

13b. Type of Shastra (Sharp instruments) and utilization

Unit 13(b). Shastra (Sharp Instruments) in Stree-Roga & Prasuti-Tantra: Types and Utilization

Learning goals

By the end, you should be able to:

- recall the classical (Ayurvedic) list of *śastra* (sharp instruments) and the eight *śastrakarmāṇi* (operative actions);
- identify and safely use the key sharp instruments in Obstetrics & Gynaecology (O&G): **scissors (Kartari Śastra), scalpel (Vṛddhipatra Śastra), and needles (Sūcī Śastra)**;
- choose the right instrument for common procedures (episiotomy, skin/subcuticular incisions, suturing in obstetrics & gynaecology); and
- prevent/handle instrument-related complications.

1) Classical framework: What is Śastra?

In Śalyatantra, *yantra* are mainly gripping/manipulative tools, while *śastra* are **sharp, cutting or piercing** instruments used to perform *Chedana* (excision), *Bhedana* (incision), *Lekhane* (scarification), *Vyadhana* (puncture/aspiration), *Eṣanā* (probing), *Āharaṇa* (extraction), *Sravana* (drainage) and *Sīvana* (suturing)—collectively called **Aṣṭavidha Śastra-karma**. Sushruta devotes a full chapter (Śastrāvacāraṇīya adhyāya) to sharp instruments and how to hold and apply them.

The 20 classical śastra (with modern parallels)

Sanskrit name (shape hint)	Core classical use	Common modern analogue in O&G
Maṇḍalāgra (round tip)	Incision/scraping	Cord scissors/round-point blade for soft tissue cuts
Karapatra (saw-like)	Bone/cartilage cuts	Bone nibbler/saw (rare in O&G)
Vṛddhipatra (razor)	Excision, precise cuts	Scalpel (No. 10/11/15 blades)
Nakhaśastra (nail knife)	Fine excision	Littauer stitch scissors / delicate blade
Mudrikā (ring knife)	Tight spaces	Ring-handled knife for oropharynx; conceptually like guarded blades
Utpalapatra (lotus-leaf)	Broad incision	Broad scalpel blade
Arddhadhāra (lancet)	Venesection, small puncture	Lancet / No. 11 blade
Sūcī (needle)	Puncture, suturing	Surgical needles (round, cutting, etc.)
Kuśapatra (grass-blade)	Superficial scarification	Dermal curette/very fine blade
Ātimukha/Ātemukha (beak-like)	Drainage, nick incisions	Beak-like knife; episiotomy scissors in function
Śarārimukha (bird-beak twin blades)	Cutting by shearing	Scissors (Mayo/Metzenbaum)
Antarmukha (toothed/serrated)	Sawing inwards	Toothed scissors/saw
Trikūrcaka (three-edged)	Trocår-like puncture	Trocår/introducer (historical)
Kuṭhārikā (small axe)	Punch	Awl/punch
Vṛihimukha (rice-grain point)	Fine puncture	Fine awl/No. 11 tip
Ārā (awl)	Piercing	Trocår/awl
Vetasapatraka (willow-leaf)	Incision	Leaf-shaped scalpel
Vaḍīśa (hook)	Extraction	Hook/ovum forceps hook end
Dantaśaṅku (tooth extractor)	Extraction	Dental/foreign-body forceps (concept)
Eṣanī (probe)	Probing	Probe/director

Text anchor: Sushruta enumerates these **twenty** sharp instruments and assigns them to actions—e.g., *Vṛddhipatra*, *Nakhaśastra*, *Mudrikā*, *Utpalapatra* and *Arddhadhāra* for *Chedana/Bhedana*; *Sūcī* for puncture/suturing; *Vaḍīśa* and *Dantaśaṅku* for extraction; *Eṣanī* for probing.

