

MANAGEMENT OF URETERAL INJURIES IN GYNAECOLOGICAL SURGERIES

Chanamolu Dimple Kumar
PG II nd year
Department of Urology

INCIDENCE

- 0.5% —1.5%
- Hysterectomy (54%), Colorectal surgery (14%), pelvic procedures such as ovarian tumor removal (8%), Transabdominal urethropexy (8%), and Abdominal vascular surgery (6%).

- 0.5% (experienced surgeons) & 14% (inexperienced surgeons) after laparoscopic hysterectomy.
- Electro surgical or laser-assisted lysis of endometriosis
 - (1) Endometrioma can involve the ureter either extrinsically or intrinsically;
 - (2) Intraperitoneal adhesion, making ureteral visualization difficult
 - (3) Disease can deviate the ureters medially

**SUBTLE
SUSPICION**

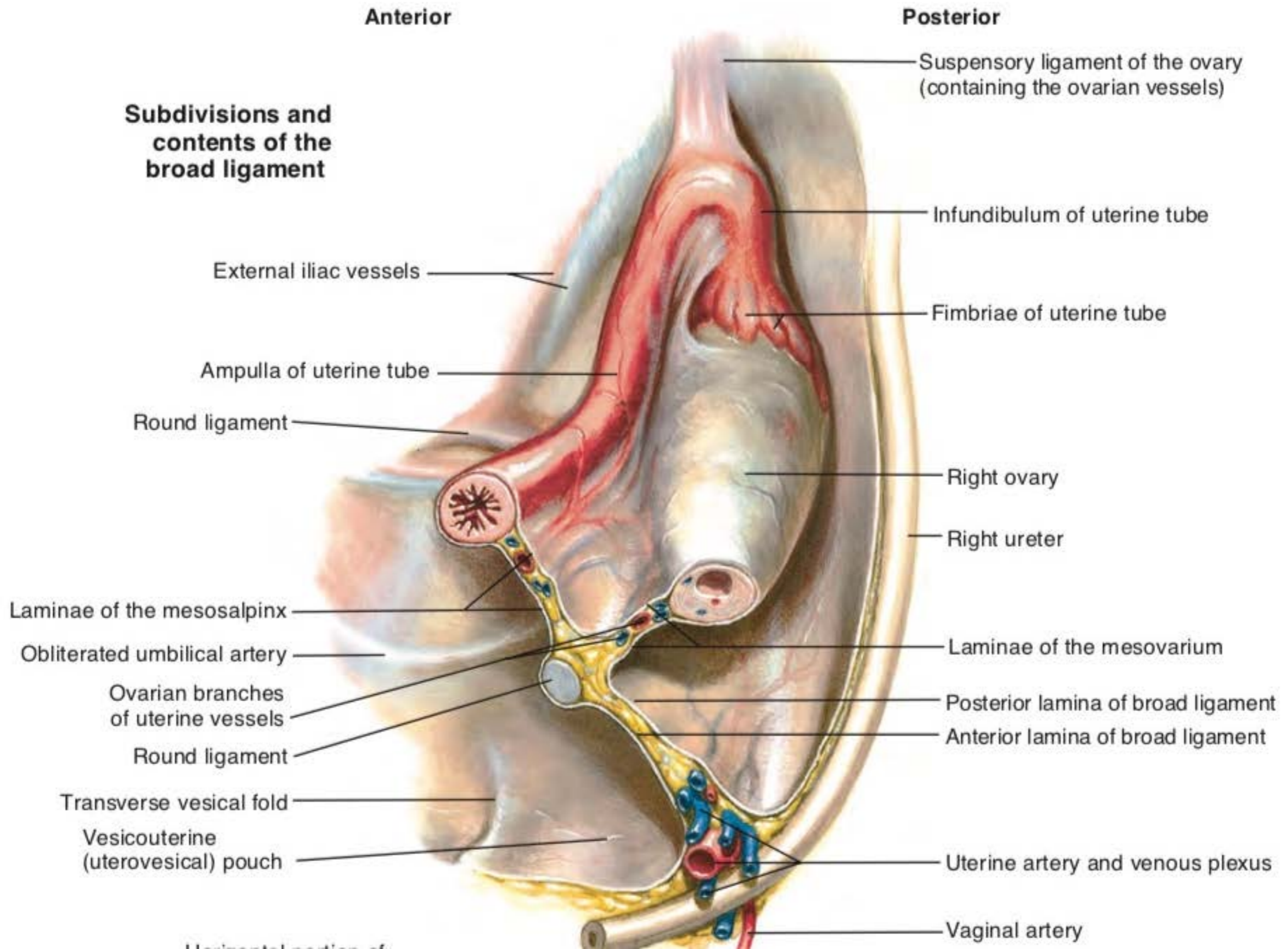
MECHANISM

- Intraoperative suture ligation,
- Sharp incision and transection,
- Avulsion,
- Devascularization, and
- Heat (e.g., microwave, electrocautery, or vibratory energy) or freezing (cryoablation) energies can produce ureteral damage.

