

Unit 13. Yantra evam Shastra - Instruments a. Types of Yantra (Blunt instruments) and utilization

Topic a. Types of Yantra (Blunt Instruments) and Their Utilization

Classical anchor (Suśruta Saṃhitā)

“यन्त्रशतमेकोत्तरमत्र हस्तमेव प्रधानतमं... तानि षट्प्रकाराणि — स्वस्तिकयन्त्राणि, सन्दंशयन्त्राणि, तालयन्त्राणि, नाडीयन्त्राणि, शलाकायन्त्राणि, उपयन्त्राणि च” (Su. Sū. 7/2-3)

“तत्र चतुर्विंशतिः स्वस्तिकयन्त्राणि... विंशतिर्नाड्यः... अष्टाविंशतिः शलाकाः... पञ्चविंशतिरुपयन्त्राणि” (Su. Sū. 7/4)

Suśruta classifies **Yantra** (blunt, non-cutting appliances) into six archetypes—**Swastika**, **Sandanśa**, **Shalākā**, **Dvi-tāla (Tāla)**, **Nāḍī** and **Upayantra**—forming the classical foundation for many modern obstetric and gynaecologic instruments used today. Below, each category is mapped to contemporary tools and their practical use in **Strīroga-Prasūtitantra** practice.

1) Sandanśa Yantra (Pincer-like / Dissecting Forceps)

Concept & build (Ayurvedic): “Sanigraha & Anigraha” types; ~16 aṅgula length; for grasping/removing foreign bodies from twak-māṃsa-sirā-snāyu (skin, muscle, vessel, ligament) planes (Su. Sū. 7/8).

Modern parallels & use in OBG:

- **Annigraha — Plain (non-toothed) dissecting forceps**

Indications: Atraumatic tissue handling—e.g., perineal skin during episiotomy repair, grasping gauze, holding catheter tips.

Technique: Hold in pencil grip near hinge; **avoid crushing** tissue—use only to guide/sweep.

Precautions: Keep tips aligned; avoid grasping friable cervicovaginal mucosa with forceful pressure.

- **Sannigraha — Toothed forceps (e.g., toothed dissecting forceps)**

Indications: Firm hold on tough structures—perineal fascia, skin edges in repair; picking cervical lips in cervical tears (only if vulsellum/Green-Armytage not available).

Technique: Engage minimal edge; release intermittently to prevent ischemic bite.

Contraindications: Edematous cervix, thin vaginal mucosa—prefer atraumatic clamps (Green-Armytage/Babcock).

Key safety: Always identify plane; use toothed instruments only for **tough tissue**; avoid in friable postpartum cervix.

2) Swastika Yantra (Cruciform-like Forceps)

Concept (Ayurvedic): Two-bladed, hinged with “masūra-like” bolt; 18 aṅgula length; animal-beak-like jaws for firm grasp (Su. Sū. 7/7).

Modern parallels & applications:

- **Allis forceps** (toothed, ring-handled): secure grasp on **fibrous** tissue—e.g., holding vaginal wall during anterior/posterior colporrhaphy; grasping tags in perineorrhaphy.

Tip: Count teeth alignment; avoid on cervix (traumatic).

- **Vulsellum (single-/double-toothed):** firm hold on **cervical lip** during IUCD insertion in difficult cases, D&E, colposcopic biopsy positioning.

Pearl: Single-tooth vulsellum is less traumatic; apply at 12 o'clock unless pathology dictates otherwise.

- **Sponge-holding forceps:** holding swabs; **vaginal preparation**, mopping blood/clots, **blunt curettage** in incomplete abortion.

Technique: Keep jaws closed while inserting; open only when over swab.

