Unit 5 — Sandhigata Roga - 1

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Applied Anatomy of the Lacrimal Apparatus; Pūyalasa & Upanāha (Acute and Chronic Dacryocystitis)

Learning goals (exam-oriented)

By the end of this chapter you should be able to: (i) draw and label the lacrimal apparatus with applied points; (ii) explain the classical basis for sandhi-gatarogas near the canthi; (iii) define and differentiate **Pūyalasa** (acute dacryocystitis) and **Upanāha** (chronic dacryocystitis / mucocele) with **Nidāna-Pañcaka**, **Saṃprāpti**, **Lakṣaṇa**, **Bheda**, **Sādhya-Asādhya**, and **Cikitsā** (including Kriyākalpa and surgical alignment).

Key classical anchors

सुरुत enumerates sandhi-gatarogas and defines Pūyalasa & Upanāha:

"पूयालसः सोपनाहः स्नावाः पर्वणिकाऽलजी।

कृमिग्रन्थिश्च विज्ञेया रोगाः सन्धिगता नव ॥" (Suśruta Saṃhitā, Uttara-tantra 2/3)

"पक्वः शोफः सन्धिजः संस्रवेद्यः सान्द्रं पूर्यं पृति पूर्यालसः सः।

ग्रन्थिर्नाल्पो दृष्टिसन्धावपाकः कण्डूप्रायो नीरुजस्तुपनाहः ॥" (Su. Utt. 2/4)

A) Applied Anatomy of the Lacrimal Apparatus (शरीर – दृष्टि/अश्रु मार्ग)

Classical touchpoint—Netra-sandhi & Aśrumārga

Suśruta explicitly connects aśru-mārga (tear pathway) and netra-sandhi (ocular junctions):

- "आकाशादश्रुमार्गाश्च जायन्ते नेत्रबुद्धुदे।" (Su. Utt. 1/12) tear channels arise (conceptually) in the eye.
- "भण्डलानि च सन्धींश्च पटलानि च लोचने... पञ्च षट् च षडेव च ॥" (Su. Utt. 1/14) 5 mandalas, 6 sandhis, 6 patalas.
- "पक्ष्मवर्त्मगतः सन्धिर्वर्त्मशुक्लगतोऽपरः । ... ततः कनीनकगतः षष्ठश्चापाङ्गगः स्मृतः ॥" (Su. Utt. 1/16) the six sandhis include **Kanīnika** (medial canthus) and **Apāṅga** (lateral canthus), clinically crucial for lacrimal disease.

These verses justify why sandhi-gatarogas cluster at canthi and why tears/drainage feature centrally in their pathogenesis.

Modern anatomical detailing (applied)

- Lacrimal gland (serous, tubulo-acinar): orbital (larger) and palpebral (smaller) parts in supero-lateral orbit; 8-12 ducts open into superior fornix (lateral).
 - Nerve: **parasympathetic secretomotor** via greater petrosal \rightarrow pterygopalatine ganglion \rightarrow zygomatic (V2) \rightarrow lacrimal (V1); sympathetic vasomotor (deep petrosal); sensory (V1).
- **Tear film**: lipid (meibomian) aqueous (lacrimal gland) mucin (goblet cells). Stability of these layers influences **epiphora** and secondary infections.
- Drainage pathway: puncta (superior & inferior) → canaliculi (2 mm vertical + 8 mm horizontal) → common canaliculus (valve of Rosenmüller) → lacrimal sac (in lacrimal fossa between anterior & posterior lacrimal crests) → nasolacrimal duct to inferior meatus (valve of Hasner).
 - The sac's **medial canthus (Kanīnika-sandhi)** proximity explains tenderness and swelling pattern in dacryocystitis.
- Lacrimal pump: deep head of orbicularis oculi (Horner's muscle) + medial canthal tendon create negative pressure; eyelid malposition hampers drainage.
- **Blood supply & lymphatics**: lacrimal artery (ophthalmic), angular/facial veins; pre-auricular & submandibular

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nodes—pre-auricular enlargement may accompany infections.

Relations & surgical notes: sac is anterior to the posterior lacrimal crest; DCR (dacryocystorhinostomy)
creates a bony ostium into middle meatus area; avoid injury to angular vessels; probe passes downwards,
backwards, laterally in canaliculus then downwards, backwards, medially into sac—useful in exams and OT.

Classical-modern bridge

Suśruta also explains how doşas reach sandhi via the aśru-mārga producing discharge:

"गत्वा सन्धीनश्रुमार्गेण दोषाः कुर्युः स्नावान्... कनीनात्।" (Su. Utt. 2/5)

This anticipates the modern understanding that **stagnation/obstruction** in the tear pathway precipitates infection, first as **acute inflammation (Pūyalasa)** and later as **chronic distension (Upanāha/mucocele)**.

