogastric tube angle).

Blood supply (Little's/Kiesselbach's area)

- Septal anastomosis: anterior ethmoidal (ophthalmic), sphenopalatine (maxillary), greater palatine (maxillary), septal branch of superior labial (facial).
- Posterior bleeds: Woodruff's plexus (sphenopalatine territory).

Innervation

- General sensation: V1 (anterior ethmoidal) anterosuperior; V2 (nasopalatine, posterior superior/inferior lateral nasal) posteroinferior.
- Secretomotor parasympathetics: vidian nerve (greater petrosal → pterygopalatine ganglion).
- Olfaction: CN I filae through cribriform plate to bulb.

Lymphatics

- Anterior → submandibular; posterior → retropharyngeal & upper deep cervical nodes.

Paranasal sinuses (PNS): key facts table

Sinus	Drainage opening	Innervation (sensory)	Blood supply	Clinical pearls
Maxillary	Middle meatus (hiatus semilunaris; ostium high on medial wall)	Infraorbital & superior alveolar (V2)	Infraorbital, facial branches	Poor drainage (ostium high); referred dental pain
Frontal	Middle meatus via frontonasal duct	Supraorbital (V1)	Supraorbital artery	Development after 7 yrs; close to anterior cranial fossa
Anterior ethmoids	Middle meatus	Ant. ethmoidal (V1)	Ant. ethmoidal	Lamina papyracea—orbital complications
Posterior ethmoids	Superior meatus	Post. ethmoidal (V1)	Post. ethmoidal	Onodi cell near optic nerve
Sphenoid	Sphenoethmoidal recess	Posterior ethmoidal (V1) & V2 contributions	Pharyngeal, sphenopalatine	Related to optic chiasm, pituitary, ICA—sphenoiditis headache deep vertex

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Physiology of olfaction (Ghrāṇendriya karma)

- **Receptor site:** olfactory epithelium (superior nasal cavity, septum & superior turbinate). Bipolar olfactory receptor neurons (ORNs) terminate in non-motile cilia within mucus.
- **Transduction:** odorant binds GPCR (Golf) → ↑adenylate cyclase → ↑cAMP → opens cyclic-nucleotide–gated channels → Na^+/Ca^{2+} influx → depolarization. Adaptation via Ca^{2+}-calmodulin feedback.
- **Central pathway:** ORN axons → **cribriform plate** → olfactory bulb glomeruli (receptor-specific mapping) → mitral/tufted cells → olfactory tract → primary cortex (piriform), amygdala, entorhinal cortex; conscious odor identification via orbitofrontal cortex (thalamus bypass).
- **Trigeminal chemosensation:** pungent/irritant "feel" (CN V) interacts with olfactory perception (e.g., ammonia).
- **Clinical correlations:** anosmia/hyposmia (viral rhinitis, polyps), parosmia/phantosmia, age-related decline; CSF rhinorrhoea risk with cribriform injury.

- **Ayurvedic mapping:** Ghrāṇendriya perceives **Gandha** (odour), which is **Pṛthvī-dominant**; nose is **Śiras-dvāra**; Nasya acts via **Śṛṅgāṭaka** (head junction where Nāsā/Netra/Śrotra/Kaṇṭha channels meet), explaining cephalic reach of nasal therapies. (Classical basis of nasal therapeutics per AH Sū.20 and Śālākya usage.)

B) Nidāna Pañcaka of Nāsaroga (General)

Enumeration (Saṅkhyā)

Suśruta classifies diseases of the nose into **thirty-one** groups—Apināsa, Pūtināsa, Nāsāpāka, Rakta-pitta, Puyarakta, Kṣāvathu, Bhraṃśathu, Dīpta, Nāsā-pratināha, Pariśrāva, Pariśoṣa; **four** kinds each of **Arśas** (polyps) and **Śopha**; **seven Arbuda** (tumors); and **five Pratiśyaya** types (described separately).

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1) Nidāna (common etiological factors)

- **Doṣa-prakope:**
  - **Vāta-Kapha** predominance in many Nāsaroga (drying + stasis of mucus).
  - **Pitta** in inflammatory/ulcerative states (Nāsāpāka, epistaxis).
- **Aharaja:** ati-śīta, rūkṣa, guru, ati-madhura/abhīṣyandi āhāra; adhyashana; viruddhāhāra; excessive cold drinks/ice; alcohol/smoking (kṣata of mucosa).
- **Vihāraja:** dhūma-rājaḥ-śīta sevanam (dust, smoke, cold wind), **vegādhāraṇa** (esp. kṣavathu-vegadhāraṇa), ratri-jāgaraṇa, diva-svapna, prolonged AC exposure.
- **Manasika:** chinta, śoka (reduces vyādhi-kṣamatva).
- **Agantu:** trauma, foreign body, nosocomial irritants.
- **Rogapūrvabhūmi:** jvara, pratishyaya recurrence, dental infections (maxillary sinus), adenoidal hypertrophy (children).