- **Cheate's forceps** (sterile dressing forceps): transfer of sterile instruments/gauze from drums; **do not** touch non-sterile surfaces.
- **Kocher's forceps** (Ochsner; tooth with longitudinal serrations): haemostasis for tough pedicles (e.g., uterine artery pedicle in abdominal hysterectomy—though artery forceps or clamps are standard).
- **Babcock's forceps** (atraumatic, fenestrated): gentle hold of **fallopian tubes, ovaries**, bowel—prevents crushing.
- **Needle holder** (e.g., Mayo-Hegar): driving suture needles during episiotomy repair, perineorrhaphy, laparotomy closure.
Grip: Thenar-eminence (palmar) or tripod with 1/3-2/3 rule on needle.
- **Artery forceps** (Mosquito, Kelly, Crile): temporary haemostasis; identify **transfixation** vs **clamp-cut-ligate** strategies.
- **Ovum forceps**: atraumatic removal of retained products/membranes; for **blunt curettage** in incomplete abortion or postpartum clots.
- **Green-Armytage forceps**: flat triangular serrated jaws; designed to **grasp and hemostatically hold** cut edges of the **uterine cervix** during procedures (e.g., D&E, MTP).
- **Cervical punch biopsy forceps**: targeted cervical tissue bite under colposcopic guidance; ensure **hemostasis** (Monsel's/AgNO₃) post-biopsy.

General tips: Always check jaw integrity and ratchet; count instruments pre-/post-procedure; avoid unnecessary crushing.

3) Shalākā Yantra (Rod-like Instruments)

Concept (Ayurvedic): Probes/directors of varied ends—**eṣāṇa (probing), vyūhana (lifting), āharaṇa (extraction)**; special tips for **kṣāra/agnikarma** (Su. Sū. 7/11).

Modern inclusions & use:

- **Uterine sound:** metal (≈25–30 cm), graduated (1 cm marks), with 6–8 cm typical uterine depth (nullipara) and 8–10 cm (multipara).
Uses: Assess uterine length and direction before IUCD, D&C/D&E, hysteroscopy; diagnose perforation risk if abnormal passage.
Technique: **Bimanual exam first** → align with uterine axis → gentle advancement; **never force** past resistance.
- **Hegar's dilators** (double-ended, numbered mm tips): **serial cervical dilatation** before curettage/hysteroscopy; treat cervical stenosis.
Protocol: Analgesia ± paracervical block; stabilize cervix (vulsellum), dilate steadily **in ascending sizes**, stop at planned gauge; monitor vagal response.
- **Uterine curette** (sharp) & **Endometrial biopsy curette** (e.g., Novak/Pipelle): obtain **endometrial tissue**; manage **incomplete abortion** (sharp curette used judiciously).
Pearls: In reproductive-age patients, rule out pregnancy; in postmenopausal bleeding, prefer **Pipelle** or hysteroscopy-directed biopsy.
- **Agnikarma Shalākā** (heated metal cautery): traditional **thermo-cautery**—today analogous to **electrocautery** for pinpoint hemostasis (small bleeders, superficial lesions).
Caution: Avoid intrauterine use; adhere to sterile, controlled settings.
- **Anterior Vaginal Wall Retractor (AWR):** metal retractor to depress anterior wall for exposure of cervix in cystocele or lax vagina; helpful in Pap smear, IUCD insertion.

Complications to prevent: Uterine perforation (sound/dilator), cervical tears (forceful dilation), endometritis (asepsis lapse); **stop at pain/resistance**.

4) Dvi-tāla Yantra (Tāla) — Scoops / Spoon-shaped Instruments

Concept (Ayurvedic): Single or double “tāla” (fish-palate-like) for extracting foreign bodies from external passages (Su. Sū. 7/9).

Modern parallels:

- **Sim’s speculum** (single-bladed, non-self-retaining): posterior vaginal wall retraction for cervical visualization; ideal in **procedural positions** (lithotomy/left lateral).
Technique: Insert with blade closed along posterior wall; **use AWR** to elevate anterior wall.
- **Cusco’s bivalve speculum** (self-retaining): OPD visualization, Pap smear, IUCD insertion; **not ideal** in large cystocele (AWR + Sim’s preferred).
- **Doyen’s retractor** (broad-bladed): abdominal/vaginal surgery—deep retraction of bladder or vaginal walls.
- **Endometrial curette** (fits here as spoon-like sharp curette): for therapeutic evacuation/diagnostic sampling.
- **Obstetric forceps** (spoon-shaped blades): instrument-assisted vaginal delivery (outlet/mid-cavity) under **strict indications** and **skilled hands**; ensure **full cervical dilatation, engaged head, known position, adequate pelvis**, and informed consent.