B) Pūyalasa & Upanāha (Acute and Chronic Dacryocystitis)

Definitions with classical proof

• Pūyalasa—Acute dacryocystitis

"पक्वः शोफः सन्धिजः... सान्द्रं पूर्यं पृति—पृयालसः" (Su. Utt. 2/4)

Ripened, suppurated swelling at a netra-sandhi discharging thick, fetid pus.

Upanāha—Chronic stage / Mucocele (Ayurvedic description is cystic, usually painless)

"...ग्रन्थिर्नाल्पो दृष्टिसन्धावपाक: कण्डूप्रायो नीरुज:—उपनाह:" (Su. Utt. 2/4)

A large, mostly painless, cystic swelling at a sandhi (classically at dṛṣṭi-sandhi) with itching and minimal suppuration. Clinical alignment: In sandhigata roga of the canthi, many teachers correlate Upanāha with chronic dacryocystitis / mucocele at Kanīnika-sandhi, reflecting a painless cystic distension after repeated acute episodes.

Enumeration context:

"पूयालसः सोपनाहः म्रावाः पर्वणिकाऽलजी। कृमिग्रन्थिश्च..." (Su. Utt. 2/3) — nine sandhi-gatarogas include Pūyalasa & Upanāha.

Nidāna-Pañcaka

1) Hetu (causative factors)

- **Local**: nasolacrimal duct stenosis/obstruction (congenital valve of Hasner, mucosal edema after URTI, rhinitis, sinusitis), canaliculitis, meibomitis, poor lid hygiene, trauma at medial canthus.
- **Systemic/doṣa-drivers**: kapha-pitta aggravating ahāra (guru-snigdha-abhisyandī, dairy excess), ritu exposure (cold winds), immunosuppression, diabetes.

Classical pathway: doṣas reach sandhi via aśru-mārga: "...अश्रुमार्गेण दोषा:..." (Su. Utt. 2/5).

2) Pūrvarūpa (prodromal)

• Mild watering (netra-srava), pricking/heaviness at Kanīnika-sandhi, morning stickiness, intermittent discharge.

3) Rūpa (cardinal signs)

• Pūyalasa (Acute): sudden painful, tense, tender swelling at medial canthus, erythema, warmth, fever; mucopurulent regurgitation on sac pressure; abscess/pointing → spontaneous fistula if untreated.

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• **Upanāha (Chronic)**: **painless, cystic, recurrent swelling**, chronic epiphora, mucous regurgitation, skin normal unless secondarily infected; may present as **mucocele/dacryocele**.

4) Upashaya-Anupashaya

• Warm fomentation, kapha-pitta-śāmaka lepa give relief in acute; cold, dusty exposure worsens. Chronic cases feel better after sac emptying; worsen with URTI.

5) Samprāpti (pathogenesis)

• Stasis-infection sequence at Kanīnika-sandhi (medial canthus) with kapha-pitta-rakta vitiation → Pūyalasa (pakva-śopha, pūya-srava); repeated episodes + fibrosis/ostial block → Upanāha (granthi-like cystic distension).

Sandhi vulnerability and **aśru-mārga** involvement are doctrinally grounded in: **Su. Utt. 1/16; 2/5** (sandhi list; doṣa flow via aśrumārga).

Bheda (Acute vs. Chronic) and clinical comparison

Feature	Pūyalasa (Acute dacryocystitis)	Upanāha (Chronic / Mucocele)
Onset	Sudden, post-URTI/sinusitis	Insidious, recurrent epiphora
Pain/tenderness	Marked pain, tenderness	Minimal or none (नीरुज)
Swelling	Hot, tense; may point/abscess	Cystic, soft, mobile over sac
Discharge on sac pressur	e Mucopurulent; regurgitation positive	Mucoid; recurrent
Skin	Erythema; cellulitis possible	Usually normal; fistula in long-standing
Classical anchor	"पक्वः शोफः सान्द्रं पूयं पूति" (Su. Utt. 2/4)	"ग्रन्थिर्नाल्पो कण्डूप्रायो नीरुजः" (Su. Utt. 2/4)
Modern procedure	I&D when abscess; antibiotics	DCR/DCT after control of sepsis

Investigations (exam lines)

• Lacrimal sac syringing (avoid in cellulitis/abscess phase); regurgitation test; Fluorescein dye disappearance test; nasal endoscopy for deviated septum/spurs; blood sugar; culture of discharge when recurrent.

