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**
> सुश्रुत enumerates sandhi-gatarogas and defines Pūyalasa & Upanāha:
>
> **"पूयालसः सोपनाहः स्रावाः पर्वणिकाऽलजी।**
> **कृमिग्रन्थिश्च विज्ञेया रोगाः सन्धिगता नव॥"** *(Suśruta Saṃhitā, Uttara-tantra 2/3)*
> **"पक्वः शोफः सन्धिजः संस्रवेद्यः सान्द्रं पूयं पूति पूयालसः सः।**
> **ग्रन्थिर्नाल्पो दृष्टिसन्धावपाकः कण्डूप्रायो नीरुजस्तूपनाहः॥"** *(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 नेत्रबुद्बुदे।"** *(Su. Utt. 1/12)* — tear channels arise (conceptually) in the eye.
- **"मण्डलानि च सन्धींश्च पटलानि च लोचने... पञ्च षट् च षडेव च॥"** *(Su. Utt. 1/14)* — 5 maṇḍalas, **6 sandhis**, 6 paṭalas.
- **"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 → pterygopalatine ganglion → zygomatic (V2) → 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

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 doṣas reach sandhi **via the aśru-mārga** producing discharge:

> **"गत्वा सन्धीनश्रुमार्गेण दोषाः कुर्युः स्रावान्... 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 पूयं पूति—पूयालसः" *(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 दृष्टिसन्धावपाकः कण्डूप्रायो नीरुजः—उपनाहः" *(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 स्रावाः 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 दोषाः..."** *(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.

- **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 pressure	**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

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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)*

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.
- **Sthānīya (local):**
  - **Seka/Parisheka** with *Triphala-kaṣāya*, *Daruharidrā* decoction in lukewarm form (avoid pressure on abscess).
  - **Anjana/Āścyotana** 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:**
  - **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**.

- **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) *"[illegible]"* (Su. Utt. 2/4); (ii) *"...[illegible]..."* (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.**
2. **Define Pūyalasa & Upanāha with śloka-pramāṇa, and discuss Nidāna-Pañcaka, Saṃprāpti, 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):**

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

3. **Aśru-māṛga role in srava:**
   "गत्वा सन्धीनश्रुमार्गेण दोषाः कुर्युः स्रावान्..." *(Su. Utt. 2/5)*
4. **Enumeration of sandhi-gataroga:**
   "पूयालसः सोपनाहः स्रावाः पर्वणिकाऽलजी। कृमिग्रन्थिश्च..." *(Su. Utt. 2/3)*
5. **Definitions:**
   "पक्वः शोफः... पूयालसः" & "...नीरुजस्तूपनाहः" *(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-māṛga** transports doṣas to sandhi → **srava** — **Su. Utt. 2/5**.
- **Kriyākalpa** support (seka, āścyotana, anjana, tarpana, puṭapāka) + **definitive DCR/DCT** in chronic obstruction.