

2.1. Yantra - Nirukti, Prakara, Guna, Prayog, Dosha, Karma, Upayantra and Relevant modern instruments

Unit 2. Yantra and Śastra — Topic 1. Yantra: Nirukti, Prakāra, Guṇa, Prayoga, Doṣa, Karma, Upayāntra and Relevant Modern Instruments

1) Nirukti (etymology) and Paribhāṣā (definition)

The term Yantra stems from the Sanskrit root "yam-niyamane" (to restrain/control), hence a device that holds, restrains or facilitates a mechanical action without cutting. In Śalyatantra, Yantras are the non-sharp surgical appliances used to hold, press, probe, dilate, drain, splint, retract and extract—often preparing or completing steps that sharp instruments (Śastra) alone cannot achieve safely.

श्लोक (अर्थ-परिभाषा):

"तत्र, मनः शरीराबाधकराणि शल्यानि ; तेषामाहरणोपायो यन्त्राणि ॥" — सुश्रुत संहिता, सूत्रस्थान 7/4

Meaning: "Shalya (foreign bodies/injurious factors) afflict mind and body; the means of removing them are **Yantras**."

Why this matters to you: the verse anchors Yantra in **purpose**—āharaṇa (removal/extraction) and allied non-cutting actions that make surgery safe, tissue-respectful, and efficient.

2) Prakāra (types) and Sankhyā (number)

Suśruta enumerates six principal groups of Yantra and their sub-type counts:

वर्गीकरण:

"तानि षट्प्रकाराणि ; तद्यथा— स्वस्तिकयन्त्राणि, सन्दंशयन्त्राणि, तालयन्त्राणि, नाडीयन्त्राणि, शलाकायन्त्राणि, उपयन्त्राणि चेति ॥" — सु. सं., सु. 7/5

संख्या:

"तत्र चतुर्विंशतिः स्वस्तिकयन्त्राणि, द्वे सन्दंशयन्त्रे, द्वे एव तालयन्त्रे, विंशतिर्नाडचः, अष्टाविंशतिः शलाकाः, पञ्चविंशति रुपयन्त्राणि ॥" — सु. सं., स्. 7/6

Functional sense you should remember (with modern mapping)

Group (Suśruta)	Core action (Karma)	What you achieve	Modern analogues
Svastika-yantra (24)	Splinting, stabilising, traction	Immobilise/align parts	Splints, traction frames, braces
Saṃdaṃśa-yantra (2)	Grasping, extracting	Secure grip & removal	Tissue forceps, hemostats
Tāla-yantra (2)	Pressing, levering, exposure	Compression & retraction	Towel clips, basic retractors
Nāḍī-yantra (20)	Conduction of fluids	Drain or instill	Cannulae, catheters, suction tips
Śalākā-yantra (28)	Probing, dilating, exploring	Define tracts & patency	Probes, dilators, specula
Upa-yantra (25)	Assisting/ancillary	Field support & safety	Lights, trays, drapes, tourniquet

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3) Guṇa (desirable qualities) — what makes a good Yantra?

Suśruta embeds **quality** inside **purpose**. Example: for Saṃdaṃśa (forceps), he specifies **length and indication**—a practical cue to "fit-for-purpose" design.

श्लोक (उदाहरण—सन्दंश):

"सनिग्रहोऽनिग्रहश्च सन्दंशौ षोडशाङ्गुलौ भवतः, तौ त्वङ्-मांस-शिरा-स्नायु-गत-शल्योद्धरणार्थम् उपिदश्येते ॥" — सु. सं., सू. 7/8 Meaning: Two Saṃdaṃśas—with catch and without catch—each about 16 aṅgula in length, are prescribed for removing foreign bodies lodged in skin, muscle, vessels, tendons.

From this and the Yantra doctrine, derive these Guṇa for any Yantra:

- Proper dimensions & geometry: length/curvature suited to the anatomical site (e.g., ~16 angula for Samdamśa).
- Structural integrity: no looseness in joints/catch; resilient yet not brittle.
- Atraumatic finish: smooth, non-porous, corrosion-resistant; tip geometry suited to task (rounded for probing; serrated/toothed for firm grasp).
- Ergonomics & balance: firm, comfortable grip, good tactile feedback.
- Sterilisability: compatible with repeated cleaning and sterilisation cycles.