Precautions: Warm speculum; check screws (Cusco); avoid pressure necrosis with prolonged retraction; obstetric forceps only with full competence and fetal-maternal safety protocols.

5) Nāḍī Yantra (Tubular Instruments)

Concept (Ayurvedic): Tubes open at one or both ends for **suction, instillation, inspection, or tract clearance**—customized to target **srotas** (Su. Sū. 7/10).

Modern equivalents & OBG use:

- **Yoni-vraṇekṣaṇa yantra** (inspection tube): tubular vaginal speculum/proctoscope-type tube for focused inspection of vaginal ulcers/lesions; today, **insulated vaginoscopy/hysteroscopy sheaths** serve similar purpose.
- **Leech-Wilkinson HSG cannula:** screw-tip cannula that seals cervical os to inject **contrast** for **Hysterosalpingography**; ensure **no pregnancy/PID** prior; antibiotic cover per protocol.
- **Rubin’s cannula:** for **tubal insufflation** (CO₂ patency test) where applicable; modern practice favors HSG or laparoscopy chromopertubation.
- **Suction cannula (Karman):** flexible plastic cannula for **vacuum aspiration** in MTP (up to recommended gestational age) and **evacuation** of retained products.
Steps: Bimanual exam → asepsis → paracervical block → dilatation as required → attach to MVA/EVA → **360° sweep** until gritty feel; monitor bleeding.
- **Uttarabasti cannula:** Ayurvedic intrauterine instillation (medicated oils/decoctions) traditionally for gynec disorders; **if practiced**, adhere to strict asepsis, exclude pregnancy, active infection, and structural anomalies.
- **Vaginal douching syringe:** historically for irrigation; **not recommended** routinely (risk of ascending infection, BV alteration). Restrict to **specific indications** under supervision.
- **Basti yantra** (enema set): therapeutic enemas (classical **basti**); in gynaec contexts used cautiously per institutional protocols.

Safety checklist: Confirm **non-pregnant** status (where relevant), screen/ treat **STIs/PID**, maintain **sterility**, control pressure/flow (HSG/insufflation/irrigation), and monitor for **vasovagal** responses.