Sādhya-Asādhya (prognosis)

Sādhya with timely śamana + śodhana + Kriyākalpa in early disease; Upanāha/mucocele generally sādhya by
corrective surgery (DCR) after infection control. Neglected cases with fistula or recurrent cellulitis need staged
care.

Chikitsā (समन–शोधन–स्थानीय; alignment with Kriyākalpa & surgery)

General line (from Kriyākalpa adhikāra)

Suśruta lists the ocular local therapies:

"तर्पणं पुटपाकश्च सेक आश्च्योतनाञ्जने। तत्र तत्रोपदिष्टानि तेषां व्यासं निबोध मे ॥" (Su. Utt. 18/4)

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1) Pūyalasa (Acute) - control infection, drain when needed

- Āhāra-Vihāra: light, non-abhisyandī diet; avoid dust/cold wind; head-end elevation.
- Śamana aushadhi (internal): kapha-pitta-śāmaka and raktaprasādana: *Triphala-kaṣāya*, *Gudūcī*, *Nimba*, *Haridrā* combinations; analgesic-anti-inflammatory support.

WHERE CLASSICAL WISDOM MEETS INTELLIGENT LEARNING

- Sthānīya (local):
 - Seka/Parisheka with Triphala-kaṣāya, Daruharidrā decoction in lukewarm form (avoid pressure on abscess).
 - Anjana/Aścyotana only after acute pointing subsides; use Prasādana-anjana (soothing), not Lekhana in the suppurative phase.
 - Lepa/Vidalaka externally over perisac area with Haridrā-Kuṭkī-Daruharidrā (kapha-pitta śamana).
- **Śodhana:** In congested, engorged sac with high pitta-rakta signs, **leech therapy (Jalauka)** over perisac area can be adopted (raktamokṣaṇa) to decompress tissues and reduce inflammation (standard Ayurvedic principle for raktadūṣṭi in netraroga).
- Surgical alignment:
 - If abscess forms → Incision & drainage at safe skin crease near sac, culture-guided systemic antibiotics.
 - **Avoid syringing/probing** in acute cellulitis to prevent iatrogenic spread.

2) Upanāha (Chronic / Mucocele) — restore drainage

- Internal śamana: kapha-medoghnī, dīpana-pācana; long-term *Triphala ghṛta* (if dry eye features); *Kaishora guggulu* in rakta-pitta dominance (as per physician's discretion).
- Sthānīya:
 - o Gentle seka & prasādana-anjana for ocular surface hygiene in quiescent phase.
 - **Warm compress** over sac to evacuate mucus (not during acute flare).
- Definitive procedure:
 - Dacryocystorhinostomy (DCR) (external or endoscopic) is curative for nasolacrimal duct block;
 Dacryocystectomy (DCT) when mucosa irreparably diseased, elderly, or DCR contraindicated.
 - **Congenital**: Crigler massage; probing if persistent beyond recommended age.

Why surgery after śamana? Chronic sac harboring biofilm re-infects; classical Upanāha = granthi/'cyst' notion supports the need to remove/deroof/establish drainage, aligning with modern DCR.

Complications to remember

• Preseptal/orbital cellulitis, lacrimal sac **fistula**, ascending cavernous sinus thrombosis (rare), keratitis from infected reflux, persistent epiphora with dermatitis.

Viva pearls tying to śloka

- Site: "Kanīnika-sandhi" is the medial canthus (Su. Utt. 1/16) explains the typical swelling.
- Pathway: doṣa traffic via aśru-mārga (Su. Utt. 2/5) justifies why discharge (srava) and watering are core.
- Nature: Pūyalasa is pakva-śopha with pūya; Upanāha is granthi, mostly painless (Su. Utt. 2/4).

Short notes & diagrams (write-up pointers)

• Labelled sketch: lacrimal gland (orbital/palpebral parts), ducts to superior fornix, puncta, canaliculi, common canaliculus, sac, nasolacrimal duct, inferior meatus; show medial canthal tendon & Horner's muscle; mark Kanīnika-sandhi.

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- **Flow arrows**: secretion (lateral → medial), drainage (puncta → nose).
- Safe incision line for I&D: vertical, just medial to medial canthus, avoiding angular vessels.

Self-check (quick)

- 1. Quote the defining half-line of Pūyalasa from Suśruta and explain how it maps to acute dacryocystitis.
- 2. Which śloka mentions **aśru-mārga** in the pathogenesis of **srava**? State its clinical implication.
- 3. Give **three** applied anatomy points that make the **lacrimal sac** prone to infection.

(Try answering before you read below.)

