Indications for Simple Prostatectomy

- acute urinary retention
- recurrent or persistent UTIs;
- significant symptoms from bladder outlet obstruction not responsive to medical therapy;
- recurrent gross hematuria of prostatic origin;
- pathophysiologic changes of the kidneys, ureters, or bladder secondary to prostatic obstruction
- bladder calculi secondary to obstruction

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Contraindications:

- a small fibrous gland
- the presence of significant prostate cancer
- previous pelvic surgery that may obliterate access to the prostate gland

Preoperative Evaluation

- upper and lower urinary tracts
- IPSS
- peak urinary flow rate
- The postvoid residual urine volume

cystoscopy

- hematuria
- suspected urethral stricture
- bladder calculus
- diverticulum
- the presence of a large median lobe
- the length of the prostatic urethra

prostate cancer should be determined

digital rectal examination

serum prostate-specific antigen determination

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The upper urinary tracts :

- renal disease
- abnormal renal function
- recurrent UTI
- hematuria

- urinary retention ,evaluation of renal function
- If the serum creatinine value is elevated, surgery should be delayed
- Urinalysis is performed to rule out a UTI
- culture and infection
- appropriate antimicrobial therapy

Potential risks include

- urinary incontinence
- erectile dysfunction
- retrograde ejaculation
- UTI
- injury to adjacent structures
- bladder neck contracture
- urethral stricture
- need for a blood transfusion

- self-administers a Fleet enema the morning of surgery.

- One dose of a second-generation cephalosporin is administered before making the incision

- Sequential compression devices in the lower extremities are used to minimize the risk for deep vein thrombosis.

Anesthesia

- **The preferred anesthesia is general endotracheal anesthesia.**
- **Spinal or** epidural anesthesia :
- **medical or anatomic contraindication to general anesthesia**
- **prefers regional anesthesia**

- supine position
- A 22-Fr urethral catheter with a 30-mL balloon
- A lower midline incision from the umbilicus to the pubic symphysis
- The linea alba is incised
- The transversalis fascia is incised

- At the superior aspect of the wound the posterior rectus abdominis fascia
- peritoneum is mobilized

- The pelvis is inspected for any abnormalities
- the inguinal area is examined for hernias

Retropubic Simple Prostatectomy

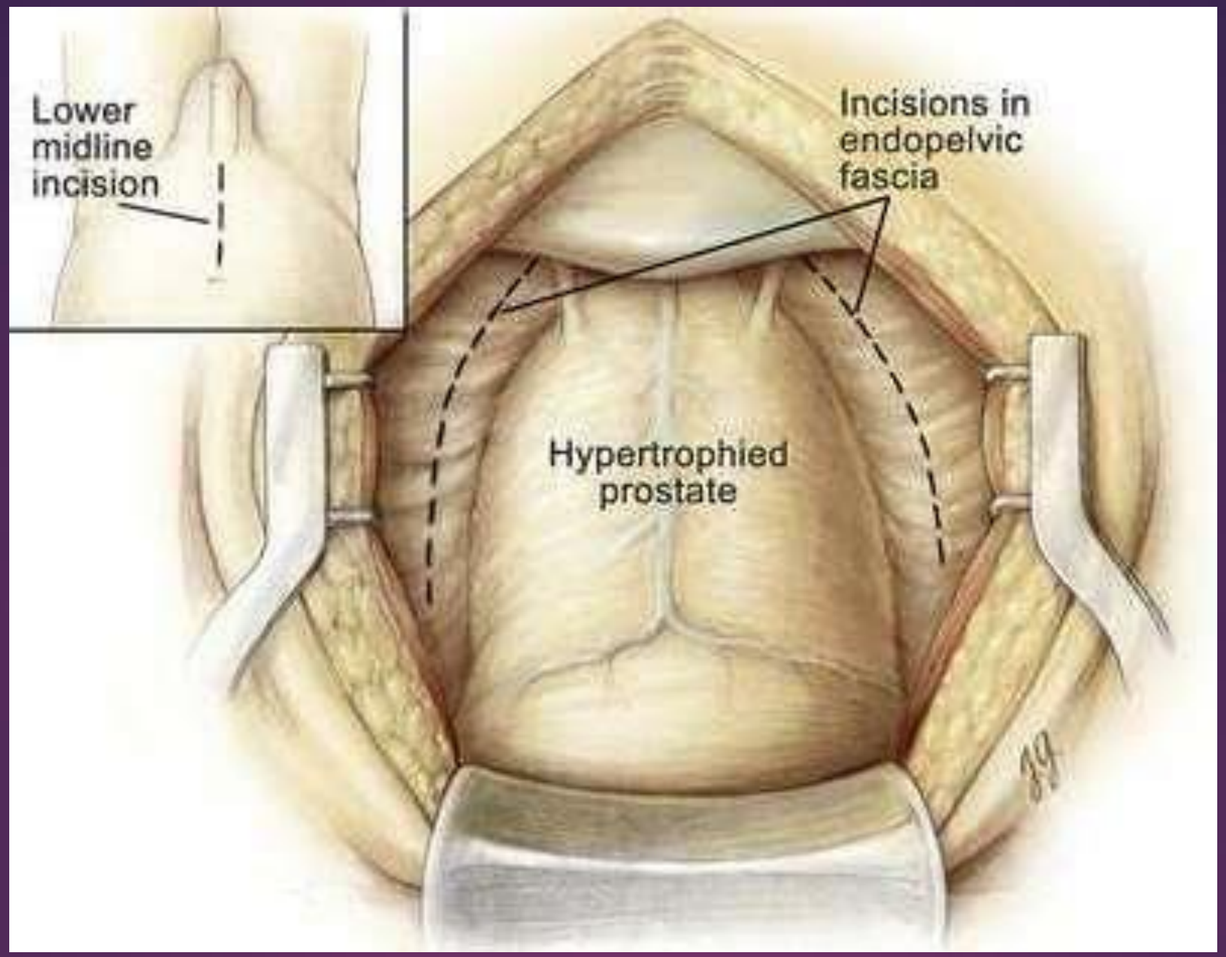

FIG. 147.1 Retropubic simple prostatectomy. The space of Retzius has been opened, and the periprostatic adipose tissue has been dissected free from the superficial branch of the dorsal vein complex. The endopelvic fascia is incised bilaterally *(dotted lines),* and the puboprostatic ligaments are transected bilaterally. (c Brady Urological Institute.)