शस्त्र (type)	श्लोक	Meaning / utilization
कर्तरी (Scissors)—esp. शरारिमुखी; also used under names like अतिमुख / मण्डलाग्र	कर्तरीति कथ्यते “...दशाङ्गुला शरारिमुखी सा च कर्तरीति कथ्यते । शेषाणि तु षडङ्गुलानि ॥७ ॥”	“The arrow-headed (śārārimukhī) one of 10 aṅgulas is called <i>kartarī</i> (scissors); the remaining [sharp instruments] are generally 6 aṅgulas.” Used wherever a scissor-type edge is needed; <i>kartarī</i> is the canonical scissor in Suśruta’s list.
वृद्धिपत्र (leaf-shaped knife ≈ scalpel)	“...तत्र वृद्धिपत्रं वृन्तफलसाधारणे भागे गृह्णीयात् । वृद्धिपत्रं मण्डलाग्रं च किञ्चिदुत्तानेन पाणिना बहुशोऽवचार्यं... शेषाणि तु यथायोगं गृह्णीयात् ॥५ ॥”	“Hold <i>vrddhipatra</i> at the ‘stem-fruit’ junction; use <i>vrddhipatra</i> and <i>mandalāgra</i> repeatedly for <i>lekhana</i> (scraping/superficial shaving). Others are grasped and used as appropriate.” Practical gist: <i>vrddhipatra</i> is your go-to scalpel/leaf-blade for precise incisions and scraping.
मण्डलाग्र (rounded-point knife; rounded-tip scissor/knife work, e.g., safe superficial work)	“...वृद्धिपत्रं मण्डलाग्रं च किञ्चिदुत्तानेन पाणिना बहुशोऽवचार्यं...”	“Use <i>mandalāgra</i> along with <i>vrddhipatra</i> for repeated <i>lekhana</i> (scraping).” In modern terms this maps to rounded-tip cutting/scraping where a blunt/rounded point reduces risk (e.g., cord/clamp-adjacent cuts, skin scarification).
सूची (needles) — for वृत्तसूची/वृत्तपत्र tasks	“तत्र धारा भेदनानां मासरी, लेखनानामधमासरौ, वृत्तपत्रानामधमासरौ च कैश्चिको, बहुशोऽवचार्यं... तेषां पायना त्रिविधा क्षारोदकतैलेषु... स्नायुच्छूदनेषु ॥१० ॥” ... “तेषां स्नायुच्छूदनेषु ॥१२ ॥”	Verse 10 assigns edge/keel profiles by action; verse 12 prescribes oil-tempered tools specifically for <i>sirā-vyadhana</i> (bloodletting) and tendon cutting. Together they ground the use of <i>sūcī</i> for pricking/bleeding and suturing tasks; in practice <i>sūcī</i> are selected/tempered according to the job (prick/bleed vs. cut/suture).

Notes & mapping to your list

Kartari Śastra: Suśruta explicitly equates **śārārimukhī** with **kartarī** (scissors); this is the classical anchor for scissor-type use. Your specific OBG use-cases like episiotomy scissors or cord-cutting scissors are modern clinical mappings onto this category.

Vrddhipatra Śastra (Scalpel) and Mandalāgra: verse 8.5 is the primary procedural line pairing them with **lekhana** (scraping/shaving) and showing how to hold them.

Sūcī Śastra (needles): while the chapter flags that “needles will be described” and then lays out edge/tempering rules and *sirā-vyadhana* indications, practical varieties (straight/triangular/curved) are expounded in later passages/tradition; for operative planning, verses 8.10 & 8.12 are the canonical anchors linking *sūcī* to **vyadhana/visrāvāṇa** and to **oil-tempering** for vein-work.

Sūcī (needles) — classical forms & indications

Sūcī form	Shape & profile	Classical indication (Suśruta)	Verse anchor / source
Vṛtta Sūcī (वृत्तसूची)	Round-bodied, non-cutting	Joints / regions with less musculature ; gentle suturing & puncture where cutting edges would tear	Described among three <i>sūcī</i> types (round, cutting, curved) in reviews of Suśruta; <i>sūcī</i> used for puncturing & suturing in Ch. 8.
Tryāstra / Tri-edged Sūcī (त्र्यास्र / त्रिकोणाग्र)	Cutting needle (triangular cross-section/tip)	Fleshy areas —facilitates passage through thicker tissue	Scholarly summaries of Suśruta’s suture toolkit list cutting (tryāstra) for fleshy regions; see also Ch. 8 functions by action (incise, exude, puncture).
Dhanur-vakra Sūcī (धनुर्वक्र)	Curved “bow-shaped”	Marma regions, phala-kośa (scrotum), udara (abdomen) ; curved path suturing	Multiple clinical reviews quote Suśruta’s dhanur-vakra use; modern summaries echo these sites.