Clinically translate Guṇa → safety: proper size and atraumatic tips reduce slippage, crush, false passage and infection.

4) Prayoga (clinical use) — when and how you actually use them

The **definition verse** (Su. 7/4) already tells you Yantras are for **āharaṇa** (removal). The **Saṃdaṃśa verse** (Su. 7/8) specifies **foreign-body extraction** across tissue planes. Build your mental map from these anchors:

- Saṃdaṃśa: grip and extract splinters/thorns, slough or necrotic tags—apply co-axial traction, avoid over-squeezing (crush injury).
- Śalākā: gently probe a sinus/tract, determine direction and depth, and dilate stepwise when indicated.
- Nāḍī: drain pus/blood; instill medicated fluids; connect to suction where needed.
- Tāla: press for hemostasis, lever to gain exposure (basic retraction).
- Svastika: splint/immobilise fractured or injured part before and after definitive procedures.
- **Upayantra:** everything that **assists**—illumination, drapes, trays, tourniquet, pads—so the principal action is clean and safe.

Use the **verse as your justification** in theory answers: "Because Suśruta defines Yantra as the means for **śalyāharaṇa** (Su. 7/4), I first probe with Śalākā, then grasp with Saṃdaṃśa (Su. 7/8), finally leave a Nāḍī drain."

5) Doşa (defects/malfunctions) — the 12 Yantra-doşa and their clinical implications

"तत्र, अतिस्थूलम्, असारम्, अतिदीर्घम्, अतिह्नस्वम्, अग्राहि, विषमग्राहि, वक्तं, शिथिलम्, अत्युन्नतम्, मृदुकीलं, मृदुमुखं, मृदुपाशम्, इति द्वादश यन्त्रदोषाः ॥" — सु. सं., सू. 7/19

Concise explanations you can write in exams:

1. **Atisthūlam (too thick):** Bulky body/tip → poor access; causes tissue crush.

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- 2. **Asāram (weak/unsound):** Inferior metal/workmanship → bending or breakage in vivo.
- 3. Atidirgham (too long): Overshoots target; leverage becomes unsafe in small fields.
- 4. Atihrasvam (too short): Inadequate reach; operator grip compromised.
- 5. **Agrāhi (non-grasping):** Smooth jaws/tips that fail to hold → slippage.
- Viṣamagrāhi (uneven grasp): Mal-aligned jaws → shearing/partial hold → trauma.
- 7. **Vakram (unduly curved):** Uncontrolled curvature → off-axis forces and false passage.
- 8. **Śithilam (loose):** Loose rivets/springs → erratic opening/closure; unreliable hold.
- 9. Atyunnatam (over-raised/over-projecting): Prominent shoulders/flanges obstruct the field.
- 10. **Mṛdukīlam (soft rivet/pin):** Hinge weakens under stress → loss of function mid-procedure.
- 11. Mṛdumukham (soft/rounded tip where firmness is needed): Poor penetration/contact → inefficacy.
- 12. Mṛdupāśam (weak/soft catch): Lock fails; grip released unintentionally.

Prevention mantra: "Right size-Right tip-Right force." Add rigorous inspection, proper maintenance, and sterile processing discipline.

WHERE CLASSICAL WISDOM MEETS INTELLIGENT LEARNING

6) Karma (surgical actions) — how Yantra enable safe surgery

यन्त्रकर्माणि तु- निर्घातनपूरणबन्धनव्यूह्नवर्तनचालनविवर्तनविवरणपीडनमार्गविशोधनविकर्षणाहरणाञ्छनोन्नमन-विनमनभञ्जनोन्मथनाचृषणैषणदारणजूंकरणप्रक्षालनप्रधमनप्रमार्जनानि चतुर्विशतिः ॥१७॥

Below are the **24 actions** with plain-English gloss, classical intent, and **typical modern correlates** you may actually use:

