

2.3. Demonstration (Comparison and classification with modern instruments)

Unit 2. Yantra & Śastra — Topic 3. Demonstration: Comparison and Classification with Modern Instruments

1) Orientation: what “comparison & classification” means in OT practice

Classical **Yantra** (blunt/mechanical devices) and **Śastra** (sharp instruments) were defined to remove, expose, drain, probe, and repair tissues with precision. Modern theatres use families of tools that do the **same core jobs** with refined metallurgy and ergonomics. Your goal is to **map each classical category and karma (action) to modern instrument families**, so that a question like “compare Saṃdāṃśa with modern forceps” or “classify Yantra/Śastra with examples” can be answered **from memory** and **applied to cases**.

परिभाषा—उद्देशः (Yantra):

“तत्र, मनःशरीराबाधकराणि शल्यानि ; तेषामाहरणोपायो यन्त्राणि ॥” — *Suśruta Saṃhitā, Sūtrasthāna 7/4*
Shalyas afflict the psycho-physical self; Yantras are the non-cutting means to remove them.

वर्गीकरण—यन्त्र (6 समूह):

“तानि षट्प्रकाराणि ; तद्यथा— स्वस्तिकयन्त्राणि, सन्दंशयन्त्राणि, तालयन्त्राणि, नाडीयन्त्राणि, शलाकायन्त्राणि, उपयन्त्राणि चेति ॥” — *Su. Su. 7/5*

“तत्र चतुर्विंशतिः स्वस्तिकयन्त्राणि, द्वे सन्दंशयन्त्रे, द्वे एव तालयन्त्रे, विंशतिर्नाड्यः, अष्टाविंशतिः शलाकाः, पञ्चविंशतिरुपयन्त्राणि ॥” — *Su. Su. 7/6*

उदाहरण—सन्दंश (लम्बाई-उपयोग):

“सनिग्रहोऽनिग्रहश्च सन्दंशौ षोडशाङ्गुलौ भवतः, तौ त्वङ्-मांस-शिरा-स्नायु-गत-शल्योद्धरणार्थम् उपदिश्येते ॥” — *Su. Su. 7/8*

यन्त्रकर्माणि (24 क्रियाएँ):

“यन्त्रकर्माणि तु— निर्घातनपूरणबन्धनव्यूहनवर्तनचालनविवर्तनविवरणपीडनमार्गविशोधनविकर्षणाहरणाञ्छनोन्मन-विनमनभञ्जनोन्मथनाचूषणैषणदारणज्वरप्रक्षालनप्रधमनप्रमार्जनानि चतुर्विंशतिः ॥” — *Su. Su. 7/17*

यन्त्रदोषाः (12):

“... अतिस्थूलम्, असारम्, अतिदीर्घम्, अतिदृक्स्वम्, अग्राहि, विषमग्राहि, वक्रं, शिथिलम्, अत्युन्नतम्, मृदुकीलं, मृदुमुखं, मृदुपाशम् ...” — *Su. Su. 7/19*

शस्त्र-अष्टविध कर्म-अध्याय आरम्भः

“अथातोऽऽष्टविधशस्त्रकर्मियमध्यायं व्याख्यास्यामः । यथोवाच भगवान् धन्वन्तरिः ॥१॥” — *Su. Su. 25/1*

These verses **anchor** your comparisons: *what* the tool family is, *how many* classical types exist, *which actions* they perform, and *how to judge quality*.

2) Side-by-side classification: classical families → modern instrument

sets

A) Yantra (non-sharp) → modern families

Classical group (Su. 7/5-6)	Core function (pick from Su. 7/17)	Signature classical example	Modern instrument families (examples)
Samdamśa (2)	Āharaṇa, Vikarṣaṇa, Piḍana	Forceps ~16 aṅgula (Su. 7/8)	Toothed/at traumatic tissue forceps, hemostats, Allis/Babcock, towel clips
Śalākā (28)	Eṣaṇā, Ṛjūkaṛaṇa, Vivaraṇa	Probes/rods	Probes (sinus/lacrimal), directors, urethral/anal dilators, specula
Nāḍī (20)	Cūṣaṇa, Prakṣāḷana, Mārga-viśodhana	Tubes/cannulae	Suction tips (Yankauer/Frazier), drains (Penrose, Romovac), catheters (Foley, Ryle's)
Tāla (2)	Piḍana, Vivartana/Vivaraṇa	Pressing/retraction aids	Basic retractors (Langenbeck/Senn), skin hooks, compressive devices
Svastika (24)	Bandhana, Ṛjūkaṛaṇa	Cross-bar splinting	Splints (Thomas/Kramer), braces, traction frames
Upa-yantra (25)	Pūraṇa, Pramārjana etc.	Field accessories	OT lights, drapes, trays, tourniquet, pads, sandbags, instrument trolleys

B) Śastra (sharp) → modern families

Suśruta's 20 Śastras (Su. Sū. 8) map naturally to today's **cutting/dissecting, puncturing, bone, extraction, and suturing** sets.