Hemostatic Maneuvers

- complete control of the dorsal vein complex
- lateral pedicles at the bladdeF neck
- the endopelvic fascia is incised laterally
- the puboprostatic ligaments are partially transected

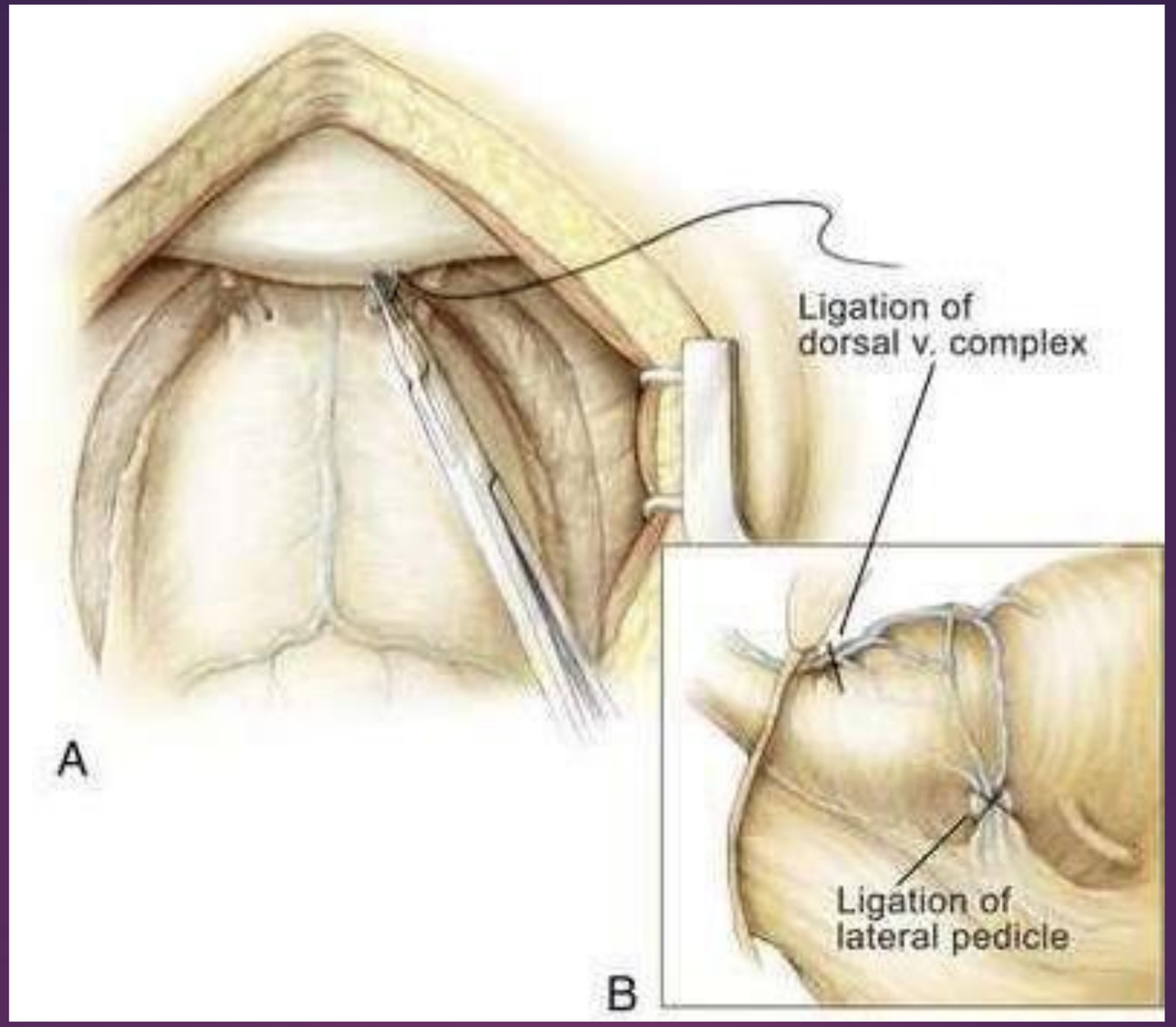

FIG. 147.2 Retropubic simple prostatectomy. (A) A 2-0 chromic suture on a 5/8-inch circle-tapered needle is passed in the avascular plane between the urethra and the dorsal vein complex at the apex of the prostate. A tie is grasped and tied around the dorsal vein complex. (B) With 2-0 chromic suture material on a CTX needle, a figure-of-eight suture is placed through the prostatovesicular junction just above the level of the seminal vesicles to control the main arterial blood supply to the prostate gland. When placing this suture, care must be taken to avoid entrapment of the neurovascular bundles located posteriorly and slightly laterally. (c Brady Urological

Institute.)

- on securing the lateral pedicles at the prostatovesical junction

- The 30-mL balloon of the catheter is used to identify the junction between the bladder and the prostate

- The balloon is then deflated, and 2-0 chromic suture material on a large CTX needle is used to place a figure- of-eight suture deep into the prostatovesical junction at the level where theseminal vesicles approach the prostate gland bilaterally (see Fig. 147.2B).

- With this maneuver, the main arterial blood supply to the prostate adenoma is controlled

- Having secured the dorsal vein complex earlier, the major sources of hemorrhage for this operation have been eliminated.

Enucleation of the Adenoma

- **With a sponge stick on the bladder neck to depress the bladder posteriorly, a No. 15 blade on a long handle is used to make a transverse capsulotomy in the prostate 1.5 to 2.0 cm distal to the bladder neck** (Fig. 147.3)

- The superficial branch of the dorsal vein complex is transected as the transverse capsulotomy is made.(Fig. 147.5).

- The incision is deepened to the level of the adenoma and extended sufficiently lateral in each direction to permit complete enucleation

- A pair of Metzenbaum scissors is used to dissect the overlying prostatic pseudocapsule from the underlying prostatic adenoma.

Once a well-defined plane is sufficiently developed, the index finger can be inserted between the prostatic adenoma and the pseudocapsule to further develop the plane laterally and posteriorly (Fig. 147.4).

- A pair of Metzenbaum scissors is then used to incise the anterior commissure from the bladder neck to the apex, separating the lateral lobes of the prostate anteriorly

- The posterior prostatic urethra is exposed, and the index finger is inserted down to the verumontanum

- The mucosa of the urethra overlying the left lateral lobe is divided sharply at the level of the apex under direct vision without injury to the external urinary sphincter

- With the aid of a Babcock clamp, the left lateral lobe is removed safely. This maneuver is then repeated for the right lateral lobe

urethra

- Because the capsulotomy was a transverse rather than longitudinal incision, there is little risk that the incision will be inadvertently extended into the sphincteric mechanism during the enucleation process, which would compromise subsequent urinary continence.