ANATOMY

- Retroperitoneal , easily displaced when peritoneum is lifted up,
- Relation in ovarian fossa
- Relation with uterine artery
- Vascular supply

Subdivisions and contents of the broad ligament



Anterior

Posterior

Suspensory ligament of the ovary (containing the ovarian vessels)

Infundibulum of uterine tube

Fimbriae of uterine tube

External iliac vessels

Ampulla of uterine tube

Round ligament

Right ovary

Right ureter

Laminae of the mesosalpinx

Laminae of the mesovarium

Posterior lamina of broad ligament

Anterior lamina of broad ligament

Obliterated umbilical artery

Ovarian branches of uterine vessels

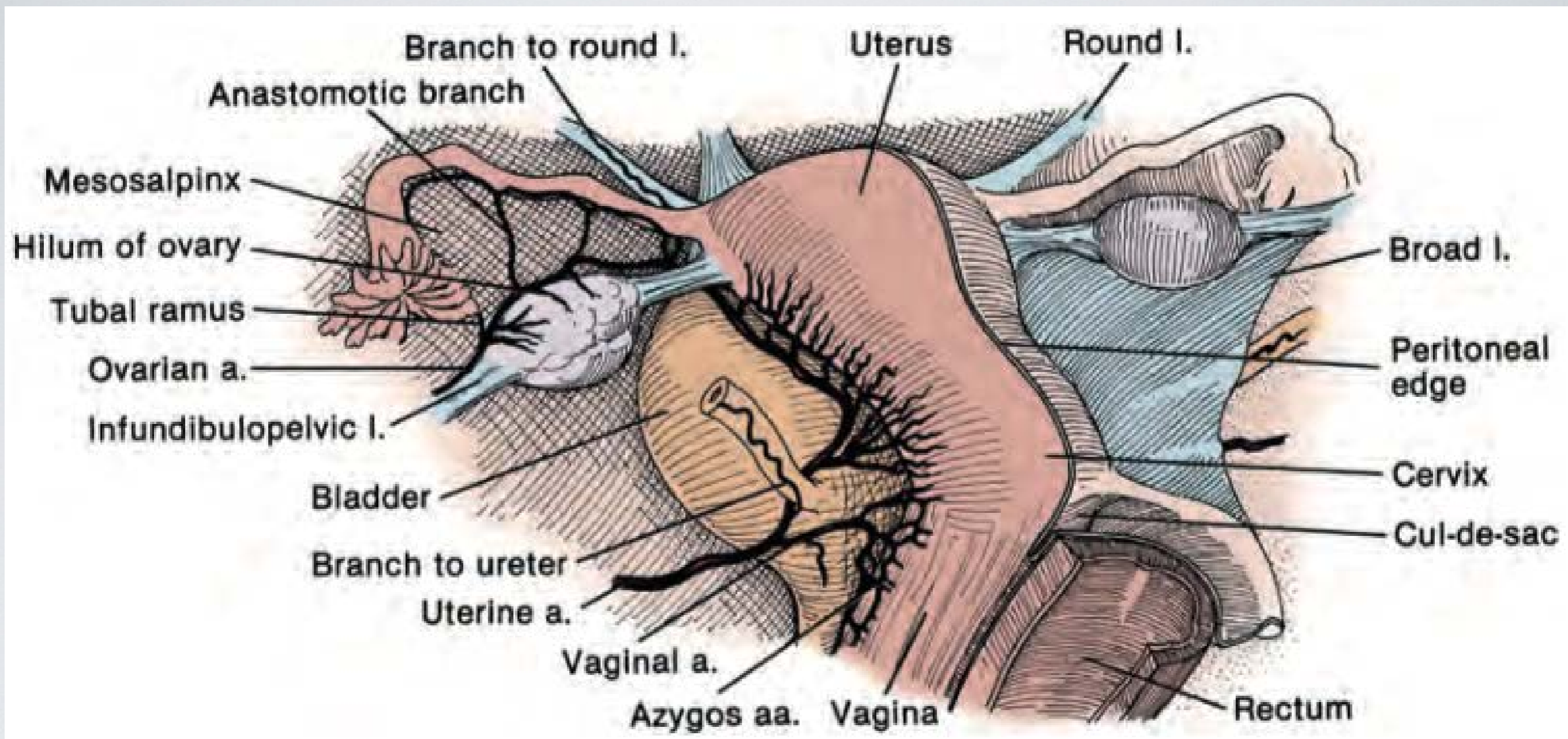
Round ligament

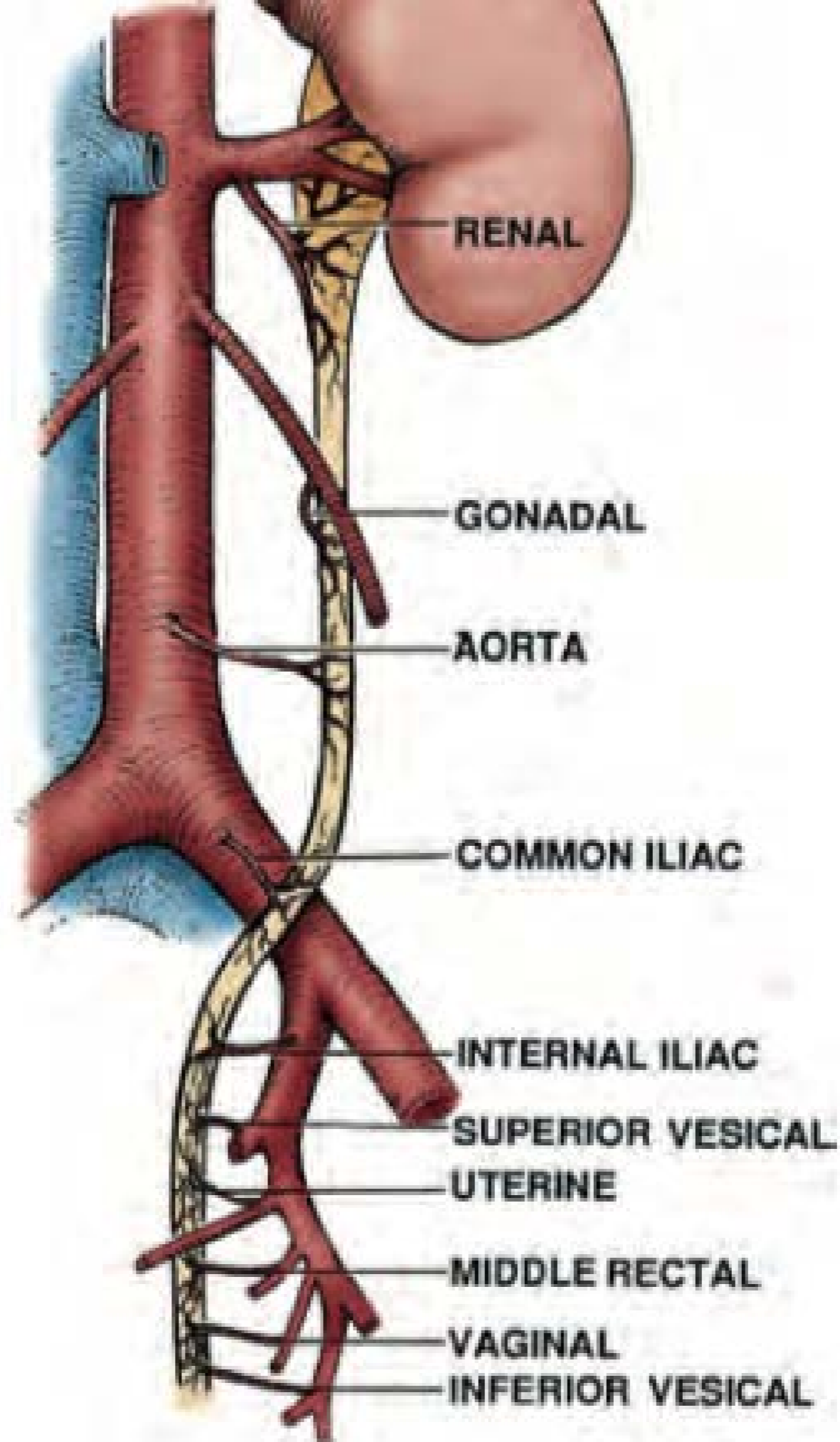
Transverse vesical fold

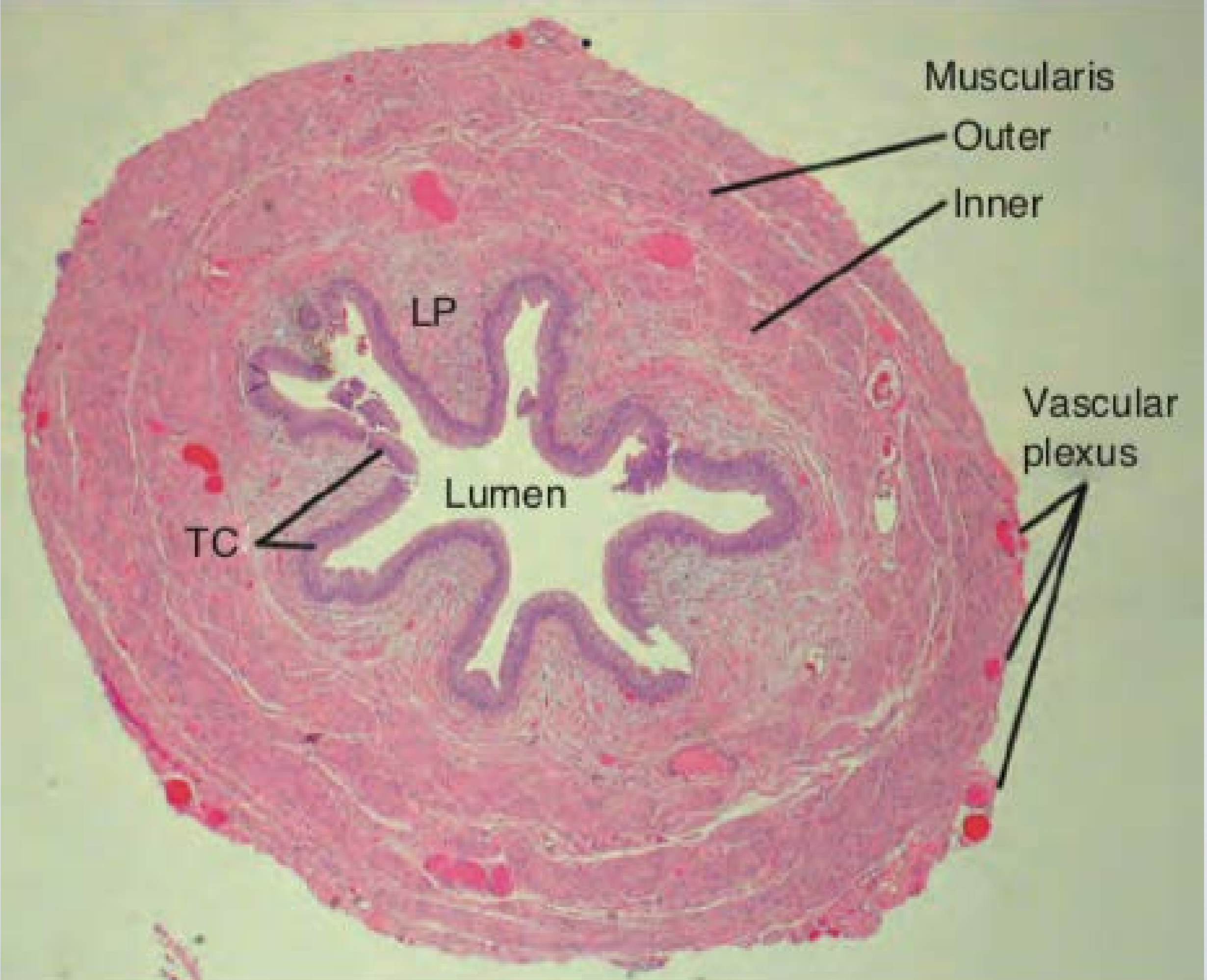
Vesicouterine (uterovesical) pouch

Uterine artery and venous plexus

Vaginal artery







Muscularis

Outer

Inner

LP

Lumen

TC

Vascular
plexus

AVOIDANCE

- Preoperative stenting
- Fiberoptic stents with illumination

COMPLICATIONS POST OPERATIVE

- Urinoma,
- Abscess,
- Ureteral stricture,
- Urinary fistula, and
- potential loss of an ipsilateral renal unit.

PRESENTATION

- Anuria,
- Urogenital fistula,
- Persistent pain or fever,
- Urinary leakage from the wound, hydronephrosis, and hematuria
- Fever, leukocytosis, and generalized peritoneal signs—missed Ureteral injury.

DIAGNOSIS—IMAGING STUDIES

- Excretory Urography
- Computed Tomography
- Retrograde Ureterography
- Antegrade Ureterography





TIMING OF REPAIR

- Immediate repair-72 hours,
- After 3-day period —drained with stent, percutaneous nephrostomy, or both,
- Definitive repair is delayed until 6 weeks after injury.