Classical Śastra (sense)	Core Śastra-karma*	Modern family (examples)
Maṅḍalāgra, Vṛddhipatra, Arddhadhāra, Utpalapatra, Kuśapatra, Vetasapatraka	Chedana, Bhedana, Lekhana	Scalpels (No. 10/11/15), micro-knives, beaver blades
Karapatra, Antarmukha	Chedana (bone), Lekhana	Bone saws (oscillating, Gigli), serrated knives
Trikūrchaka, Ārā, Vṛihimukha	Vyādhana (puncture/aspiration)	Trocar-cannula systems, awls
Vaḍiśa	Āharaṇa (extraction)	Hooks (skin, tenaculum), fish-hook style extractors
Danta-śaṅku	Āharaṇa (dental)	Dental elevators, forceps
Śūci	Sivana	Surgical needles (round-bodied, 3-edged, semicircular)
Eṣaṇī	Eṣaṇā	Probe/director

*Aṣṭavidha Śastra-karmāṇi context: Chedana, Bhedana, Lekhana, Vyādhana, Eṣaṇā, Āharaṇa, Sravana/Visrāvaṇa, Sivana (Su. Sū. 25).

3) Action-based (karma-based) demonstration: 24 Yantra-karmāṇi → what you pick today

Quote the verse, then select the tool **family** that accomplishes each action safely in a modern OT.

“यन्त्रकर्माणि तु— ... (24 names) ... चतुर्विंशतिः ॥” — Su. Sū. 7/17

Karma word (gloss)	What you actually do	Modern pick (examples)
Nirghātana (tapping/loosening)	Mobilise impacted body	Probe handle, light mallet
Pūraṇa (packing/filling)	Pack cavity/achieve hemostasis	Ribbon gauze, packers

Karma word (gloss)	What you actually do	Modern pick (examples)
Bandhana (binding)	Pressure/support/immobilise	Crepe, elastic wraps, tourniquet*
Vyūhana (reposition)	Reduce/set displaced part	Splints, traction frames
Vartana (rolling)	Coaxial rotation to extract	Fine forceps + probe
Chālana (mobilising)	Free adhesions	Blunt dissector, probe
Vivartana/Vivaraṇa (everting/opening)	Expose field	Skin hooks, retractors
Piḍana (compression)	Hemostasis/evacuation	Artery forceps, pressure pads
Mārga-viśodhana (tract cleansing)	Clear pus/debris	Irrigation cannula, suction
Vikarṣaṇa & Āharaṇa (traction & extraction)	Remove shalya	Toothed forceps, hooks
Āñchana (smearing/lining)	Lubricate/protect	Applicators with medicated oil/ghee
Unnamana/Vinamana (elevate/depress)	Elevate/depress tissues	Elevators, tongue depressor
Bhañjana/Unmathana (break/macerate)	Break hard mass/soften content	Stone forceps, curettes
Cūṣaṇa (suction)	Aspirate	Yankauer, Frazier
Eṣaṇā (probing)	Delineate tract	Straight probe, lacrimal probe
Dāraṇa (blunt splitting)	Separate planes	Closed forceps tips
Ṛjūkarāṇa (straighten)	Align deformity/path	Splints, traction, directors
Prakṣāḷana (washing)	Irrigate	Syringe + catheter set
Pradhamana (insufflation)	Insufflate/introduce medicament	Air bulb/insufflator (contextual)
Pramāṛjana (mopping)	Keep field clear	Swabs, mops

*Tourniquet classed under **Upa-yantra** (Su. 7/5-6).

4) Three mini-demonstrations (classical → modern)

Case A: Thorn foreign body in sole

Classical steps: Eṣaṇā (probe) → Vikarṣaṇa/Āharaṇa (forceps extraction) → Mārga-viśodhana & Prakṣāḷana → Bandhana.

Modern picks: Straight probe → toothed Adson forceps (or mosquito for grip) → saline irrigation with 10-20 mL syringe + cannula; swab and dry → pressure dressing/crepe.

Verse anchors: Su. 7/4 (purpose), Su. 7/17 (actions), Su. 7/8 (Saṃdamśa).