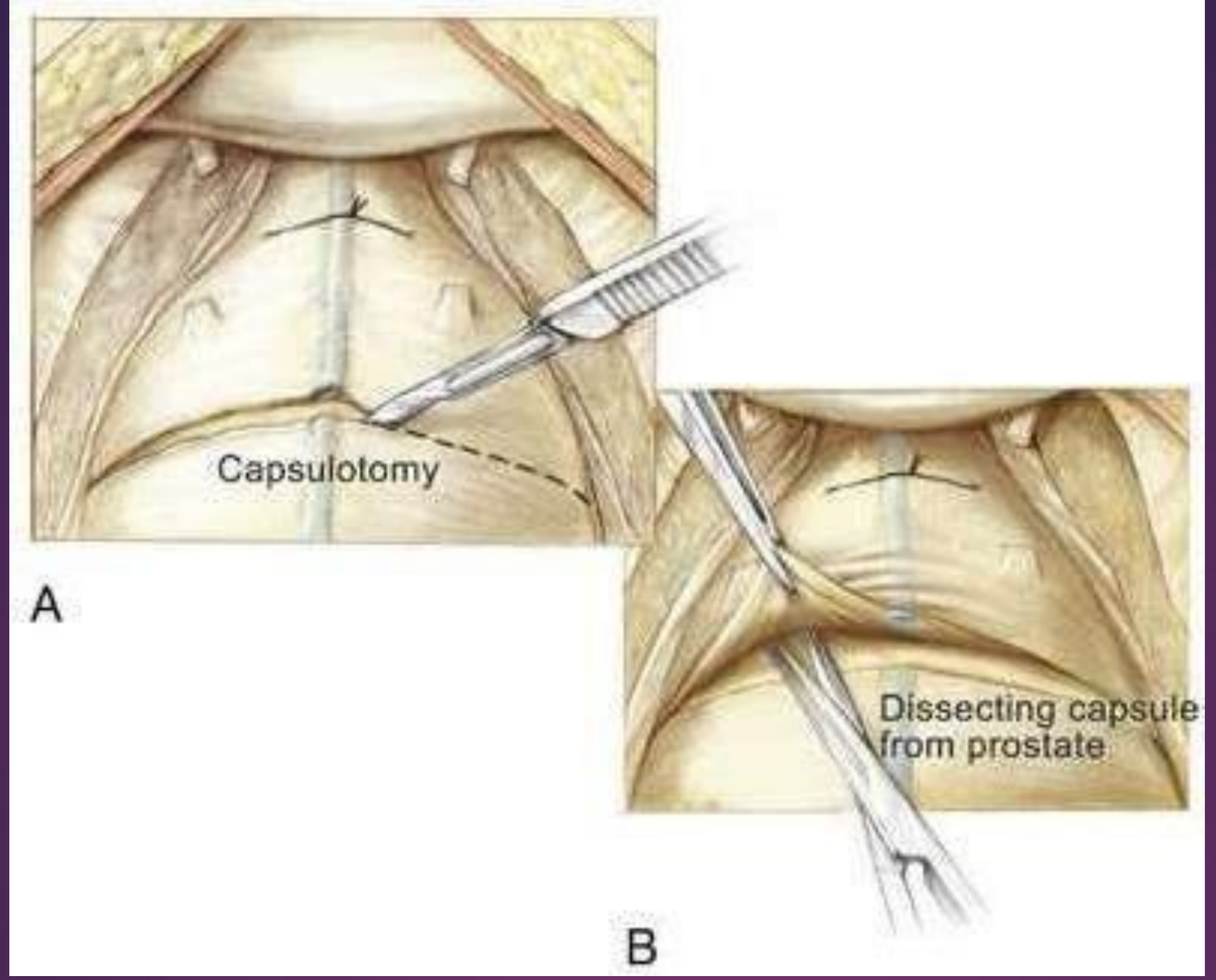

FIG. 147.3 Retropubic simple prostatectomy. (A) With the superficial branch of the dorsal vein complex secured proximally and distally, a No. 15 blade on a long handle is used to make the transverse capsulotomy. (B) Metzenbaum scissors are used to develop the plane anteriorly between the prostatic adenoma and the prostatic pseudocapsule. (@ Brady Urological Institute.)

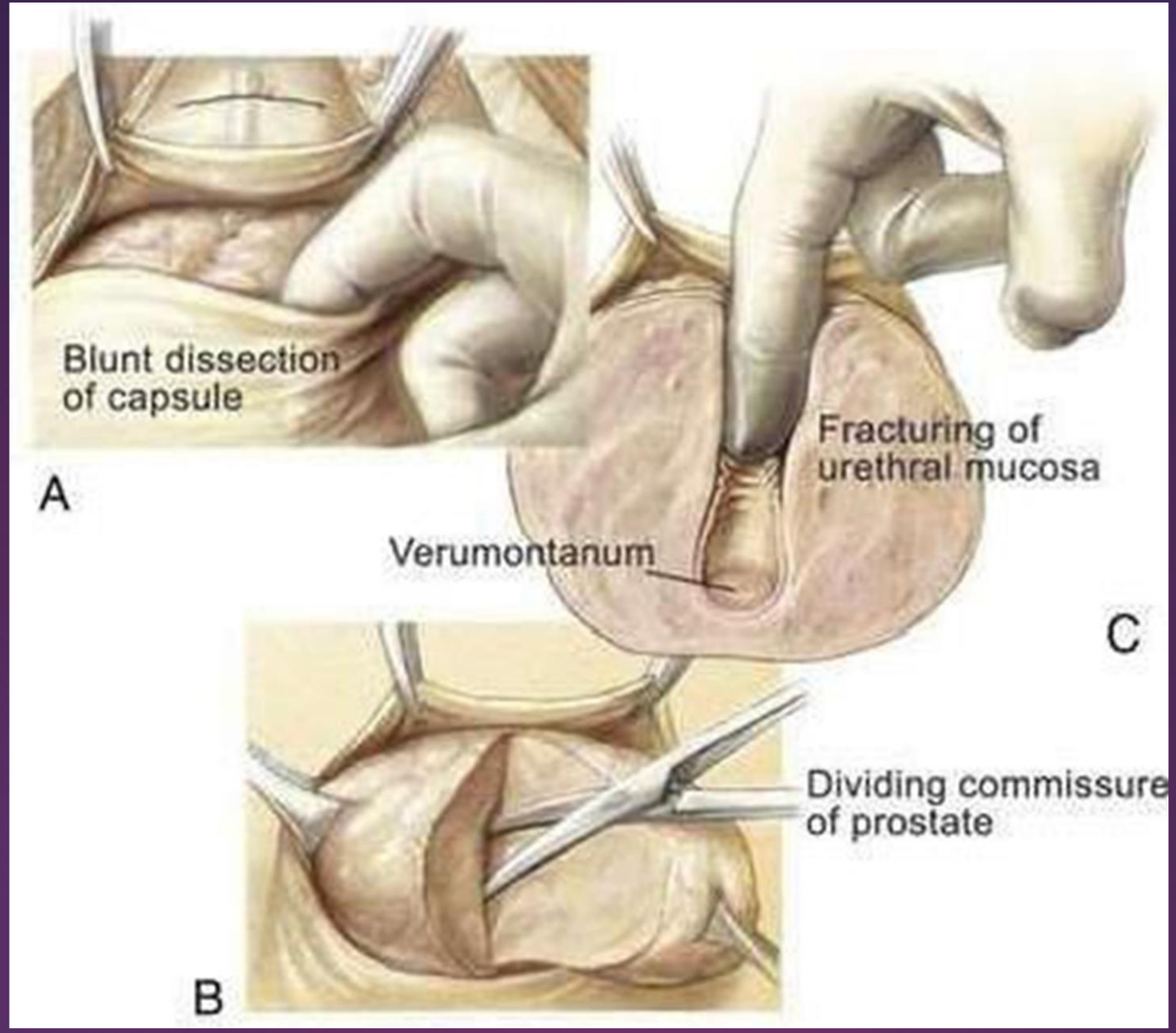

FIG. 147.4 Retropubic simple prostatectomy. (A) With blunt dissection with the index finger, the prostatic adenoma is dissected free laterally andposteriorly. (B) Metzenbaum scissors are used to divide the anterior commissure to visualize the posterior urethra and verumontanum. (C) The index finger is then used to fracture the urethral mucosa at the level of the verumontanum. With this last maneuver, extreme care is taken not to injure
the external sphincteric mechanism. (Brady Urological Institute.)