6) Quick Reference Table – Instruments & Uses

Yantra type	Modern instrument(s)	Primary OBG uses	Key precautions
Sandanśa	Non-toothed & toothed dissecting forceps	Atraumatic handling; grasping skin/fascia; assisting repairs	Avoid crushing mucosa; use toothed only on tough tissue
Swastika	Allis, Vulsellum, Sponge holder, Cheatle's, Kocher, Babcock, Needle holder, Artery forceps, Ovum forceps, Green-Armytage, Cervical punch biopsy	Tissue holding, haemostasis, cervical traction, specimen handling	Choose atraumatic jaws for cervix/tubes; ensure hemostasis after biopsy
Shalākā	Uterine sound, Hegar's dilators, Curettes, Pipelle/Novak, Agnikarma shalākā, AWR	Uterine assessment, cervical dilatation, sampling, cautery, exposure	Never force; stop at resistance; asepsis to prevent endometritis
Dvi-tāla (Tāla)	Sim's, Cusco's specula; Doyen's retractor; Obstetric forceps	Visualisation; retraction; assisted delivery	Warm blades; avoid prolonged pressure; obstetric forceps only with skill
Nāḍī	Yoni inspection tube, Leech-Wilkinson HSG cannula, Rubin's cannula, Karman cannula, Uttarabasti cannula, Douching syringe, Basti set	Contrast studies, tubal tests, suction evacuation, intrauterine instillation	Exclude pregnancy/PID; pressure control; strict asepsis
Yantra type	Shloka	Utilization (plain English)	Modern analogues / examples
Samdamśa Yantra (forceps) — subtypes: Anigraha (plain, no catch) & Sanigraha (with catch)	“सनियहोऽनियहश्च सन्दंशौ षोडशाङ्गुलौ भवतः, तौ त्वङ्-मांस-शिरा-स्नायु-गत-शल्योद्धरणार्थम् उपदिश्यन्ते ॥८॥”	Length ~16 āṅgula; grasp & remove foreign bodies lodged in skin, muscle, vessels, or tendons.	Dissecting forceps (toothed & non-toothed).
Svastika Yantra (cruciform forceps)	“स्वस्तिकयन्त्राणि ... अष्टादशाङ्गुलप्रमाणानि ... अस्थि-विदष्ट-शल्योद्धरणार्थम् उपदिश्यन्ते ॥९॥”	Length ~18 āṅgula; used to extract foreign bodies embedded in bone.	Allies/Allis tissue, Vulsellum, Sponge-holding, Cheatle's, Kocher's, Babcock's, Needle holder, Artery/haemostat, Ovum, Green-Armytage, Cervical punch biopsy forceps (as cruciform/forceps analogues in OBG kits).
Śalākā Yantra (rod-like)	“शलकायन्त्राण्यपि नानाप्रकाराणि, नानाप्रयोजनानि ... एषण-व्यूहन-चालन-हरणार्थम् उपदिश्यन्ते ॥११॥”	Probes/rods for exploring, levering, moving, and extracting; several tip-forms (hooks, hooded, fish-hook, etc.); includes agnikarma-śalākā sets.	Uterine sound, Hegar's dilators, Uterine/Endometrial curette, Endometrial biopsy curette, Agnikarma śalākā, Anterior vaginal wall retractor (rod/retractor/probe family).
Dvi-Tāla Yantra (scoops / “double-tala”)	“तालयन्त्रे द्वादशाङ्गुले ... कर्ण-नासा-नाडी-शल्य-आहरणार्थम् ॥१२॥”	Length ~12 āṅgula; single-tāla & double-tāla forms; used to scoop/extract FBs from ear, nose & external channels.	Sim's speculum, Cusco's speculum, Doyen's retractor, Obstetric forceps, Endometrial curette (grouped in teaching as scoop/double-blade analogues).
Nāḍī Yantra (tubular)	“नाडीयन्त्राण्यनेकप्रकाराण्यनेकप्रयोजनानि ... स्रोतोगत-शल्योद्धरणार्थं, रोग-दर्शनार्थम्, आचूषणार्थं, क्रिया-सौकर्यार्थं च ॥१०॥”	Tubes (single- or double-lumen) sized to the passage; for extracting FBs, visualizing lesions, suction, instillation/irrigation (e.g., basti/uttarabasti).	Yonivraṅkṣaṇa yantra, Leech-Wilkinson HSG cannula, Rubin's cannula, Suction cannula, Uttarabasti cannula, Vaginal douching syringe, Basti yantra; pharyngoscope/proctoscope as related nāḍī-yantra analogues.

The quoted verses are from **Suśruta Saṃhitā, Sūtrasthāna 7 (Yantravidhi)**.

Modern-instrument analogues & mappings are summarized from recent reviews comparing Yantras with contemporary tools (WJPR 2023).



Asepsis, Accountability, and Patient Safety (Must-know)

1. **Sterilization & handling:** Use **Cheattle's** for sterile transfer; verify **indicator tapes**; avoid “flash contamination”.
2. **WHO Surgical Safety Checklist (adapted):** patient ID, consent, allergy, pregnancy status, infection risk, instrument counts **before & after**.
3. **Tissue respect:** Prefer **atraumatic** jaws (Babcock/Green–Armytage) for delicate tissues; minimize crush/ischemia.
4. **Anatomical alignment:** Always re-check uterine axis by bimanual exam before sound/dilator/cannula.
5. **Complication readiness:** Manage **vasovagal syncope, cervical laceration, uterine perforation, hemorrhage, infection** with predefined algorithms.

Classical-Modern Integration

- **Numbers & classes:** 101 Yantras; six groups; counts per group (24 Swastika, 2 Sandanśa, 2 Tāla, 20 Nāḍī, 28 Shalākā, 25 Upayantra).
- **Hands as pradhāna yantra:** every instrument **depends** on the surgeon's hand control.
- **Mapping to OBG:** Swastika ↔ diverse forceps/holders; Sandanśa ↔ dissecting forceps; Shalākā ↔ sound/dilators/curettes/electrocautery tips; Tāla ↔ specula/retractors/forceps blades; Nāḍī ↔ cannulae/tubes/aspirators.