UPPER

Direct ureteroureterostomy
Transureteroureterostomy

MIDDLE

Direct ureteroureterostomy
Transureteroureterostomy

LOWER

Reimplantation
Psoas hitch

Stempert

LIGATION

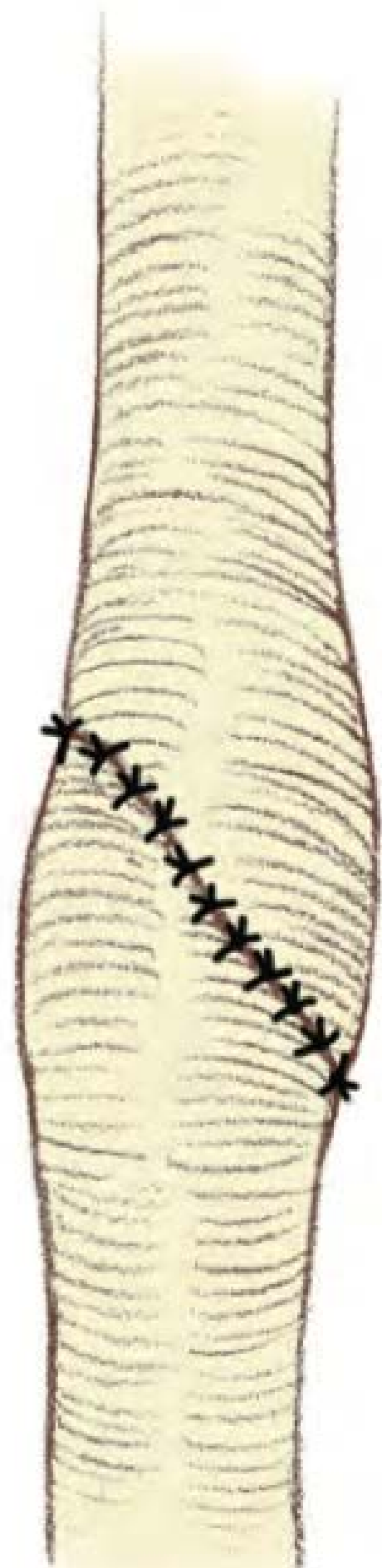
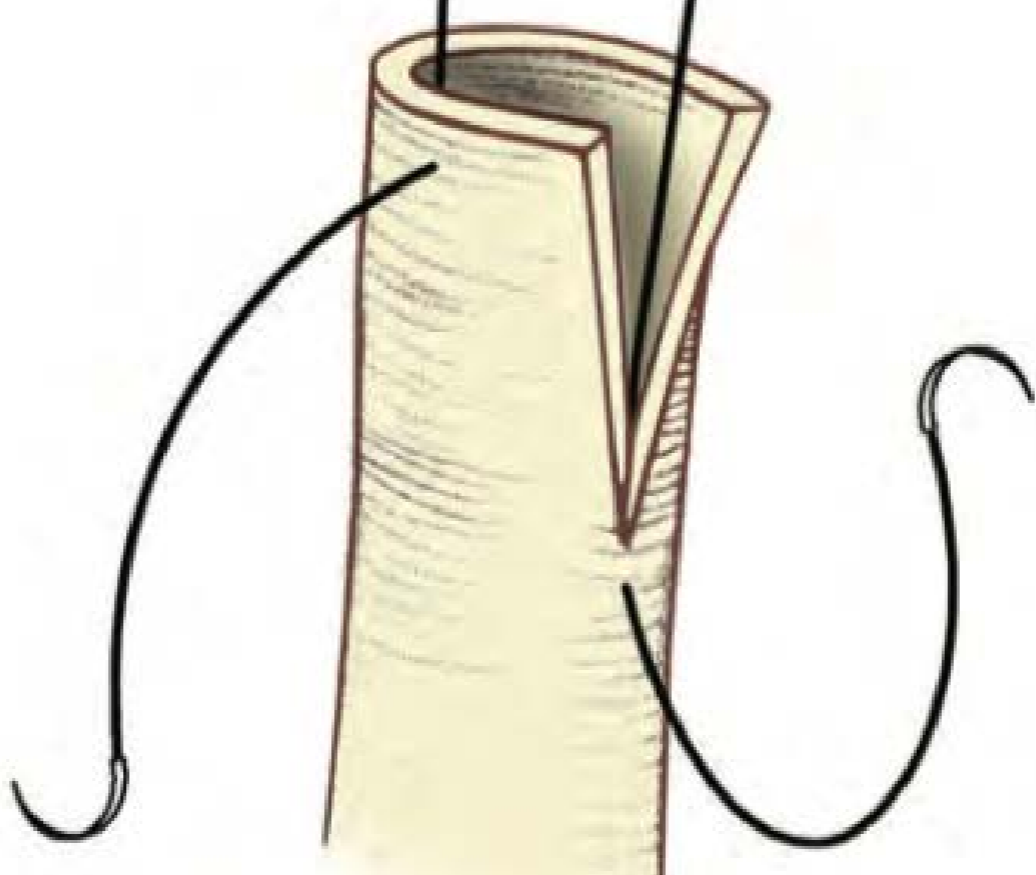
