

RADICAL PERINEAL PROSTATECTOMY

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One advantage of radical perineal prostatectomy is the associated minimal blood loss. Patients with medical problems who cannot tolerate sudden changes in hemodynamics, patients who are obese, and patients who have had previous surgery in the lower abdomen and pelvis (e.g., penile prosthesis placement) are excellent candidates for this operation. In addition, those patients with low probability of lymph node involvement by preoperative evaluation or negative laparoscopic lymph node dissections are good candidates for surgery in this untampered area of the perineum.

PREPARATION

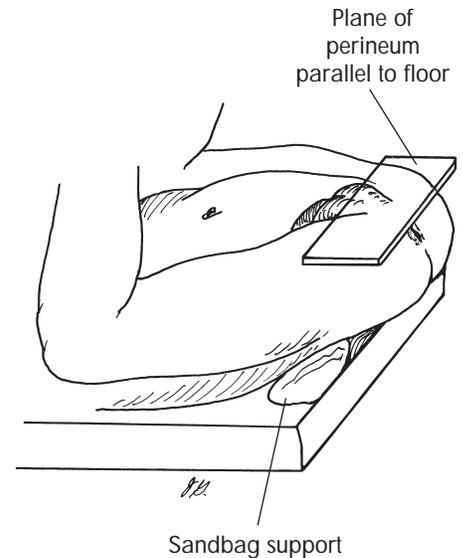
If the surgeon believes the procedure may be difficult, a full bowel preparation the night before with a neomycin enema the morning of the surgery is a safe precautionary measure.

FIG. 19-1. The perineum must be parallel to the operating room floor. The patient is placed in an extreme lithotomy position with the buttocks extended 6 inches past the end of the table. A sandbag is placed under the sacrum, shoulder braces are positioned to prevent cephalad movements, and Allen stirrups are used to maintain this exaggerated position.

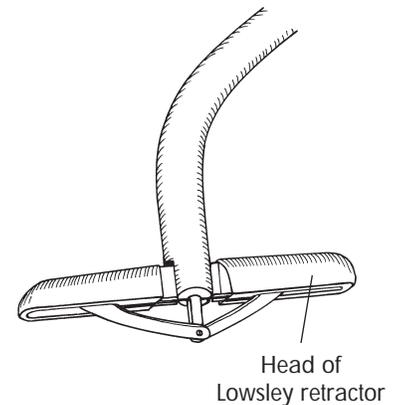
The ischial tuberosity should be draped into the operative field.

EXPOSURE

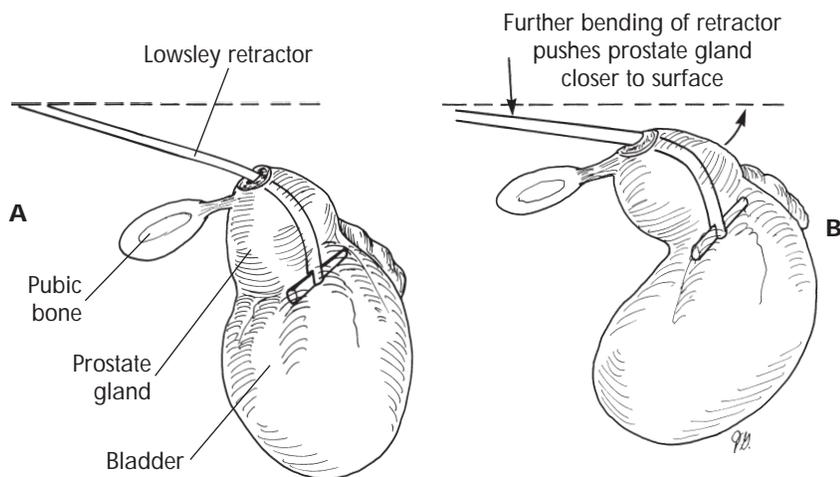
FIGS. 19-2 AND 19-3. Once the Lowsley retractor is in the bladder and its wings opened, the assistant must manipulate the retractor so that the prostate gland is pushed toward the perineal surface. This maneuver requires a downward and forward motion with the Lowsley retractor so that the prostate gland will protrude toward the wound.



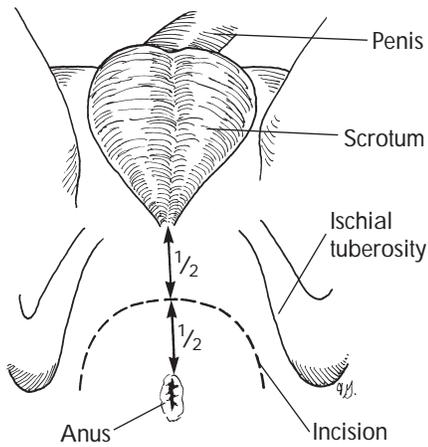
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FIG. 19-4. The inverted-U incision is made halfway between the scrotum and anus and medial to each ischial tuberosity. An incision over the tuberosity would cause discomfort for the patient in a sitting position after surgery.

FIG. 19-5. With blunt dissection through the subcutaneous fat laterally, the surgeon encircles the dense midline tissues and divides the central tendon.