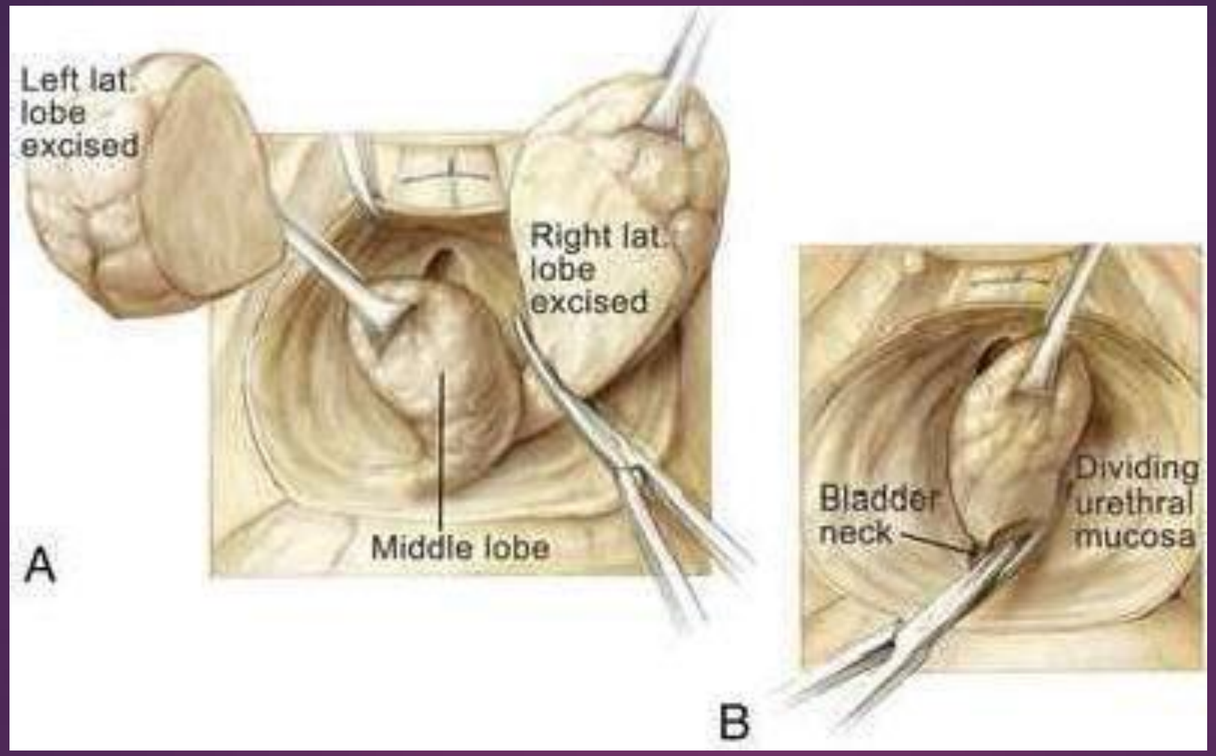

FIG. 147.5 Retropubic simple prostatectomy. (A) After removal of the left lateral lobe of the prostate, the right lateral lobe is excised with the aid of a tenaculum and Metzenbaum scissors. (B) Finally, the median lobe is removed under direct vision. (c Brady Urological Institute.)

- If hemorFhage is persistent, 4-0 chFomic suture material can be used to place a figure-of-eight suture in the bladder neck at the 5- o'clock and 7-o’clock positions, as in supFapubic prostatectomy (Fig. 147.6)

- When placing these sutures, it is necessary to visualize the ureteric orifices so that they are not incorporated

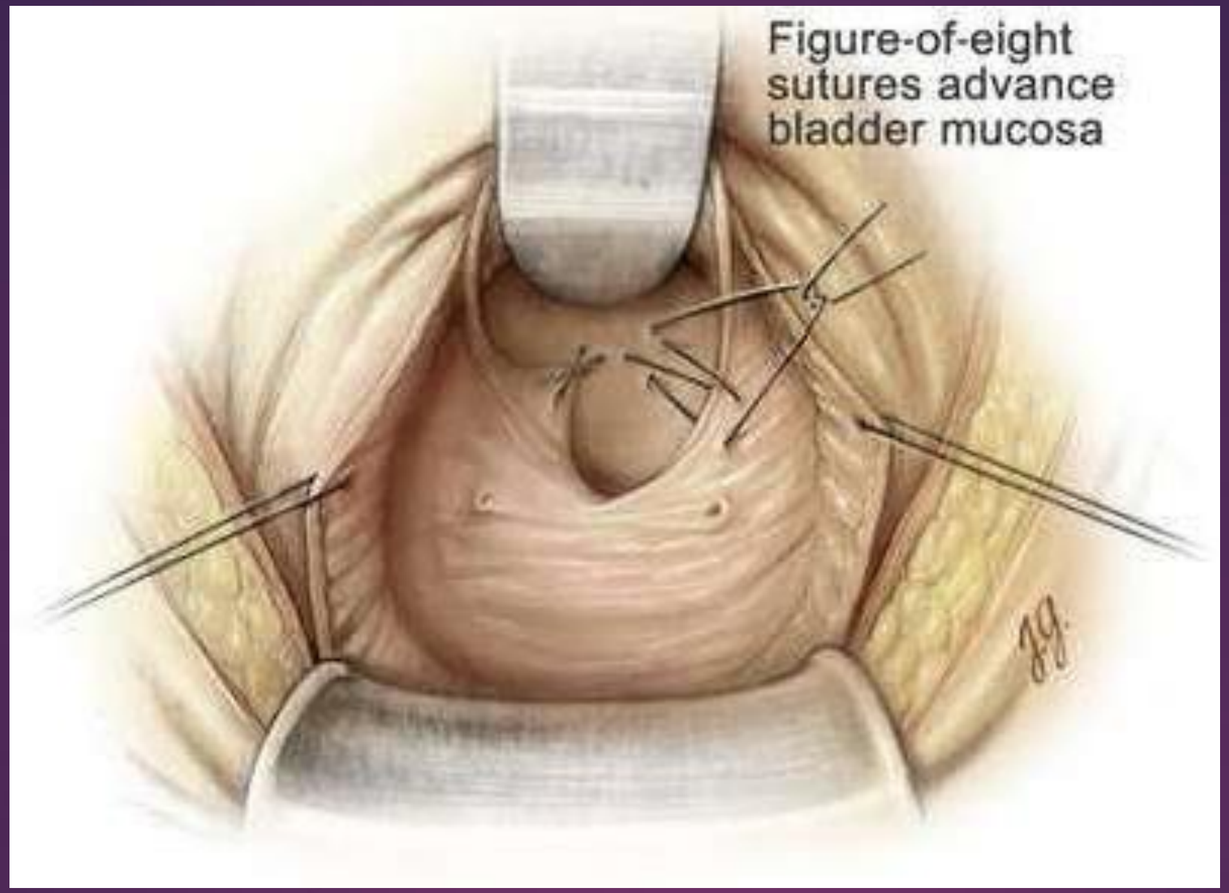

FIG. 147.6 Hemostatic maneuver during open simple prostatectomy. After enucleation of the entire prostatic adenoma, a 0-chromic suture is used to place Mo figure-of-eight sutures to advance bladder mucosa into the prostatic fossa at the 5-o'clock and 7-o'clock positions at the prostatovesicular junction to ensure control of the main arterial blood

SUPRAPUBIC SIMPLE PROSTATECTOMY

- The anterior bladder wall is identified, and two 3-0 Vicryl stitches are placed on each side of the midline below the peritoneal reflection
- A vertical cystotomy is made with electrocautery

- With use of a pair of Metzenbaum scissors, a cystotomy is then extended cephalad and caudally to within 1 cm of the bladder neck

- Several pairs of stay sutures are placed using 3-0 Vicryl on each side of the midline to facilitate exposure (Fig. 147.7)

- A figure-of-eight suture using 3-0 Vicryl is placed and tied at the most caudal position of the cystotomy to prevent further extension of the cystotomy incision during blunt finger dissection of the adenoma

- Alternatively, a transverse bladder incision can be used.