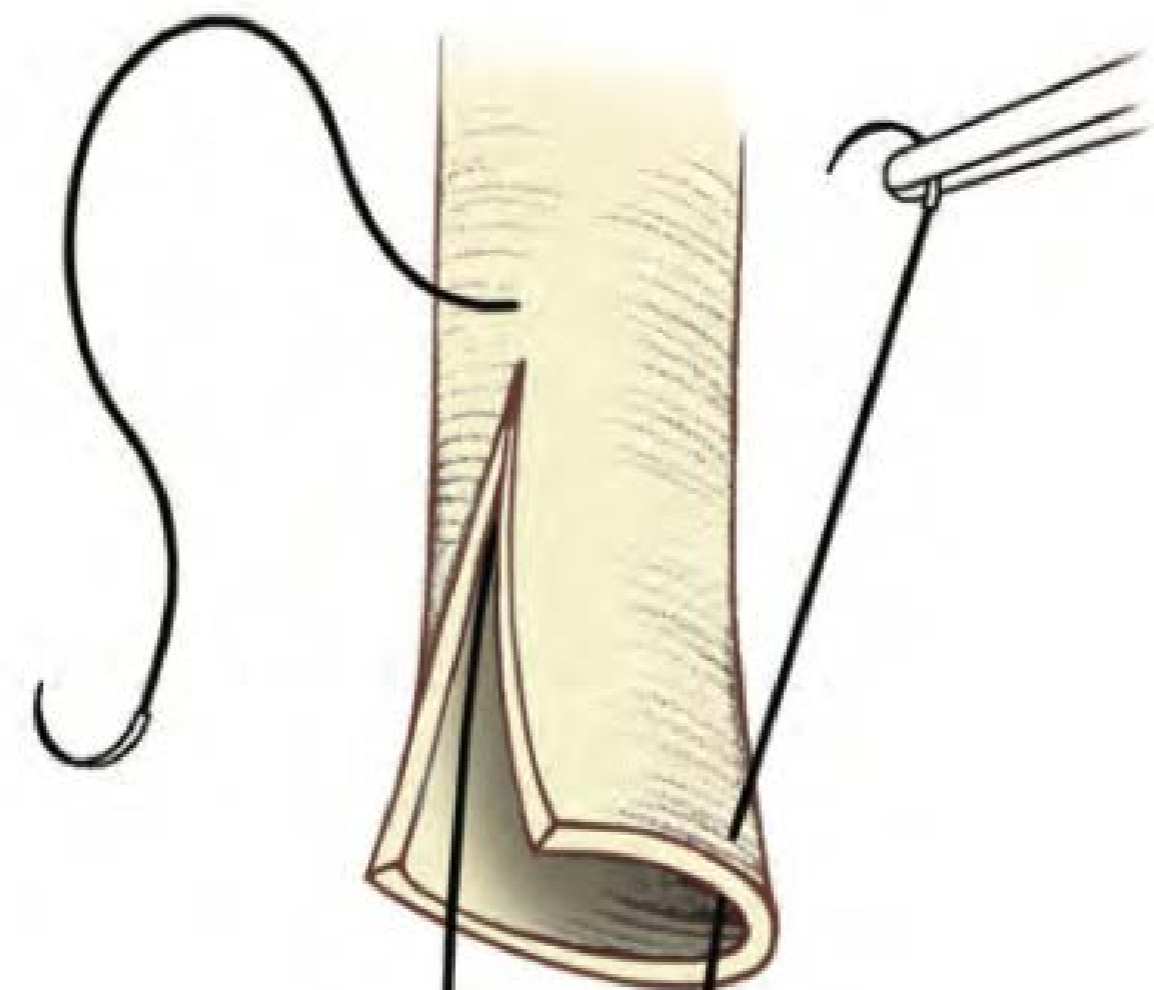
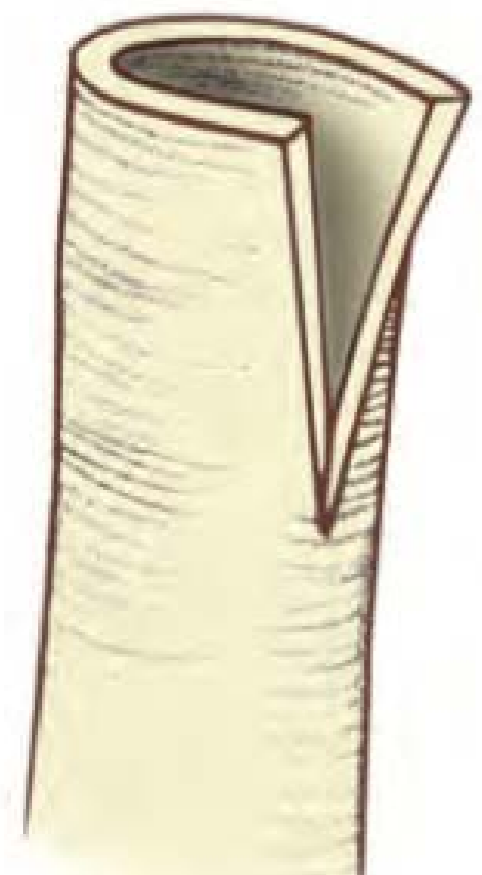
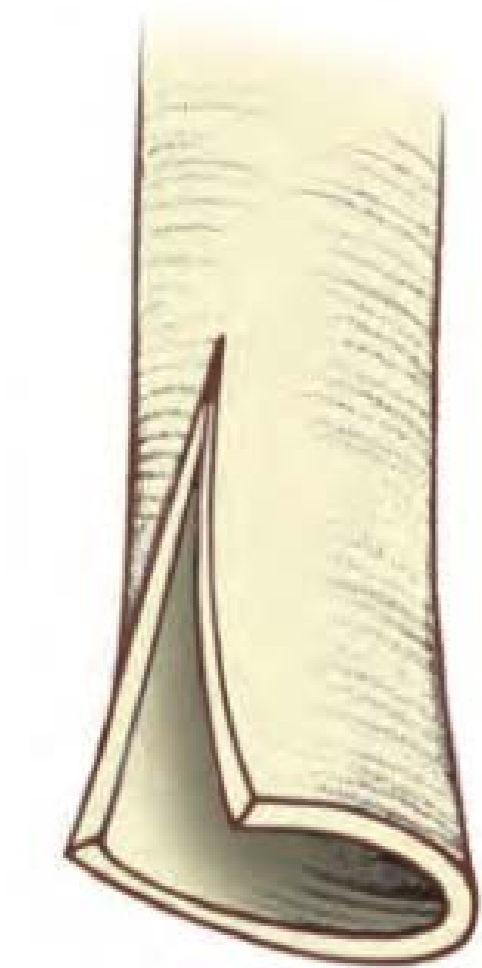
- Removal of the ligature and observation of the ureter for viability.
- Ureteroureterostomy or Ureteral Reimplantation
- Ureteral stent