- 1. **Nirghātana (**निर्घातन) Tapping/percussing to dislodge/loosen; e.g., gentle tapping to mobilise a foreign body. *Tool:* probe handle, light mallet.
- Pūraṇa (पूरण) Filling/packing cavities for compression/support. Tool: ribbon gauze, packers, dental pack for sockets.
- 3. **Bandhana (**बन्धन) Binding/strapping for fixation or hemostatic pressure. *Tool:* crepe bandage, pressure dressing, tourniquet (as upayāntra).
- 4. **Vyūhana (**व्यूह्न) Repositioning/setting displaced parts. *Tool:* reduction maneuvers; traction frames (svastikaconcept).
- 5. **Vartana (**वर्तन) Rolling/turning along axis to coax out an object. *Tool:* forceps/probe with coaxial rotation.
- 6. **Chālana** (चालन) Gentle moving/shaking to test mobility or free adhesions. *Tool:* probe, blunt dissector.
- 7. **Vivartana (**विवर्तन) Everting a margin/edge for exposure. *Tool:* skin hooks, retractors.
- 8. **Vivaraṇa** (विवरण) Opening/separating for access (without cutting). *Tool:* blunt dilators/speculum; basic retractors.
- 9. **Pīḍana** (पीडन) Pressing/compression for hemostasis/evacuation. *Tool:* artery forceps for clamp-pressure; compressive pads.
- 10. **Mārga-viśodhana (**मार्गविशोधन) Cleansing the tract/path. *Tool:* irrigation cannula (nāḍī), suction.
- 11. Vikarṣaṇa (বিকর্ষण) Traction/drawing out in the line of entry. Tool: toothed forceps; traction sutures.
- 12. Āharaṇa (आहरण) Extraction/removal of shalya. Tool: Saṃdaṃśa forceps (see Su.Su. 7/8).
- 13. Ānchana (প্রাফ্বন) Smearing/lining (protective unction to passage). *Tool:* applicators to smear ghee/medicated oil.
- 14. **Unnamana (**उन्नमन) Elevating/raising a depressed part. *Tool:* levers, elevators.
- 15. Vinamana (विनमन) Depressing/pressing down a raised part. Tool: depressors, spatulas.
- 16. **Bhañjana (**মস্জন) Breaking/cracking a hard mass/calcific concretion when indicated. *Tool:* stone forceps, lithotrites (special contexts).
- 17. **Unmathana (**उन्मथन) Macerating/loosening thick contents. *Tool:* blunt curettes, stirring with probe.
- 18. **Cūṣaṇa (র্**ম্প) Suction/aspiration. *Tool:* suction apparatus, Yankauer/Frazier tips.
- 19. **Eṣaṇa (**ড্মখ্য) Probing/exploring. *Tool:* Śalākā/probe (see class & counts above).
- 20. **Dāraṇa (**वारण) Tearing/splitting (blunt separation) where safe. *Tool:* blunt dissecting with forceps handles.
- 21. **Ŗjūkaraṇa (**ऋजूकरण) Straightening a bent/deformed part or instrument path. *Tool:* splints, aligning forceps.
- 22. **Prakṣālana (**प्रक्षालन) Washing/irrigation. *Tool:* syringes, irrigation sets (nāḍī).

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- 23. **Pradhamana (**মঘদন) Insufflation/blowing (introducing air/medicaments). *Tool:* insufflators/air syringe (context-specific).
- 24. **Pramārjana (**प्रमार्जन) Wiping/mopping to clear field. *Tool:* swabs, mops.