- After inspecting the bladder, a well-padded, malleable blade is placed in the bladder, connected to the Balfour retractor, and used to retract the bladder cephalad.

- The bladder neck and prostate gland now can be visualized. A narrow Deaver retractor can be placed over the bladder neck and used to further expose the trigone

- Indigo carmine dye may be given intravenously to aid in visualization of the ureteric orifices if necessary.

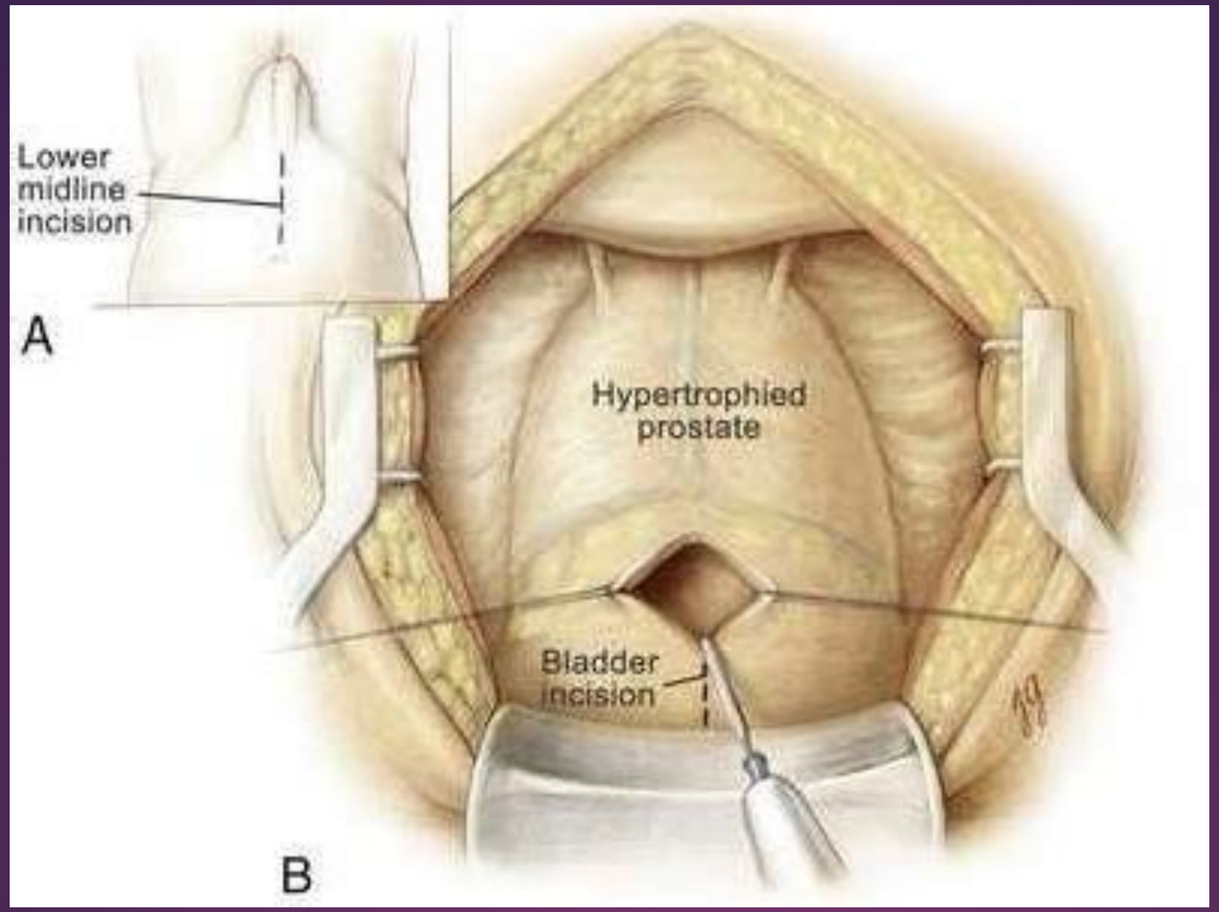

FIG. 147.1 Retropubic simple prostatectomy. The space of Retzius has been opened, and the periprostatic adipose tissue has been dissected free from the superficial branch of the dorsal vein complex. The endopelvic fascia is incised bilaterally (dotted lines), and the puboprostatic ligaments
are transected bilaterally. (c Brady Urological Institute.)

Enucleation of the Adenoma

- Electrocautery is used to create a circular incision in the bladder mucosa distal to the trigone (Fig. 147.8).
- Care is taken not to injure the ureteric orifices.
- With use of a pair of Metzenbaum scissors, the plane between the prostatic adenoma and prostatic pseudocapsule is developed at the 6-o'clock position (Fig. 147.9).

- Once a well-established plane is created posteriorly, the prostatic adenoma is dissected circumferentially and inferiorly toward the apex, using blunt dissection (Fig.
147.10)

- At the apex, the prostatic urethra is transected using a pinch action of the two fingertips and avoiding excessive traction so as not to avulse the urethra and injure the sphincteric mechanism

- At this point, the prostatic adenoma, either as one unit or separate lobes, can be removed from the prostatic fossa.