Case B: Acute abscess drainage

Classical: Vivaraṇa/Vivartana (expose) → Cūṣaṇa (suction) → Nāḍī placement for drainage → Pūraṇa/Bandhana.

Modern: Skin hooks/small retractor → suction tip → Romovac/penrose drain → ribbon-gauze packing and pressure bandage.

Anchor: Su. 7/5-6 (Nāḍī class; Upa-yantra), Su. 7/17 (Cūṣaṇa, Prakṣāḷana).

Case C: Sinus tract delineation

Classical: Eṣaṇā (probing) → Ṛjūkarāṇa (align) → Mārga-viśodhana/Prakṣāḷana → plan definitive step.

Modern: Malleable probe/director → gentle straightening → saline irrigation + suction → decide on excision vs seton.

Anchor: Su. 7/17 (Eṣaṇā, Ṛjūkarāṇa, Mārga-viśodhana).

5) Quality & safety: translating doṣa into QC checks

“...द्वादश यन्त्रदोषाः ...” — Su. 7/19

**Modern equivalents:**

- **Atisthūlam / Ati-dīrgham / Ati-hrasvam / Vakram:** reject **mis-sized/mis-shaped** tools; keep **size sets** (e.g., dilators).
- **Asāram / Śithilam / Mṛdukīlam / Mṛdupāśam:** hinge/catch weakness → **retire**; do **logbook-based maintenance**.
- **Agrāhi / Viśamagrāhi / Mṛdumukham:** jaw misalignment/blunt tip → **calibrate/replace**; prevents slippage, crush, false passage.
- **Karkaśa surfaces (implied):** enforce **smooth, corrosion-free finish**; ultrasonic cleaning for lumens (Nāḍī).

For Śāstra, Su. Sū. 8 warns against **blunt, jagged, uneven, too thick/thin/long/short, unduly curved** blades—modern response is **edge-task matching, pre-use inspection, sterile packaging integrity, and timely blade change**.

6) Anuśāstra → modern analogues (when knife is not ideal)

Suśruta (Su. Sū. 8) names **substitutes**: bamboo skin, crystal, glass, **leech (jalaukā)**, **fire (agni)**, **alkali (kṣāra)**, nails, leaves, hair, fingers.

Modern parallels:

- **Leech therapy** (microsurgery congestion) ↔ *jalaukā*.
- **Electrocautery/diathermy, lasers** ↔ *agni-karma*.
- **Chemical cautery** (silver nitrate, phenol) ↔ *kṣāra-karma*.
- **Guarded blades, plastic cannulae, blunt dissecting with fingers** ↔ nails/leaves/fingers contexts.
Use these to justify **choice of energy/chemical methods** in viva while staying faithful to classical doctrine.

7) Edge-task rules (Śāstra) you must be able to say out loud (Su. Sū. 8)

- **Bhedana** edge ≈ thin like **muṣura** husk; **Lekhana** = ½ of that; **Vyādhana/Visrāvaṇa** = **hair-fine**; **Chedana** = ½ of hair-fine.
Use this to **explain** why you picked a **No.11** (fine, stab) vs **No.10/15** (curved skin incision).

8) Viva-friendly master table: modern OT families back-mapped to Suśruta

Modern family	Examples	Classical anchor
Cutting & dissecting	Scalpels, micro-knives	Śāstra: Maṇḍalāgra, Vṛddhipatra... (Su. 8); Chedana/Bhedana/Lekhana (Su. 25)
Grasping & holding	Toothed/attraumatic forceps, clamps	Yantra: Saṃdamśa (Su. 7/8), Āharaṇa/Piḍana (Su. 7/17)
Retracting & exposing	Skin hooks, Langenbeck	Yantra: Tāla, Vivaraṇa/Vivartana (Su. 7/17)
Probing & dilating	Probes, dilators, specula	Yantra: Śalākā (Su. 7/5–6), Eṣaṇā (Su. 7/17)
Suction & drainage	Frazier/Yankauer, drains	Yantra: Nāḍī (Su. 7/5–6), Cūṣaṇa/Prakṣālana (Su. 7/17)
Hemostasis/pressure	Artery forceps, tourniquet	Yantra: Piḍana, Bandhana (Su. 7/17); Upa-yantra counted (Su. 7/6)
Suturing	Needles, needle-holders	Śāstra: Śūci; Sīvana (Su. 25)
Bone work	Saws, osteotomes	Śāstra: Karapatra, Kuṭhārikā (Su. 8)
Energy/chemical	Diathermy, laser, AgNO ₃	Anuśāstra idea (Su. 8); Agni/Kṣāra chapters (Su. 11–13)