(Derived across Suśruta Uttara Ch. 22–24 descriptions and standard etiological patterns for Nāsagata vikāra.)

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2) Pūrvārūpa (prodromal features; general)

- Kandu (itch), kharparatā/dryness of nose, जलोद्गार/ stuffiness on waking, episodic sneezing, reduced gandha-jñāna (hyposmia), mild śira-gaurava (head heaviness), throat scratchiness.

3) Rūpa (cardinal symptoms; general pool)

- **Nāsā-pratināha** (obstruction), **pariśrāva** (watery discharge), **pariśoṣa** (dry nose), śoṣa-janya epistaxis, kaṇṭha-kṣobha, śiroruja/ardhavabhedaka association, **gandhāgnāna** (anosmia), pūti-gandha in Pūtināsa, dental pain in maxillary sinusitis; frontal/vertex/deep retro-orbital pain by sinus involved.

4) Upaśaya–Anupaśaya (relieving/aggravating)

- Uṣṇa-jala pāna, **svedana**, **pratimarśa-nasya** (ghee/anu taila) → relief; dhūma/rajaḥ/śīta, ice-cold drinks, day-sleep → aggravation.
- Forward head-low position worsens maxillary pain; humidification & steam help viscous Kapha.

5) Samprāpti (general pathogenesis)

- Nidāna → *Agnimāndya* & **Doṣa-prakopa** (Kapha ± Vāta; Pitta in inflammatory types) → **Ūrdhvajatru-gata srotorodha** in Nāsā & PNS → stasis/edema → pariśrāva or pariśoṣa.
- In **Pratiśyaya**, śītoṣṇa vyatyaya and kapha-vāta interaction lead to recurrent coryza; in **Nāsāpāka**, pitta-dushti of śleṣma + rakta → suppuration; in **Pūtināsa**, chronic infection/necrosis → fetor; in **Arśas/Arbuda**, localized granulation/tumor growth obstructing passages. (Suśruta's categories guide the doṣa–dūṣya mapping.)

Samanya Cikitsā (General therapeutics)

Principles distilled from Suśruta Uttara-tantra Ch. 23:

- **Sneha** & **Sveda** to the region, **Laṅghana/laghu āhāra**, **uṣṇa-jala** for drinking.
- **Śodhana** where indicated: **Vamana/Virechana** in Kapha-pitta states; **Dhuma-pāna** at proper time; **Avapīḍa-/Prādhama-nasya** with suitable drugs; **Śamana** in Pitta-janya lesions.

Route-specific measures (with classics-supported indications):

- **Nasya** (taila/ghṛta/kvātha as per doṣa):
  - **Śodhana/Avapīḍa nasya** in Kapha-uddhava (obstruction, pariśrāva).
  - **Bṛṃhaṇa nasya** (mild ghṛta/taila) in Vāta-janya pariśoṣa, suryāvarta-type headache.
  - **Śamana nasya** in Pitta conditions and cosmetic discolorations of urdhvajatru. *(All three types outlined in AH Sū.20)*
- **Dhuma-pāna** (medicated smoke) post-nasya for residual Kapha.
- **Local adjuvants:** gentle **nāsā-prakṣālana** with warm saline, **snehana** (sesame/anu taila) to vestibulum, **uṣṇa-seka** over maxillary/frontal regions, **kaṣāya** dhoopana in infections.
- **Systemic:** doṣa-specific **Kaṣāya/Choornas** (e.g., Trikaṭu, Vaca, Katphala, Vidanga combinations for Kapha; Ghṛta preparations for Vāta-pariśoṣa; Pitta-śamana dravyas with ghṛta in Nāsāpāka).

Pearl for theory answers: Begin with “Nāsā hi śiraso dvāram…”, state the **doṣa-bala**, then justify **nasya/dhuma/svedana** with Suśruta’s broad prescription (Sneha–Sveda–Śodhana–Śamana + uṣṇa-jala).

Pathya–Apathya (diet & regimen for most Nāsaroga)

Pathya (do’s)

- **Uṣṇa-jala**, light warm meals (yūṣa, māṃsarasa of jāṅgala), pippalī-ardraka-ajamodā as lepa in food if Kapha-dominant; timely sleep (avoid ratri-jāgaraṇa), **steam inhalation**, humidified room, gentle **pratimarśa-nasya** (2–2 drops ghee/anu taila each nostril twice daily) during remission; **vyāyāma** mild; avoid allergens; dental hygiene to reduce maxillary sinus seeding.

Apathya (don’ts)

- Ice-cold drinks, curd at night, heavy/abhīṣyandi foods (paneer, deep-fried), **diva-svapna**, exposure to **dhūma/rajaḥ/śīta** (smoke/dust/cold drafts), suppression of sneeze (kṣavathu-vegadhāraṇa), overuse of vasoconstrictor drops.