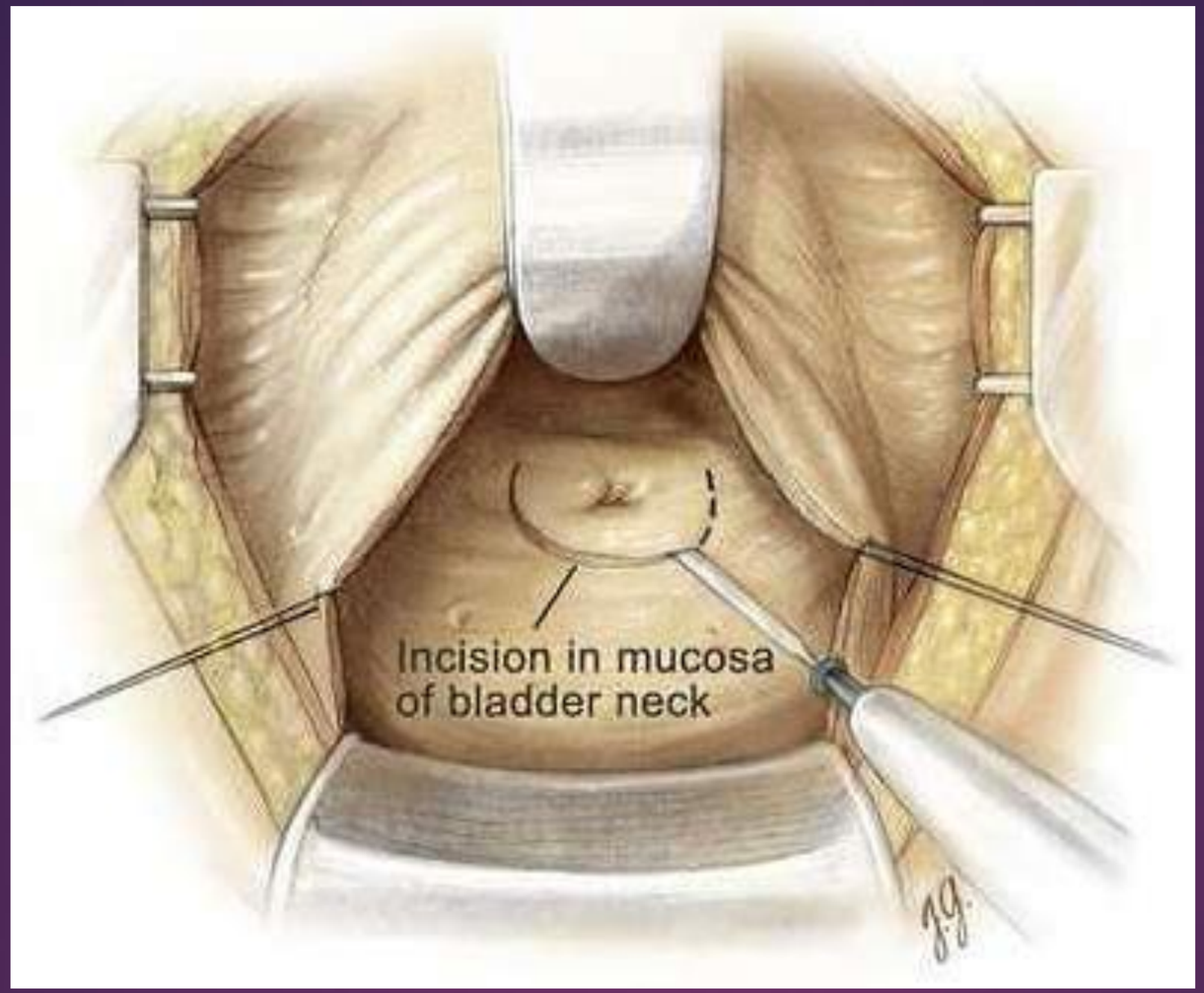

FIG. 147.8 Suprapubic simple prostatectomy. With adequate exposure of the bladder neck, a circular incision in the bladder mucosa is made distal to the trigone, using electrocautery. (c Brady Urological Institute.)

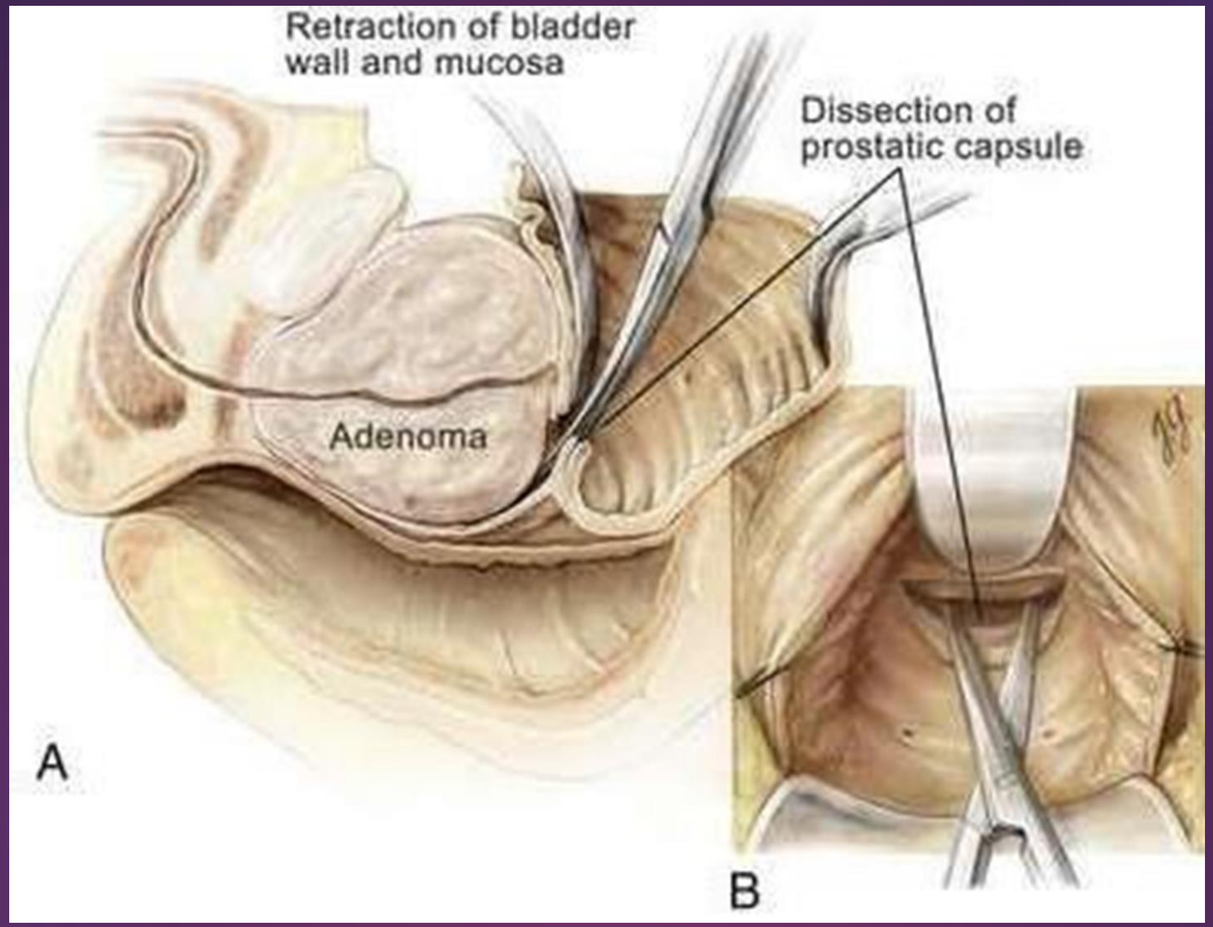

FIG. 147.9 Suprapubic simple prostatectomy. (A) Starting at the bladder neck posteriorly, Metzenbaum scissors are used to develop the plane between the prostatic adenoma and the prostatic pseudocapsule (lateral view). (B) Anterior view of the same maneuver. (c Brady Urological Institute.)