Note: In **Śastrāvacāraṇīya** (Sūtrasthāna 8), Suśruta explicitly includes **Sūcī** among the **20 śastras** and states it is used for **puncturing (vyadhana)** and **suturing**, with instruments tempered appropriately (alkali/water/oil—oil for *sirā-vyadhana*).

Shloka focus (Aṣṭavidha Śastra-karma)

“वैध्या: सिरा बहुविधा मूत्रवृद्धिर्दकोदरम् ॥” — Sū. Sū. 25/10 (Indications for **Vyadhana**—puncture/aspiration).

“आहार्या: शर्करास्तिस्रो... शल्यानि मूदगर्भाश्च...” — *Sū. Sū. 25/11* (Indications for **Āharaṇa**—extraction).

2) Kartari Śastra — Scissors: Types & use in O&G

Design basics: two opposed sharp blades pivoting at a screw-joint; straight or curved; blunt-blunt or sharp-blunt tips; **Mayo** (heavier) vs **Metzenbaum** (delicate).

Classical anchors: *Śarārīmukha* maps to scissors (shearing cut); *Ātimukha* (beak-like) reflects working in confined tissue planes.

(i) Ātimukha Śastra → Episiotomy scissors

- **Use:** mediolateral episiotomy in second stage of labour when indicated (imminent severe perineal tear, fetal distress with rigid perineum, instrumental delivery).
- **Choice:** curved, blunt-tipped scissors (to protect fetal scalp & maternal tissue).
- **Grip:** thumb in one ring, ring finger in the other; index finger stabilizes on the screw, middle finger supports—**supinated hand**, blades parallel to fetal head.
- **Technique (medial-to-lateral):**
 1. Insert two fingers between fetal head and perineum to guard the posterior vaginal wall.
 2. Place scissors at fourchette; **aim 60° from midline** towards ischial tuberosity.
 3. Cut in one controlled sweep during a contraction when the perineum is stretched.
 4. After delivery, inspect and **repair in layers** with appropriate sutures (see *Sūcī* section).
- **Complications:** extension into anal sphincter, postpartum hemorrhage (PPH), hematoma, infection, dyspareunia.

(ii) Maṇḍalāgra Śastra → Cord-cutting scissors

- **Use:** clean transection of umbilical cord after clamping; avoid crushing trauma.
- **Pearls:** ensure **double clamping**, milk blood away from cut segment, cut **between clamps**; for delayed cord clamping, wait 30-60 s (institutional protocol).

(iii) Śarārīmukha Śastra → Mayo/Metzenbaum & suture-removal scissors

- **Use:** Mayo (fascia/tough tissue), Metzenbaum (delicate soft tissue); Littauer (suture removal).
- **Tissue respect:** **Lift-cut** technique; cut **parallel** to vital structures; keep tips visible; never “push-cut” blindly.

Care & safety for all scissors

- Check **alignment, sharpness, blade apposition**, smooth opening/closing.
- Sterilization: decontaminate → ultrasonic clean → **autoclave** (134 °C, 3-4 min or 121 °C, 15-30 min as per policy).
- Storage: protect tips; avoid mixed-metal galvanic corrosion.

3) Vṛddhipatra Śastra — Scalpel

Essence: the workhorse for clean, precise skin/mucosal incisions.

Modern components

- **Handles:** No. 3 (fits blades 10, 11, 12, 15); No. 4 (20-24 series); No. 7 (long, pen-like).
- **Blades:** #10 (curved belly—skin incision), #11 (sharp tip—stab/puncture), #15 (short—fine work).

Grip & motion

- **Pen grip** for precision; **fingertip grip** for longer incisions; **palm grip** for power (rare in O&G).

- **Angle:** ~30–45° for skin; maintain uniform depth; use **counter-tension** with non-dominant hand.

Key O&G applications

- **Pfannenstiel skin incision** (LSCS): mark 2–3 cm above symphysis; incise skin along Langer's lines; continue with sharp-blunt dissection; respect inferior epigastric vessels.
- **Perineal skin incisions** (for repair/revision): use #15 for precision.
- **Bartholin's cyst marsupialization**: small #11 stab → extend with #15; keep hemostasis.