Answer cues: (i) "22222 2222..." (Su. Utt. 2/4); (ii) "...22222222222222222222222..." (Su. Utt. 2/5) → role of tear duct obstruction; (iii) dependent sac position, narrow NLD with mucosal valves, close relation to nasal pathology & pump mechanics.

Assessment

Long Essay (LAQ)

- 1. Describe the applied anatomy of the lacrimal apparatus. Add classical correlations from Suśruta regarding sandhis and aśru-mārga.
- Define Pūyalasa & Upanāha with śloka-pramāṇa, and discuss Nidāna-Pañcaka, Samprāpti, Lakṣaṇa, and Cikitsā including Kriyākalpa and surgical management.

Short Essays / SAQ

- 1. Six **netra-sandhis** with clinical relevance to dacryocystitis (quote Su. Utt. 1/16).
- 2. Role of Horner's muscle in lacrimal pump and its failure signs.
- 3. Enumerate **Kriyākalpa** (quote Su. Utt. 18/4) and indicate which you prefer in Pūyalasa vs Upanāha.

MCQs (single best answer)

- 1. Which śloka first mentions the doṣas reaching sandhi via aśru-mārga in sandhigata roga? a) Su. Utt. 1/14 b) Su. Utt. 2/5 c) Su. Utt. 18/4 d) Su. Utt. 2/3
- 2. Painless cystic swelling at canthus, recurrent epiphora, minimal inflammation corresponds to:
 a) Parvaṇī b) Upanāha c) Alajī d) Krimigranthi
- 3. **Definitive management for chronic nasolacrimal duct obstruction is:** a) I&D b) Syringing in acute cellulitis c) **DCR** d) Only antibiotics

OSCE-style stations

- Identify on model/radiograph: lacrimal fossa boundaries; direction of canaliculus probing.
- **Demonstrate** Crigler massage steps on a doll model (for congenital cases).
- Interpretation: Given photos of acute tender medial canthal swelling vs. mucocele, label them **Pūyalasa** and **Upanāha** with two differentiating points.

Key ślokas to quote in exam (with references)

- 1. Netra sandhi enumeration: "पक्ष्मवर्त्मगतः सन्धिर्वर्त्मशुक्लगतोऽपरः... कनीनकगतः... अपाङ्गगः..." (Su. Utt. 1/16)
- 2. Counts (maṇḍala, sandhi, paṭala):

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"मण्डलानि च सन्धींश्च पटलानि च लोचने... पञ्च षट् च षडेव च" (Su. Utt. 1/14)

3. Aśru-mārga role in srava:

"गत्वा सन्धीनश्रुमार्गेण दोषाः कुर्युः स्नावान्..." (Su. Utt. 2/5)

4. Enumeration of sandhi-gataroga:

"पूयालसः सोपनाहः स्नावाः पर्वणिकाऽलजी। कृमियन्थिश्च..." (Su. Utt. 2/3)

5. **Definitions:**

"पक्वः शोफः... पूयालसः" & "...नी रुजस्तूपनाहः" (Su. Utt. 2/4)

6. Kriyākalpa list:

'तर्पणं पुटपाकश्च सेक आश्च्योतनाञ्जने..." (Su. Utt. 18/4)

References (study and citation list)

Classical

- Suśruta Saṃhitā, Uttara-tantra Adhyāya 1 (Aupadravika), 2 (Sandhigata Roga Vijñānīya), 18 (Kriyākalpa).
- Aṣṭāṅga Hṛdaya, Uttara-sthana sections on Netraroga & Kriyākalpa.
- **Suśruta Saṃhitā**, Śārīra-sthāna and *Cikitsā-sthāna* (general principles of śopha/vrana and śodhana like raktamokṣaṇa).

Modern (standard student texts)

- Khurana A.K. Comprehensive Ophthalmology Lacrimal apparatus; Dacryocystitis; DCR.
- Kanski & Bowling. Clinical Ophthalmology Lacrimal disorders.
- Vaughan & Asbury. General Ophthalmology Lacrimal system infections and surgery.
- Ayurveda Shālākya textbooks (Chaukhamba editions) correlating sandhigata roga with modern lacrimal pathology.

Quick recap (30-second)

- Medial canthus (Kanīnika-sandhi) is the hotspot for lacrimal disease—remember Su. Utt. 1/16.
- Pūyalasa = acute suppurative sac infection (pain, pus, tenderness) Su. Utt. 2/4.
- **Upanāha** = **chronic** cystic stage/mucocele (painless, recurrent epiphora) **Su. Utt. 2/4**.
- Aśru-mārga transports dosas to sandhi → srava Su. Utt. 2/5.
- Kriyākalpa support (seka, āścyotana, anjana, tarpana, puṭapāka) + definitive DCR/DCT in chronic obstruction.

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