7) Upayāntra (ancillary devices) — concept and exam-grade examples

पञ्चिषंशतिरुपयन्त्राणि – Suśruta recognises a **distinct class** of **25 Upayāntras** (Su.Su. 7). While the text lists and describes them, for applied recall focus on **what they enable**:

- Prakāśa-karaṇa (illumination): OT lights/head-lamps—visibility and depth perception.
- Bandhana-dravyāṇi (bandaging suite): Gauze, pads, crepe bandages—compression and coverage.
- Yantra-pīṭha & trays: Sterile layout and sequencing—efficiency and sterility.
- **Śodhana-pātra:** Cleaning/sterilisation containers—bioburden control.
- **Stambhana-upakaraṇa:** Tourniquet/pressure devices—bloodless field.
- Āvaraṇa (drapes): Field isolation—reduces contamination.
- Dharaka/Saṃsthāpaka: Positioners, sandbags, splints—stability and access

उपयन्त्राण्यपि- रज्जुवेणिकापट्टचर्मान्तवल्कललतावस्त्राष्ठीलाश्ममुद्गरपाणिपादतलाङ्गुलिजिह्वा-दन्तनखमुखबालाश्वकटकशाखाष्ठीवनप्रवाहणहर्षायस्कान्तमयानि क्षाराग्निभेषजानि चेति ॥१५॥ एतानि देहे सर्वस्मिन् देहस्यावयवे तथा। सन्धौ कोष्ठे धमन्यां च यथायोगं प्रयोजयेत् ॥१६॥

8) Sterilisation and care (Śodhana-niyama) — apply classical intent today

Although detailed sterilisation science is modern, Suśruta's instrument doctrine implies: **clean** → **inspect** → **package** → **sterilise** → **store**. Translate for today:

- Decontaminate fast (rinse/enzymatic soak), clean (manual + ultrasonic for lumens), inspect (magnify serrations/hinges), pack (pouches/cassettes), sterilise (steam preferred; low-temp for heat-sensitive), store dry and traceably.
- Link back to **doṣa prevention**: rough surfaces, loose hinges, weak catches are eliminated by **quality control** and **maintenance cycles**.

9) Relevant modern instruments — one-glance mapping

Classical Yantra (use)	Core step you perform	Modern instruments you will actually pick
Saṃdaṃśa (grasp/extract)	Hold foreign body, tag, vessel	Toothed/atraumatic tissue forceps, mosquito/artery forceps
Śalākā (probe/dilate)	Define tract; test patency	Straight probe, lacrimal probe, urethral/anal dilators, speculum
Nāḍī (drain/instill)	Evacuate pus/blood; instill medicaments	Romovac suction cannula, chest/penrose drain, Foley/Ryle's
Tāla (press/expose)	Pressure hemostasis; basic retraction	Towel clips, Langenbeck/Senn retractor (basic), skin hooks
Svastika (splint/immobilise)	First-aid stabilisation; post-op support	Thomas/Kramer splints, braces, traction setups

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Classical Yantra (use)

Core step you perform

Modern instruments you will actually pick

Upa-yantra (assist)

Make the field safe & efficient

Lights, drapes, gauze, kidney tray, tourniquet, instrument trolley

10) Self-check recap

- Definition & purpose: Yantra are means for shalyāharaṇa and allied non-cutting actions (Su. 7/4).
- Six groups; fixed counts (Su. 7/5-6) → always begin classification answers by quoting these two verses.
- Quality → safety: Dimensions/ergonomics from task (e.g., Samdamśa 16 angula; Su. 7/8).
- Doşa (12) (Su. 7/19) → prevent with right size, tip, force, maintenance and sterile processing.
- Upa-yantra are canonically sanctioned supports—never treat them as optional.

11) Assessment

A. MCQs (Single best answer)

1. The **primary** scriptural purpose of Yantra per Suśruta is:

a) Incision b) Excision c) Removal of shalya and allied non-cutting actions d) Suturing

Answer: c (cite Su. 7/4)

2. The **six groups** of Yantra include all **except**:

a) Svastika b) Nāḍī c) **Karapatra** d) Saṃdaṃśa

Answer: c (Karapatra is a Śastra)

3. Standard **length** and **indication** explicitly given for Samdamsa are:

a) 12 angula; cautery b) 16 angula; foreign-body extraction c) 20 angula; bone leverage d) 8 angula;

probing

Answer: b (Su. 7/8)
4. Upa-yantra are:

a) Cutting tools b) Ancillary devices assisting the main procedure c) Only for bandaging d) Only for

cautery

Answer: b (Su. 7/5-6)
5. Vişamagrāhi doşa means:

a) Too thin b) Too long c) **Uneven grasp due to mal-aligned jaws** d) Loose hinge