Common errors

Over-penetration (injury to vessels/viscera), ragged edges (poor blade), thermal necrosis (if using diathermy indiscriminately). Keep blades sharp; change if drag is felt.

4) Sūcī Śastra — Surgical needles and suturing in O&G

Sushruta describes needle forms and when to use them—round (for joints/soft thin tissue), tri-hedral cutting (for dense tissue), and **bow-shaped** needles for scrotum/abdomen/marma regions—principles that match modern practice.

“सीव्येद् गोफणिकां वा... ऋजुगन्थिमथो वा...” — *Sū. Sū. 25/22* (recommended suturing patterns).

“नातिदूरे निकृष्टे वा... सन्निकृष्टे इवलुञ्चनम् ॥” — *Sū. Sū. 25/26* (don't place bites too far or too close).

Needle taxonomy (modern)

Feature	Options	Use in O&G
Cross-section	Round-bodied (taper)	Bowel, uterus, peritoneum, vaginal mucosa
	Conventional cutting (flat inside)	Skin (if used), tough tissue
	Reverse cutting (flat outside)	Skin closure ; stronger edge, less cut-out
	Taper-cut / Blunt	Friable tissues (liver, placenta bed—rare), cervical tears
Curvature	Straight, 1/4, 3/8 , 1/2 , 5/8 circle	3/8–1/2 most common in pelvic work
Length/Gauge	24–40 mm typical	Match to tissue depth; deep pelvis often 1/2-circle, 30–36 mm

Holding: needle holder grasps needle at **1/3 from the swage**, at a right angle; wrist-driven **arcuate** motion; **evert skin, approximate—not strangulate**—tissues.

Suture choices (typical O&G)

- **Episiotomy repair:** 2-0 or 3-0 **polyglactin 910** (Vicryl) on 3/8- or 1/2-circle round needle; continuous locking for vaginal mucosa, interrupted/figure-of-eight for muscle, subcuticular for skin.
- **Pfannenstiel skin:** 3-0 monofilament (nylon/polypropylene) interrupted, or subcuticular 3-0 monofilament absorbable.
- **Uterine closure (LSCS):** 1 or 0 polyglactin 910, round-bodied needle; single or double layer per unit protocol.

Avoid: bites too close (tears through), too far (dead space), shallow bites (dehiscence), overtightening (ischemia)—exactly what Sushruta warned.

5) Picking the right tool: quick decision guide

Task	Best śastra today	Why
Episiotomy	Episiotomy scissors (Ātimukha/Kartari)	Blunt tips protect baby & posterior wall; single-sweep cut

Task	Best <i>śastra</i> today	Why
Skin incision (Pfannenstiel)	Scalpel #10 on handle #3 (Vṛddhipatra)	Clean skin cut, minimal crush
Stab & drain	Scalpel #11 (Arddhadhāra concept)	Precise entry with triangular tip
Open cervical tear repair	Taper or taper-cut needle, 2-0 absorbable (Sūci)	Minimizes cut-out in friable tissue
Subcuticular closure	3-0 monofilament absorbable on 3/8 circle needle	Good cosmesis; fewer stitch-marks
Suture removal	Littauer scissors (Śarārīmukha)	Hooked tip safely slides under stitch

6) Instrument handling, sterilization, and team safety

- **Pre-use check (FIT-S):** Function (opens/closes, locks), Integrity (jaws, tips, screw), Tightness (no wobble), Sharpness (paper test for scissors; visual for blades).
- **Counts:** maintain swab-instrument-needle counts (WHO Safe Surgery).
- **Sterilization:** point-of-use pre-clean → enzymatic wash → rinse/dry → autoclave; use tip guards for needles/scissors; avoid stacking sharp edges.
- **Ergonomics:** neutral wrist, adequate light/suction, correct patient positioning.
- **Complication doctrine:**
Wrong tool → wrong plane → bleeding/nerve injury. If bleeding occurs: pressure, identify source, clamp/ligate/cauterize; **never blind-clamp.**

Surgical errors

“हीनातिरिक्तं तिर्यक् च गात्रन्देशदनमात्मनः। एताश्चतस्त्रोऽस्त्रविधे कर्मणि व्यापदः सृताः॥” — *Sū. Sū. 25/30* (four classes of errors: inadequate, excessive, oblique, and self-injury).