Prognosis (Sādhya–Yāpya–Asādhya)

- **Sādhya:** recent **Pratiśyaya**, **Nāsā-pratināha/pariśrāva** without structural block; **Pitta** epistaxis with reversible causes.
- **Yāpya:** chronic **Pūtināsa**, **allergic/recurrent** Pratiśyaya, mucosal hypertrophy/polyposis (Kapha-prādhānya) needing repeated care.
- **Asādhya / difficult: Sannipātaja** with cachexia; **Arbuda** (tumors), extensive destructive sinus disease, or complications (orbital/cerebral). *(Classification sense aligned to Suśruta’s listing of Arśas/Arbuda and chronic suppurative entities.)*

Quick viva questions

- **Ostiomeatal unit:** common drainage pathway—why maxillary sinusitis recurs.
- **Little's area:** list 4 arterial sources (ophthalmic, maxillary, facial, greater palatine).
- **Why nasya works?** "Nāsā hi śiraso dvāram"—drug reaches Śṛṅgāṭaka & cephalic channels.
- **Smell pathway bypasses thalamus** → strong limbic (memory/emotion) links.

Self-check (1-minute)

Can you **state Suśruta's count of Nāsaroga and name the five Pratiśyaya** types? If you hesitate, reread the **Enumeration** section.

Assessment

Long essays (10 marks each)

1. Describe the **anatomy of the lateral nasal wall** with clinical correlations. Add a note on the ostiomeatal unit.
2. Explain **Ghrāṇendriya physiology** and correlate it with the Ayurvedic concept of **Pṛthvī-tanmātra (Gandha)** and **Nasya** indication.
3. Present the **Nidāna Pañcaka (Samanya)** for **Nāsaroga**, including Samprāpti and **Samanya Cikitsā** with classical support.

Short essays (5 marks each)

1. Kiesselbach's plexus—formation and clinical relevance.
2. Classify Nāsaroga as per Suśruta and outline general management.
3. Types of **Nasya** (Śodhana/Bṛṃhaṇa/Śamana)—indications with one example shloka.
4. Pathya–Apathya in recurrent Pratiśyaya.

Short answers (2 marks each)

- Name paranasal sinuses present at birth.
- Define Pūtināsa; give one cardinal feature.
- List two **Upaśaya** measures in Kapha-pradhāna Nāsaroga.
- Mention **nerve supply** of the anterosuperior nasal septum.
- Write two causes of **anosmia**.
- What is **Śṛṅgāṭaka** (one line, function)?

MCQs (1 mark each; answer key below)

1. Which sinus drains into sphenoethmoidal recess?
   A. Maxillary B. Frontal C. Sphenoid D. Posterior ethmoid
2. "Nāsā hi śiraso dvāram" occurs in:
   A. Caraka Sūtra B. Aṣṭāṅga Hṛdaya Sūtra 20 C. Suśruta Sūtra 12 D. Aṣṭāṅga Saṅgraha Nidāna
3. Commonest site for anterior epistaxis:
   A. Woodruff's plexus B. Little's area C. Sphenopalatine ostium D. Middle meatus
4. Predominant doṣa in Nāsā-pariśoṣa:
   A. Pitta B. Kapha C. Vāta D. Rakta
5. Which is **not** a Pathya in Nāsaroga?
   A. Steam inhalation B. Diva-svapna C. Uṣṇa-jala D. Pratimarśa-nasya

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

References

Classical sources

- **Suśruta Saṃhitā**, Uttara-tantra, **Ch. 22 – Nāsagata-roga-vijñānīya** (classification & symptoms); **Ch. 23 – Nāsagata-roga-pratiṣedha** (general therapeutics). English translation consulted for enumeration and chikitsā lines.
- **Aṣṭāṅga Hṛdaya**, **Sūtrasthāna 20 – Nasya-vidhi** (indications, trividha nasya; “Nāsā hi śiraso dvāram…”).
- **Aṣṭāṅga Hṛdaya**, **Uttara-sthāna 19–20** (Nāsaroga-vijñānīya & Nāsaroga-pratiṣedha—chapter placement corroborated).

Standard modern texts

- Dhingra, **Diseases of Ear, Nose & Throat & Head-Neck Surgery**, latest ed.
- **Gray’s Anatomy**, Head & Neck; Nasal cavity & PNS.
- Guyton & Hall, **Textbook of Medical Physiology** (Olfaction & taste).
- Ganong, **Review of Medical Physiology**, Sensory transduction.
- Snell, **Clinical Neuroanatomy**, Olfactory pathways.

Quick revision

- In one sentence, how does **Nasya** act according to Ayurveda?
- Name **four arteries** forming Little’s area.
- Which **doṣa pair** is most often at play in recurrent Pratiśyaya?

(If any of these stall you, reread the corresponding bullets and the shloka box.)