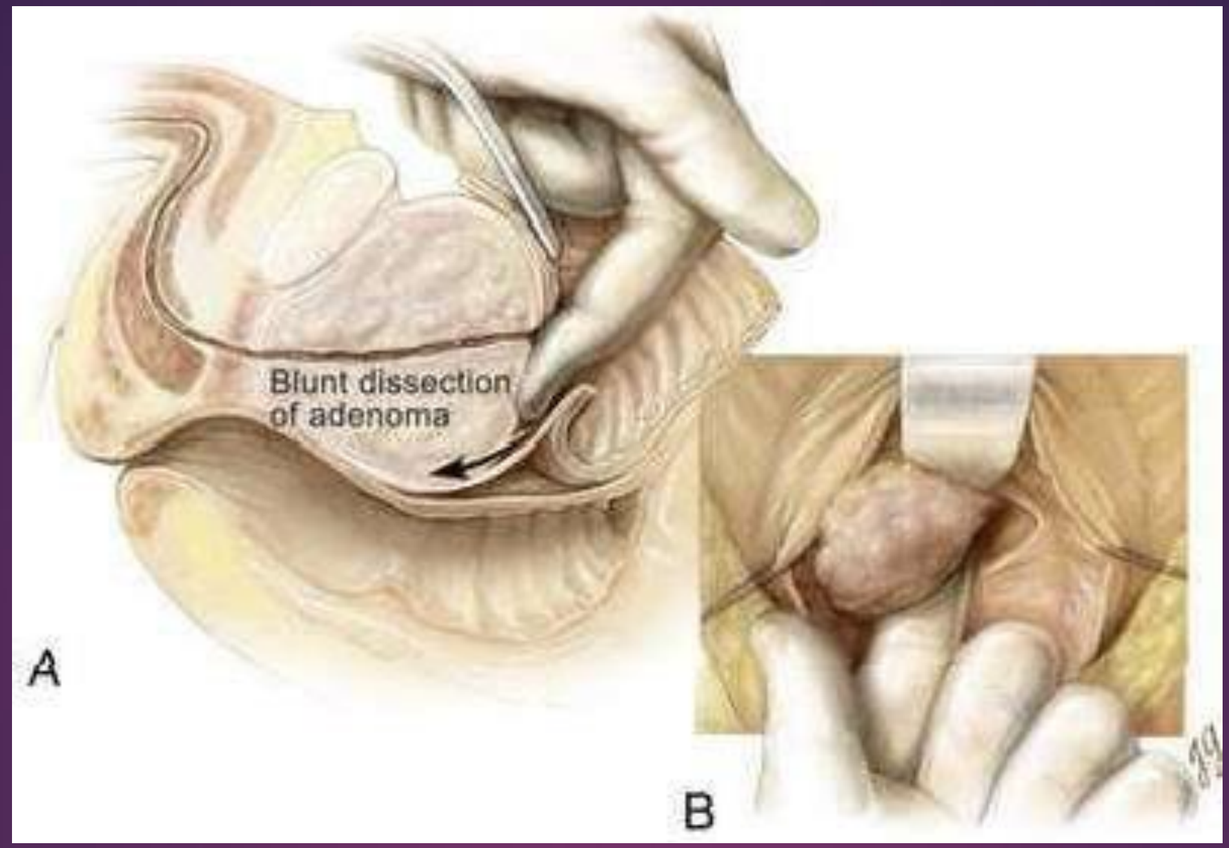

FIG. 147.10 Suprapubic simple prostatectomy. (A) Using the index finger, the prostatic adenoma is enucleated from the prostatic fossa (/afera/ *view).* (B) Anterior view of the same maneuver. With extremely large prostate glands, the left, right, and median lobes should be removed separately. (@ Brady Urological Institute.)

Hemostatic Maneuvers

- After enucleation of the adenoma, the prostatic fossa is inspected for residual tissue
- If found, these nodules are removed by sharp or blunt dissection
- The prostatic fossa also must be examined for discrete bleeding sites that frequently can be controlled with electrocautery or 4-0 chromic suture ligatures

- In addition, a 0-chromic suture is used to place two figure-of-eight sutures to advance the bladder mucosa into the prostatic fossa at the 5-o'clock and 7- o'clock positions at the prostatovesical junction to ensure control of the main arterial blood supply to the prostate (see Fig. 147.6)

- With this maneuver, hemostasis is usually complete.

- If hemorrhage remains pronounced despite the hemostatic sutures, a size 2 nylon purse-string suture can be placed around the vesical neck, brought out through the skin, and tied firmly

- This maneuver closes the bladder neck and tamponades the prostatic fossa. The nylon suture is removed by cutting it at the skin and applying gentle traction on postoperative day 2 or 3

- Plicating sutures can be placed transversely in the posterior prostatic pseudocapsule to prevent further bleeding

string suture.

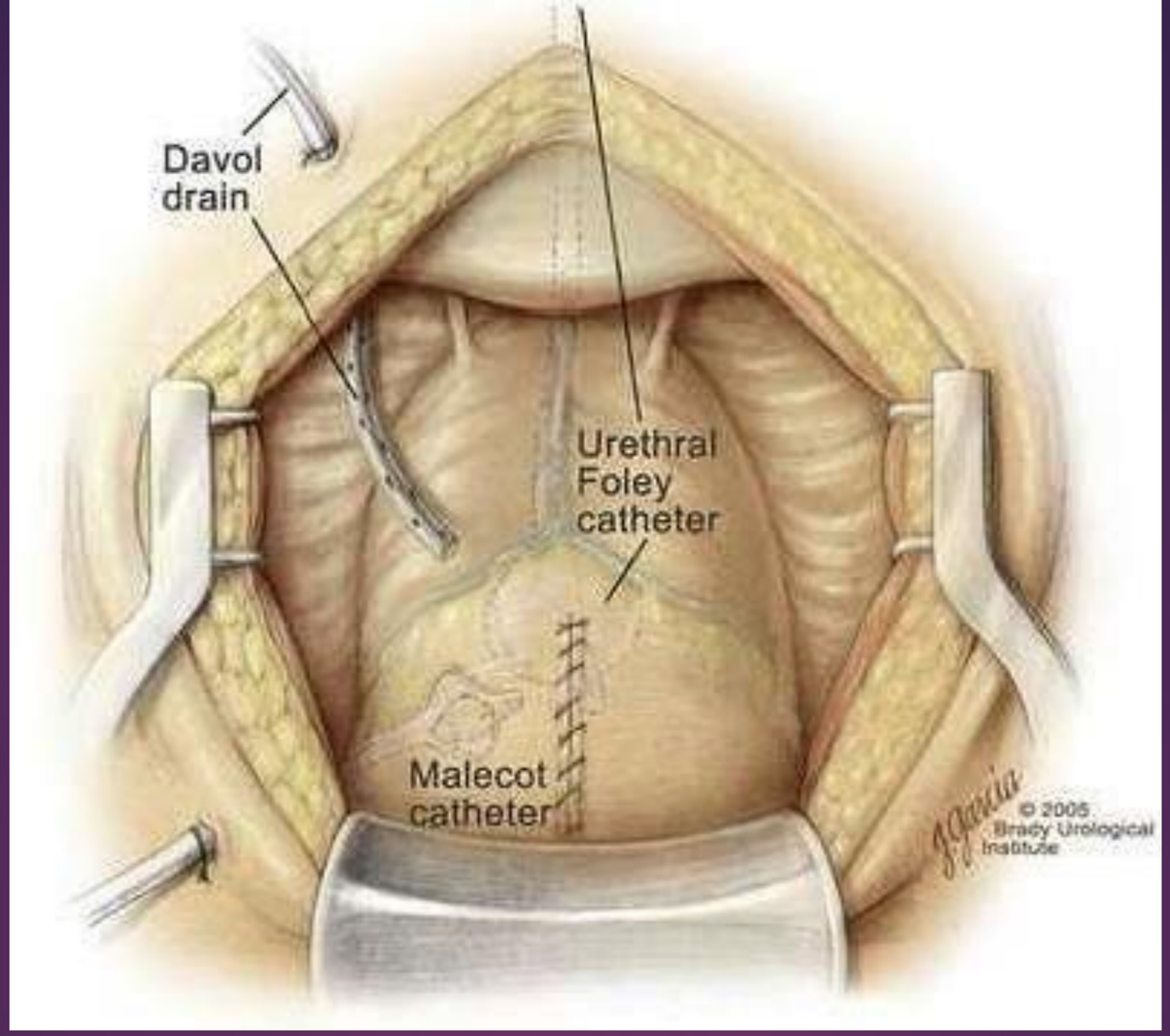

FIG. 147.11 Closure during suprapubic simple prostatectomy. After placement of a urethral catheter and a Malecot suprapubic tube, the cystotomy is closed in two layers using a running 2-0 Vicryl suture, enforced by tying multiple interrupted 3-0 Vicryl stay sutures. A closed Davol suction drain is placed on one side of the bladder and exits via a separate stab incision. (@ Brady Urological Institute.)