7) Viva & exam pearls

- **Aṣṭavidha Śastrakarma:** *Chedana, Bhedana, Lekhana, Vyadhana, Eṣaṇā, Āharaṇa, Sravana, Sīvana*—know at least one O&G example for each.
- **Needles:** round for soft tissues, reverse-cutting for skin, taper-cut for dense but delicate; match curvature to depth.
- **Episiotomy angle:** ~60° from midline at crowning to protect anal sphincter.
- **Sharps safety:** hand-to-hand “neutral zone”, no blind passes, dispose in sharps container.

Self-check (quick practice)

1. List three situations where mediolateral episiotomy is indicated.
2. Which blade would you use for a stab incision to drain a vulvar abscess? Why?
3. For subcuticular Pfannenstiel closure, which needle type and suture would you choose?

(Try answering before looking back!)

Assessment

A. MCQs (single best answer)

1. The classical *śastra* most closely corresponding to modern scissors is:

- a) Vṛddhipatra b) Śarārimukha c) Eṣanī d) Vaḍīśa
2. In mediolateral episiotomy, the cut should be directed:
a) 15° lateral b) 30° lateral c) **60° lateral** d) midline
3. For precise skin incision in Pfannenstiel, the ideal blade is:
a) #20 b) **#10** c) #12 d) #22
4. For stab and drain of loculated pus, the blade preferred is:
a) #10 b) **#11** c) #15 d) #24
5. For suturing cervical tears, the needle of choice is:
a) Reverse-cutting b) **Round-bodied (taper)** c) Triangular cutting d) Blunt only
6. Sushruta places **Eṣanī** primarily in:
a) Excision b) **Probing** c) Suturing d) Extraction
7. Over-tight sutures typically cause:
a) Dehiscence b) **Ischemia/necrosis** c) Hematoma only d) No effect
8. A toothed/serrated in-curving instrument named *Antarmukha* was used classically for:
a) Venesection b) **Sawing/cutting** c) Probing d) Extraction
9. The **reverse-cutting** needle is best suited for:
a) Uterine myometrium b) **Skin** c) Bowel serosa d) Peritoneum
10. According to Sushruta, suturing bites should be placed neither too far nor too near, because:
a) It wastes suture b) **Far → dead space; near → edge tearing** c) Looks poor cosmetically d) Slows procedure

Answer key: 1-b, 2-c, 3-b, 4-b, 5-b, 6-b, 7-b, 8-b, 9-b, 10-b.

B. Short-answer questions (40-60 words each)

1. Enumerate the **Aṣṭavidha Śastra-karma** with one O&G example each.
2. Describe the **grip and steps** for mediolateral episiotomy.
3. Compare Mayo vs Metzenbaum scissors and give two uses for each.
4. Classify surgical needles by **cross-section and curvature** with examples in O&G.
5. Outline sterilization and storage precautions for **sharp instruments**.

C. OSCE-style stations

Station 1 (Instrument ID & handling): You are given three instruments—Mayo scissors, No. 3 handle with #10 blade, 3/8-circle round-bodied 30 mm needle.

- Identify each; demonstrate correct grip; indicate one O&G use and one risk; state one sterilization and one storage precaution.

Station 2 (Decision-making): A primigravida requires an instrumental delivery for fetal distress with rigid perineum.

- Decide if episiotomy is indicated; choose the instrument; mark and perform (on model) the cut angle; list two key steps of layered repair and the recommended suture/needle.

References (primary text anchors)

- **Sushruta Saṃhitā, Sūtrasthāna Ch. VIII – “Surgical instruments (Śastrāvacāraṇīya)”** — enumeration & handling of 20 Śastra.
- **Sūtrasthāna Ch. XXV – “Aṣṭavidha Śastra-karma”** — indications for Vyadhana/Āharaṇa; needle forms & suturing guidance; error taxonomy.
- Devanāgarī excerpts and verse numbers for Sū. Sū. 25 used above.

Take-home: Match the instrument to the tissue and the task. Think *clean cut, correct plane, controlled*



force. Sushruta's principles—tool choice, grip, and measured execution—remain exactly what keeps mothers and babies safe today.

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