Answer: c (Su. 7/19)

6. A **Śalākā** is primarily used to:

a) Cut fibrous bands b) **Probe/dilate a tract** c) Cauterise margins d) Saw bone

Answer: b (Su. 7/5-6)

7. **Svastika-yantra** map best to which modern role?

a) Cautery b) **Splint/traction/immobilisation** c) Catheterisation d) Suture holding

Answer: b

8. Mṛdupāśa doṣa will chiefly result in:

a) Over-cutting b) **Lock failing during hold** c) Excessive sharpness d) False passage

Answer: b (Su. 7/19)

9. The verse "... पद्प्रकाराणि..." should be guoted when answering about:

a) Classification of Yantra b) Vaidyavṛtta c) Vraṇa-śodhana only d) Dhūmavarti preparation

Answer: a (Su. 7/5)

10. For abscess drainage, the Yantra sequence most aligned to Suśruta's doctrine is:

a) Incise → suture → bandage

b) Probe (Śalākā) → drain (Nāḍī) → compress/dress (Upa-yantra)

c) Dilate blindly → leave open

d) Only antibiotics

Answer: b

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B. SAQs (3-5 lines each)

- 1. Define **Yantra** with a suitable verse and explain its **scope** in surgery.
- 2. Enumerate the **six groups** of Yantra and their **counts** with references.
- 3. Write four Guṇa of a good Saṃdaṃśa and relate them to patient safety.
- 4. Explain any four Yantra-doșa with clinical examples.
- 5. List three Upayantras and state how each improves the operative field.

C. LAQs / Essays

- 1. **Yantra in Śalyatantra:** Define (with Su. 7/4), classify (Su. 7/5-6), detail Guṇa (use Su. 7/8 as exemplar), elaborate 12 doṣa (Su. 7/19), and conclude with an applied case (foreign-body extraction or abscess drainage).
- 2. Instrument safety doctrine: Discuss how correct dimensions, finish, maintenance and sterile processing prevent Yantra-doşa, integrating examples from Saṃdaṃśa (Su. 7/8) and the doṣa list (Su. 7/19).

12) Scriptural quotations to insert verbatim in your answers

- परिभाषा—उद्देशः:
 - 'तत्र, मनः शरीराबाधकराणि शल्यानि ; तेषामाहरणोपायो यन्त्राणि ॥" सु. सं., सू. 7/4
- वर्गीकरण—षट् प्रकाराः :
 - "तानि षट्प्रकाराणि ; तद्यथा— स्वस्तिकयन्त्राणि, सन्दंशयन्त्राणि, तालयन्त्राणि, नाडीयन्त्राणि, शलाकायन्त्राणि, उपयन्त्राणि चेति ॥" सु. सं., सु. 7/5
- संख्या—उपविभागाः :
 - "तत्र चतुर्विंशतिः स्वस्तिकयन्त्राणि, द्वे सन्दंशयन्त्रे, द्वे एव तालयन्त्रे, विंशतिर्नाङ्यः, अष्टाविंशतिः शलाकाः, पञ्चविंशति रुपयन्त्राणि ॥" सु. सं., सू. 7/6
- निदर्शना—सन्दंश उपयोग/मात्रा:
 - "सनिग्रहोऽनिग्रहश्च सन्दंशौ पोडशाङ्गुलौ भवतः, तौ त्वङ्–मांस–शिरा–स्नायु–गत–शल्योद्धरणार्थम् उपदिश्येते ॥" सू. सं., सू. 7/8
- दोषाः—द्वादशः
 - "तत्र, अतिस्थूलम्, असारम्, अतिदीर्घम्, अतिह्नस्वम्, अग्राहि, विषमग्राहि, वक्रं, शिथिलम्, अत्युन्नतम्, मृदुकीलं, मृदुमुखं, मृदुपाशम्, इति द्वादश यन्त्रदोषाः ॥" — सु. सं., सू. 7/19

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