- In the suprapubic approach, with the urethral catheter in place, the prostatic pseudocapsule is closed (see Fig. 147.11) using 2-0 absorbable sutures

- In the retropubic approach, the cystotomy incision is closed in two layers using 2-0 absorbable sutures (Fig. 147.12).

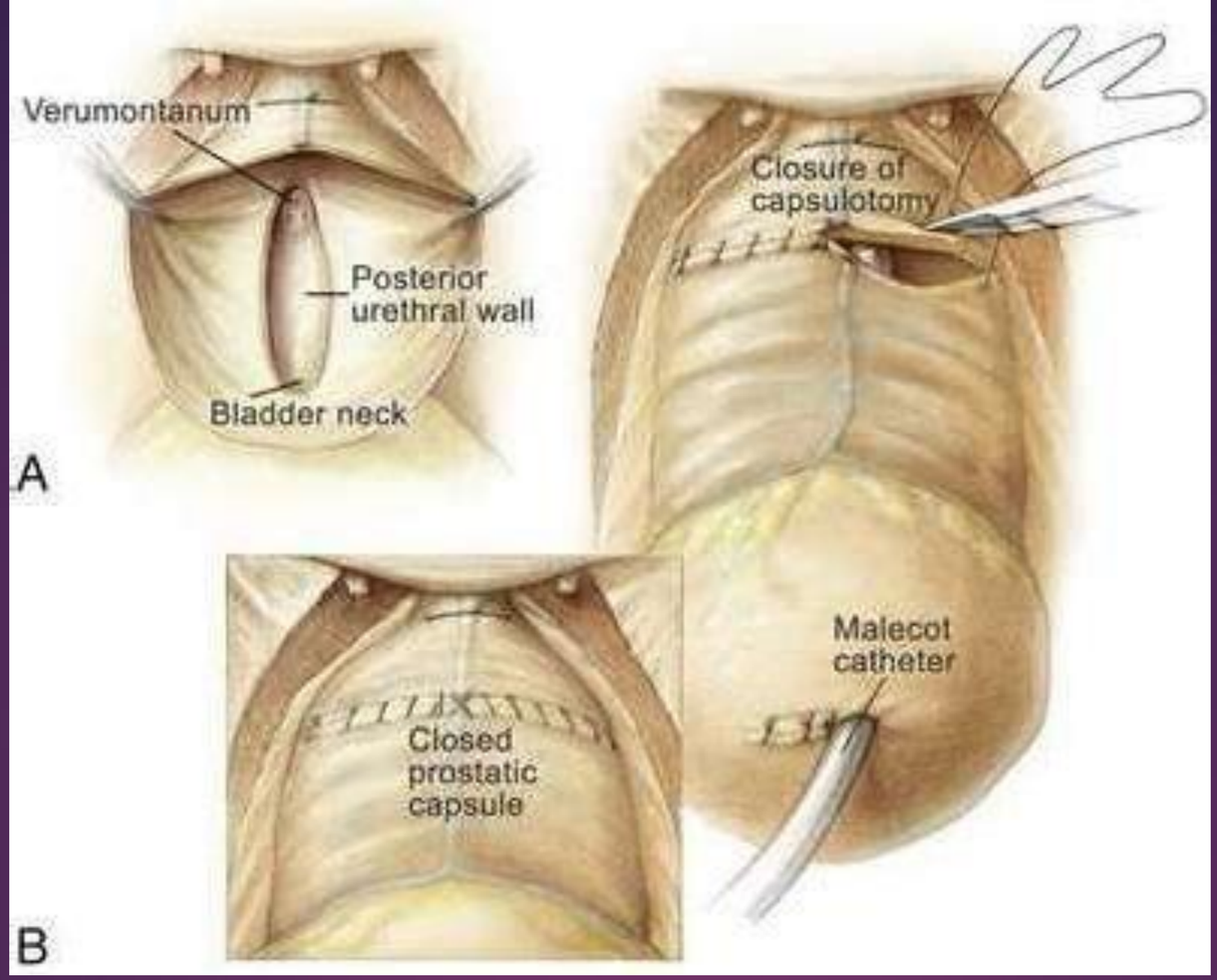

FIG. 147.12 Closure during retropubic simple prostatectomy. (A) View of the prostatic fossa and posterior urethra after enucleation of all the prostatic adenoma. Note that the verumontanum and a strip of posterior urethra remain intact. (B) After placement of a urethral catheter and, if needed, a Malecot suprapubic tube, the transverse capsulotomy is closed with two running 2-0 chromic sutures. The two sutures are tied first to themselves and then to each other across the midline to create a watertight
closure of the prostatic pseudocapsule. (Brady Urological Institute.)

- Fifty milliliters of water is then placed in the balloon to ensure the Foley catheter balloon remains in the bladder and does not retract into the prostatic fossa

- The bladder is then irrigated with saline to ensure continued hemostasis and test the closure for leakage

- A small closed-suction drain is placed via a separate stab incision lateral to the prostate and bladder on one side to prevent hematoma and urinoma formation.

- The pelvis is irrigated with copious amounts of normal saline solution, and the rectus fascia is reapproximated with a size 1 polydioxanone (PDS) suture on a needle in a running fashion

- The skin is closed with skin staples or 4-0 absorbable suture

The drain is secured to the abdominal wall, and the urethral catheter is secured to the lower extremity.

Postoperative Management

In the recovery area

- the outputs from the pelvic drain
- urethral catheter are monitored
- verify the hematocrit

significant hemorrhage

- traction , balloon containing 50 mL of saline
- Constant and reliable traction can be maintained by securing the catheter to the abdomen
- continuous bladder irrigation
- excessive bleeding after these measures
- cystoscopic

- On the evening of the day of surgery, the patient is asked to perform the dorsiflexion and plantarflexion exercises while awake and perform pulmonary Exercises

- Effective pain management consists of intravenous opioids by a patient-controlled analgesic pump

- On the first postoperative day, the patient is staned on a gradually advancing diet and asked to ambulate four times per day

- Pulmonary exercises are continued

- If the hematuria is resolved, continuous bladder irrigation can be discontinued with a urethral catheter (and suprapubic tube, if present) placed for gravity drainage

On the second postoperative day

- the urethral catheter may be Removed
- the suprapubic tube is clamped to allow a voiding trial

- ambulate and continue pulmonary exercises

- When the patient tolerates a regular diet, oral analgesics can be given and parenteral opioids discontinued

- Appropriate discharge instructions are reviewed with the patient at this time in preparation for discharge on the second day after surgery

- The pelvic drain is removed if the drainage is low. Pathologic examination of the enucleated prostatic adenoma should be performed.

- On discharge from the hospital, the patient is encouraged to gradually increase his activity

- If the patient has a clamped suprapubic tube and voids well with a minimal postvoid residual urine volume, the suprapubic tube is then removed in the clinic 1 week after surgery

- If only the urethral catheter was used without a suprapubic tube, it is removed in the clinic 1 week after surgery

- The patient should be able to resume full activity 3 to 4 weeks postoperatively with outpatient visits at 6 weeks and 3 months