PARTIAL TRANSECTION

- A longitudinal laceration into a transverse one so as not to narrow the ureteral lumen.
- Repeat retroperitonealized if possible.
- An internal stent and retroperitoneal drain are always placed.

TRANSECTION

- Immediate Recognition— Ureteroureterostomy
- Delayed Recognition—
 - [1] Double-J ureteral stent (5% to 50% success, Spontaneous healing 0%-75%)
 - [2] Percutaneous nephrostomy



Ureteroneocystostomy

Distal ureter

- A long, nontunneled, spatulated, stented anastomosis.

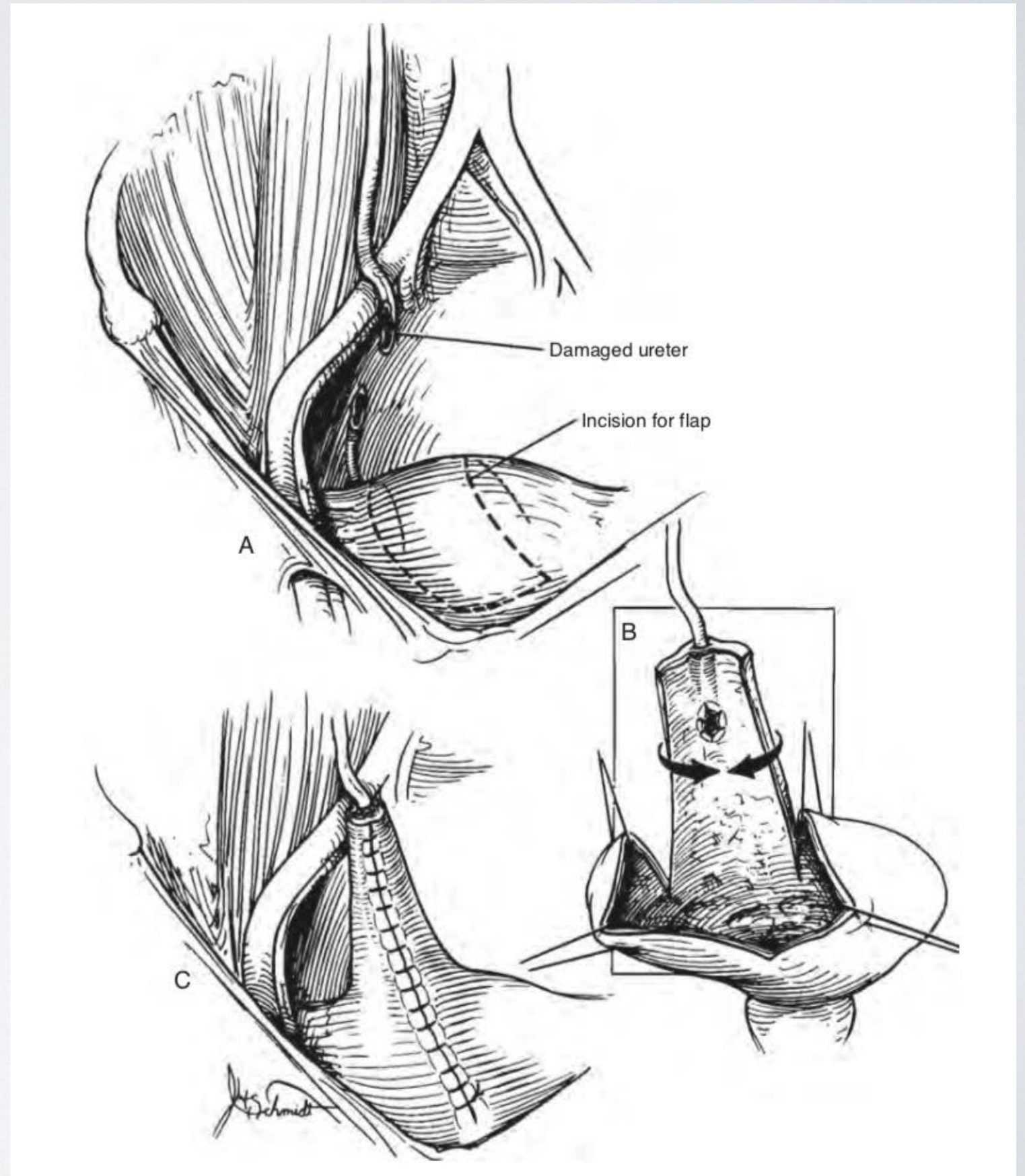
PSOAS BLADDER HITCH

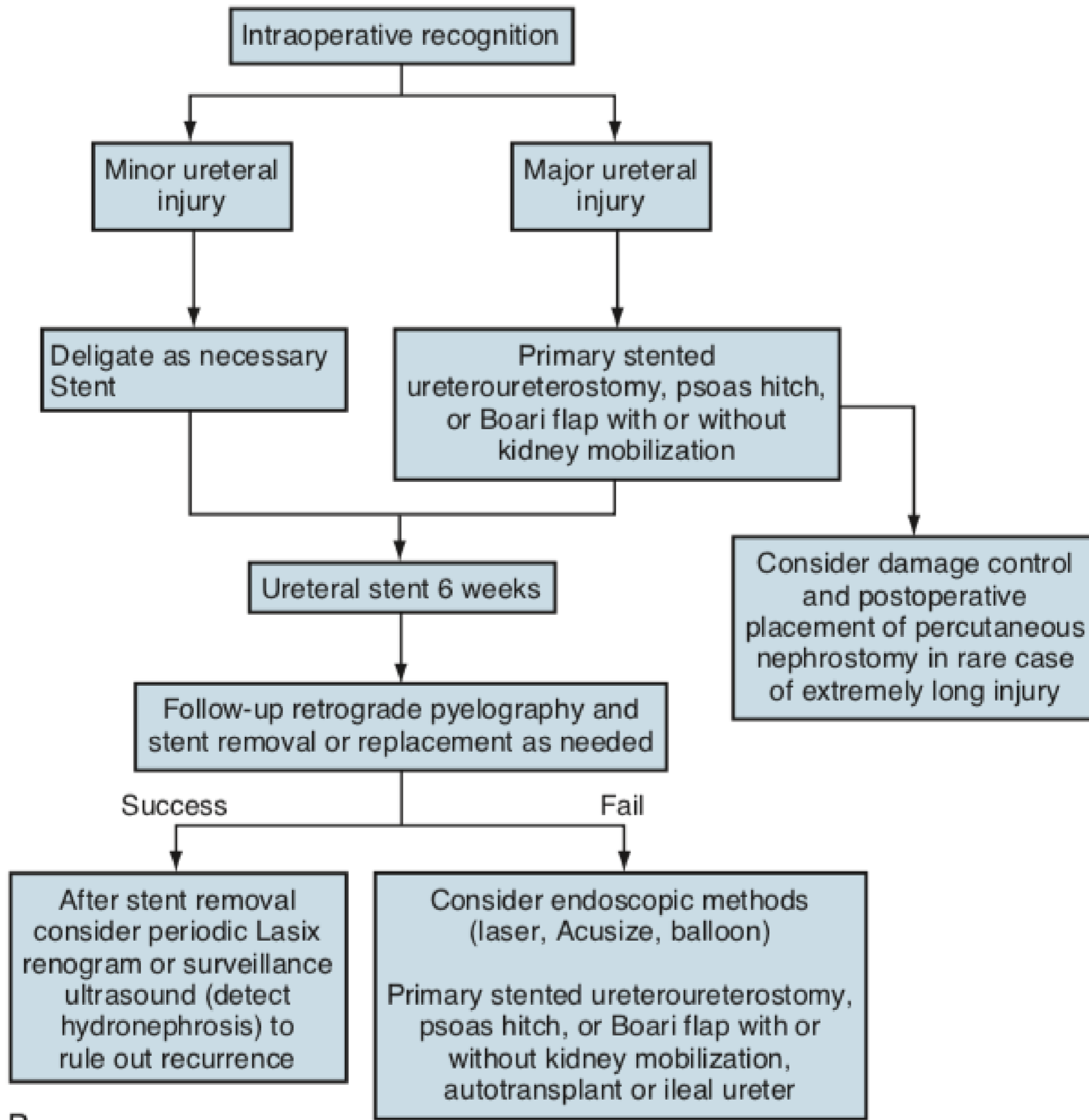
- Lower third of the ureter
- Bladder is opened and secured to the psoas muscle.