9) Memory anchors (counts & pairs)

- **Yantra groups (6)** with counts **24/2/2/20/28/25** → (*Svastika/Saṃdamśa/Tāla/Nāḍī/Śalākā/Upa*).
- **Yantra-karmāṇi (24)**: learn **8 high-frequency** verbs for viva—**Eṣaṇā, Āharaṇa, Vikarṣaṇa, Cūṣaṇa, Prakṣālana, Piḍana, Bandhana, Vivaraṇa**—and state that the rest follow the same logic (Su. 7/17).
- **Śastra (20)**: remember **scalpel set (6), puncture set (3), bone set (2), extraction (2), suture (1), probe (1)**—then fill the names.

10) Quick self-check (say it in 40 seconds)

“**Yantra** are non-sharp devices for **śalyāharaṇa** (Su. 7/4), classified into **six groups** with fixed counts (Su. 7/5–6). Their **24 actions** (Su. 7/17) map to modern **probing, grasping, retraction, suction, irrigation, packing, splinting**. **Śastra** (Su. 8; Su. 25) give us **cutting, puncturing, extraction, suturing** sets. I prevent errors by eliminating **Yantra-doṣa** (Su. 7/19) and rejecting defective edges (Su. 8). In a case, I quote the **action word** and pick the **modern family** that performs it.”

Assessment

A. MCQs (single best answer)

1. **Which verse formally enumerates the six Yantra groups?**
a) Su. 7/4 b) **Su. 7/5** c) Su. 7/8 d) Su. 25/1
Answer: b
2. The **modern counterpart** of **Nāḍī-yantra** is primarily:
a) Bone saw b) **Drains/catheters/suction** c) Needle holder d) Skin hook
Answer: b
3. **Eṣaṇā** in Su. 7/17 most closely maps to:
a) Incision b) **Probing** c) Cautery d) Stapling
Answer: b
4. **Saṃdamśa** (Su. 7/8) should be compared with:
a) Electrocautery b) **Tissue forceps/hemostats** c) Retractors d) Dilators
Answer: b
5. **Vivaraṇa/Vivartana** actions are best achieved today by:
a) Scalpels b) **Skin hooks/retractors** c) Trocar d) Tourniquet
Answer: b
6. A **Yantra-doṣa** likely to cause slippage while holding is:
a) **Agrāhī/Viṣamagrāhī** b) Ati-dīrgha c) Mṛdukīla d) Atyunnata
Answer: a
7. **Trikūrchaka** maps to which modern family?
a) Retractors b) **Trocar-cannula (puncture/aspiration)** c) Saws d) Needle drivers
Answer: b
8. **Bandhana** (Su. 7/17) is demonstrated today mainly by:
a) Scalpel blades b) **Crepe bandage/tourniquet (Upa-yantra)** c) Probes d) Drains
Answer: b
9. **Karapatra** belongs to which modern family?
a) **Bone saws** b) Catheters c) Needle sets d) Energy devices
Answer: a
10. The **action-tool** pair that is **incorrect** is:
a) Cūṣaṇa—suction tip b) Āharaṇa—hooks/forceps c) **Eṣaṇā—bone saw** d) Prakṣālana—irrigation set



Answer: c

B. Short Answer Questions (3-5 lines each)

1. Classify **Yantra** (Su. 7/5-6) and give **two modern examples** under each group.
2. List **six** Yantra-karmāṇi (Su. 7/17) with a matching modern device for each.
3. Compare **Samdamaśa** with **toothed vs atraumatic forceps**—indications and risks.
4. Write **four Yantra-doṣa** (Su. 7/19) and their modern QC prevention.
5. Enumerate **five modern instrument families** and back-map them to **Śastra or Yantra** anchors.

C. Long Answer Questions

1. **Demonstrate** the correspondence between **classical Yantra groups** and **modern OT families** with *at least* three case vignettes (foreign-body extraction, abscess drainage, sinus probing). Cite **Su. 7/4, 7/5-6, 7/17, 7/8, 7/19** where relevant.
2. Present a **comparative classification** of **Śastra (20)** and **Yantra (6 groups)** with their **signature actions** and **modern exemplars**. Explain **edge-task rules** of Śastra (Su. 8) and show how they guide **scalpel/needle** selection today.

Final takeaway

The **cleanest demonstration answers** always **name the classical family, quote the action word from Su. 7/17 or the list verse (Su. 7/5-6; Su. 8), and then name the modern family** that performs the same function. This shows that you can **work the theatre** and **quote the text**—the combination examiners reward.