Self-check (2-minute recap)

- Can you **name** the six Yantra groups and **one** OBG instrument under each?
- Before inserting a uterine sound, what **three checks** do you perform?
- Which instrument would you choose to **grasp the cervix atraumatically** during D&E—and why?

Assessment

A. MCQs (Choose one best answer)

1. According to Suśruta, the **pradhāna yantra** is:
A. Swastika B. Sandanśa C. **Hasta (hand)** D. Shalākā
2. **Green-Armytage** forceps are primarily used for:
A. Tubal grasp B. **Hemostatic grasp of cervical edges** C. Vaginal packing D. Suturing
3. **Hegar's dilators** are indicated for:
A. Colposcopy B. **Serial cervical dilatation** C. Tubal insufflation D. Ovum retrieval
4. **Leech-Wilkinson cannula** is used in:
A. Hysteroscopy B. **Hysterosalpingography** C. Chromopertubation D. IUCD insertion
5. **Babcock's** forceps are preferred for:
A. Skin edges B. **Fallopian tube** C. Cervical lip D. Artery pedicle
6. **Sim's** speculum is:
A. Self-retaining B. **Single-bladed, non-self-retaining** C. Double-valved D. For rectum only
7. **Ovum forceps** are **not** suitable for:
A. Removing placental bits B. Blunt curettage C. **Sharp endometrial sampling** D. Clot evacuation
8. **Cervical punch biopsy** requires immediate:
A. Suture closure B. **Chemical cautery (e.g., Monsel's)** C. Ligation D. No hemostasis
9. Before **uterine sounding**, which is **least** important?
A. Bimanual assessment B. Asepsis C. **Specimen labeling** D. Gentle technique



10. **Uttarabasti** is contraindicated in:

- A. Dysmenorrhea B. **Pregnancy** C. Chronic cervicitis (treated) D. Infertility workup

Answer Key: 1-C, 2-B, 3-B, 4-B, 5-B, 6-B, 7-C, 8-B, 9-C, 10-B.

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

- Enumerate Suśruta's **six Yantra** classes with one modern OBG example each.
- List **three critical steps** to prevent uterine perforation during dilatation & curettage.
- Differentiate **Allis vs Babcock** forceps—design and tissue application.
- Outline the **indications and contraindications** for **HSG cannulation**.
- Describe the **technique** of using **Sim's speculum** with AWR for optimal cervical exposure.

C. Long Answer Questions

- "Swastika Yantra in modern gynaecology."** Discuss design principles, instrument variants (Allis, Vulsellum, Green-Armytage, sponge holder, Kocher, Babcock, artery forceps, needle holder), **indications**, stepwise **techniques**, and **complication prevention** with case vignettes.
- "Nāḍī Yantra applications."** Compare HSG cannula, Rubin's cannula, suction (Karman) cannula, Uttarabasti cannula, and douching syringe with respect to **purpose, setup, procedure steps, contraindications, and complications**.

D. OSCE-style Stations (Structured responses)

- Station 1:** Identify instrument (picture of **Green-Armytage**) and state two uses + one precaution.
Expected points: Cervical edge hemostasis; hold cervix during evacuation; **avoid over-crushing**.
- Station 2:** Demonstrate **uterine sounding** on model.
Checklist: Bimanual assessment → asepsis → align to axis → gentle insertion → note length/direction → withdraw.
- Station 3:** Set up for **HSG** with Leech-Wilkinson cannula.
Checklist: Exclude pregnancy/PID → consent → NSAID ± antibiotic policy → sterile setup → cannula fixation → slow contrast injection under imaging → observe for pain/vagal response.
- Station 4:** Choose appropriate forceps for **grasping fallopian tube** during lap-assisted procedure.
Expected: **Babcock** (atraumatic), rationale.

Viva Prompts (Rapid fire)

- Why is **hand** called "pradhāna yantra"?
- When would you prefer **vulsellum** over **Green-Armytage**?
- One scenario where **Cusco** is inferior to **Sim's + AWR**.
- Immediate steps after **excessive resistance** during dilatation.

Further Classical Note

- Counts & clustering** and **qualities/defects** (12 yantra-doṣa) are described in **Suśruta Saṃhitā Sutrasthāna, Adhyāya 7 (Yantra-vidhi)**.