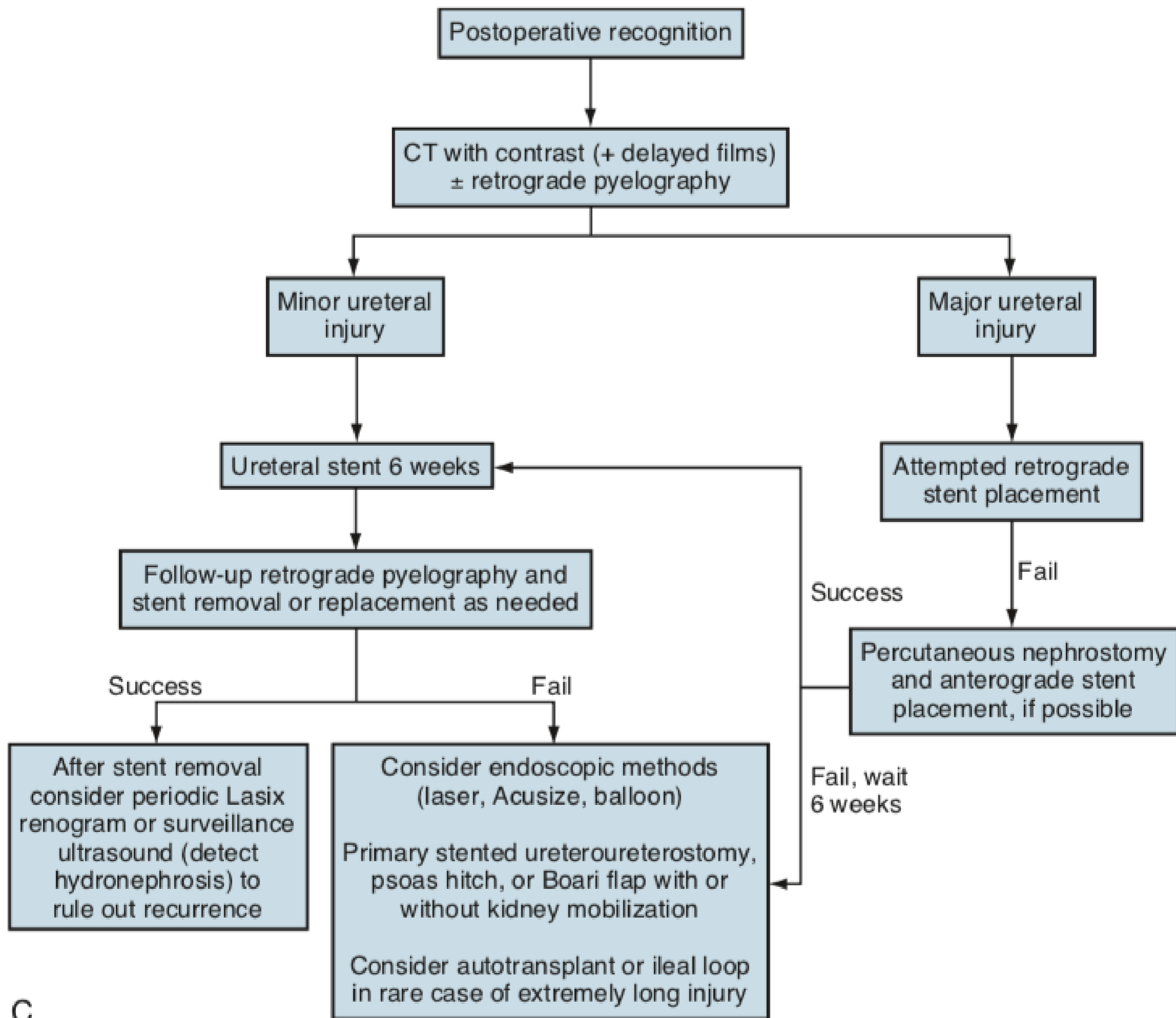
BOARI FLAP

- Lower two thirds of the ureter with long ureteral defects.
- A pedicle of bladder is swung cephalad and tubularized to bridge the gap.





B



C