

## 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), *Eṣaṇā* (probing), *Āharaṇa* (extraction), *Sravana* (drainage) and *Sīvana* (suturing)—collectively called **Aṣṭavidha Śastra-karma**. Sushruta devotes a full chapter (*Śastrāvacaṇāyīya 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
<b>Maṅḍalāgra</b> (round tip)	Incision/scraping	Cord scissors/round-point blade for soft tissue cuts
<b>Karapatra</b> (saw-like)	Bone/cartilage cuts	Bone nibbler/saw (rare in O&G)
<b>Vṛddhipatra</b> (razor)	Excision, precise cuts	<b>Scalpel</b> (No. 10/11/15 blades)
<b>Nakhāśastra</b> (nail knife)	Fine excision	Littauer stitch scissors / delicate blade
<b>Mudrikā</b> (ring knife)	Tight spaces	Ring-handled knife for oropharynx; conceptually like guarded blades
<b>Utpalapatra</b> (lotus-leaf)	Broad incision	Broad scalpel blade
<b>Arddhadhāra</b> (lancet)	Venesection, small puncture	Lancet / No. 11 blade
<b>Sūcī</b> (needle)	Puncture, suturing	<b>Surgical needles</b> (round, cutting, etc.)
<b>Kuśapatra</b> (grass-blade)	Superficial scarification	Dermal curette/very fine blade
<b>Ātimukha/Ātemukha</b> (beak-like)	Drainage, nick incisions	Beak-like knife; <b>episiotomy scissors</b> in function
<b>Sarārimukha</b> (bird-beak twin blades)	Cutting by shearing	<b>Scissors</b> (Mayo/Metzenbaum)
<b>Antarmukha</b> (toothed/serrated)	Sawing inwards	Toothed scissors/saw
<b>Trikūrcaka</b> (three-edged)	Trocar-like puncture	Trocar/introducer (historical)
<b>Kuṭhārikā</b> (small axe)	Punch	Awl/punch
<b>Vṛihimukha</b> (rice-grain point)	Fine puncture	Fine awl/No. 11 tip
<b>Ārā</b> (awl)	Piercing	Trocar/awl
<b>Vetasapatraka</b> (willow-leaf)	Incision	Leaf-shaped scalpel
<b>Vaḍīśa</b> (hook)	Extraction	Hook/ovum forceps hook end
<b>Dantaśaṅku</b> (tooth extractor)	Extraction	Dental/foreign-body forceps (concept)
<b>Eṣaṇī</b> (probe)	Probing	Probe/director

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

शस्त्र (type)	श्लोक	Meaning / utilization
कर्तरी (Scissors)—esp. शरारिमुखी; also used under names like अतिमुख / मण्डलाग्र in practice	“...दशाङ्गुला शरारिमुखी सा च कर्तरीति कथ्यते । शेषाणि तु षडङ्गुलानि ॥७॥”	“The arrow-headed (śārārimukhī) one of 10 āṅgulas is called <i>kartarī</i> (scissors); the remaining [sharp instruments] are generally 6 āṅgulas.” 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 बहुशोऽवचार्य... शेषाणि तु यथायोगं गृह्णीयात् ॥५॥”	“Hold <i>vṛddhipatra</i> at the ‘stem-fruit’ junction; use <i>vṛddhipatra</i> and <i>maṇḍalāgra</i> repeatedly for <i>lekhana</i> (scraping/superficial shaving). Others are grasped and used as appropriate.” Practical gist: <i>vṛddhipatra</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 बहुशोऽवचार्य...”	“Use <i>maṇḍalāgra</i> along with <i>vṛddhipatra</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 various tasks	“तत्र धारा भेदनानां मासूरी, लेखनानामर्धमासूरी, कैशिकी, त्रिकोणाग्रं च ॥१०॥” ... “तेषां पायना त्रिविधा क्षारोदकतैलेषु... स्नायुच्छेदनेषु ॥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.

**Vṛddhipatra Śastra (Scalpel) and Maṇḍalāgra:** 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/visrāvaṇa** and to **oil-tempering** for vein-work.

### Sūcī (needles) — classical forms & indications

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

Note: In **Śastrāvacaṇīya** (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)

“वेध्याः सिरा बहुविधा मूत्रवृद्धिर्दिकोदरम् ॥” — *Sū. Sū. 25/10* (Indications for **Vyadhana**—puncture/aspiration).



“आहार्याः शर्करास्तिम्बो... शल्यानि मूढगर्भाश्च...” — *Sū. Sū. 25/11* (Indications for **Āharaṇa**—extraction).

## 2) Kartari Śāstra — 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 Śāstra → 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 Śāstra → 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 Śāstra → 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 Śāstra — 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 Śāstra — 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... ऋजुग्रन्थिमथो वा...” — *Sū. Sū. 25/22* (recommended suturing patterns).

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

#### Needle taxonomy (modern)

Feature	Options	Use in O&G
<b>Cross-section</b>	<b>Round-bodied (taper)</b>	Bowel, uterus, peritoneum, vaginal mucosa
	<b>Conventional cutting</b> (flat inside)	Skin (if used), tough tissue
	<b>Reverse cutting</b> (flat outside)	<b>Skin closure;</b> stronger edge, less cut-out
	<b>Taper-cut / Blunt</b>	Friable tissues (liver, placenta bed—rare), cervical tears
<b>Curvature</b>	Straight, 1/4, <b>3/8</b> , <b>1/2</b> , 5/8 circle	3/8–1/2 most common in pelvic work
<b>Length/Gauge</b>	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 śāstra today	Why
<b>Episiotomy</b>	Episiotomy scissors (Ātimukha/Kartari)	Blunt tips protect baby & posterior wall; single-sweep cut



Task	Best śāstra today	Why
<b>Skin incision (Pfannenstiel)</b>	Scalpel #10 on handle #3 (Vṛddhipatra)	Clean skin cut, minimal crush
<b>Stab &amp; drain</b>	Scalpel #11 (Arddhadhāra concept)	Precise entry with triangular tip
<b>Open cervical tear repair</b>	Taper or taper-cut needle, 2-0 absorbable (Sūcī)	Minimizes cut-out in friable tissue
<b>Subcuticular closure</b>	3-0 monofilament absorbable on 3/8 circle needle	Good cosmesis; fewer stitch-marks
<b>Suture removal</b>	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 गात्रच्छेदनमात्मनः। एताश्चतस्रोऽष्टविधे कर्मणि व्यापदः स्मृताः॥” — Sū. Sū. 25/30 (four classes of errors: inadequate, excessive, oblique, and self-injury).

## 7) Viva & exam pearls

- **Aṣṭavidha śāstrakarma:** *Chedana, Bhedana, Lekhana, Vyadhana, Eṣāṇā, 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 śāstra most closely corresponding to modern scissors is:

- a) Vrddhipatra b) Śarārimukha c) Eṣaṇī 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 **Eṣaṇī** 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 (Śastrāvacaṇīya)”** — 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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