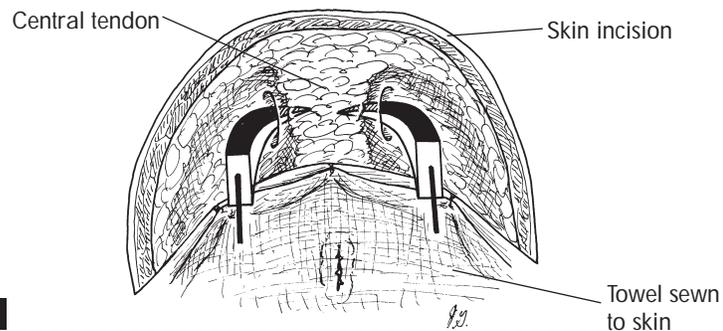
FIG. 19-6. *The most important and difficult part of this operation is the takedown of the rectourethralis muscle and mobilization of the rectum off the prostate gland.*

After using Kelly clamps to spread the fatty tissues deeper directly into the ischiorectal fossa

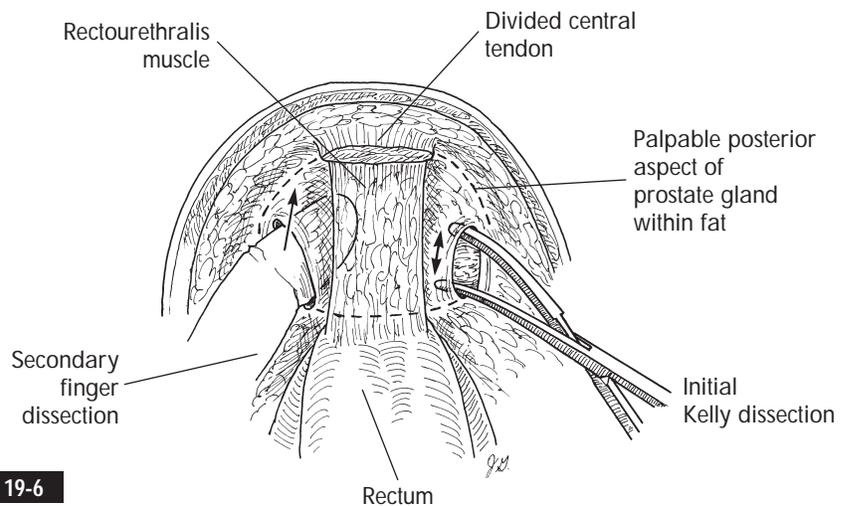
from the more lateral approach, the surgeon inserts two index fingers to palpate for the prostate gland. The assistant must push the Lowsley retractor down and forward so that the posterior aspect of the prostate gland protrudes into the wound.

FIG. 19-7. Through the fatty tissues, the surgeon can easily feel the posterior surface of the prostate gland, the Lowsley retractor near the prostatic apex, and the more proximal portion of the prostatic base.

FIG. 19-8. Selecting a point in the lateral midprostatic area, the surgeon now performs gentle blunt dissection, with the index fingers coming toward the midline from

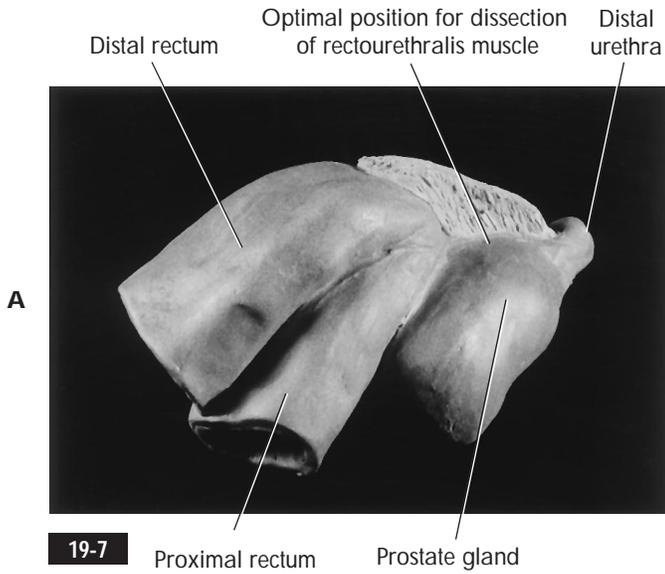


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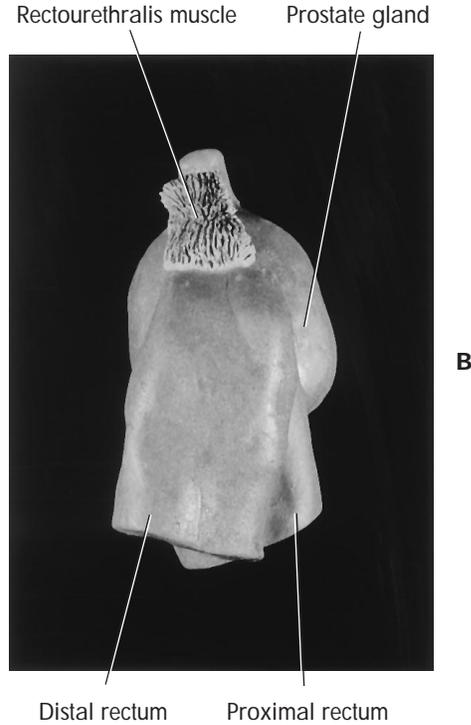


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Oblique View

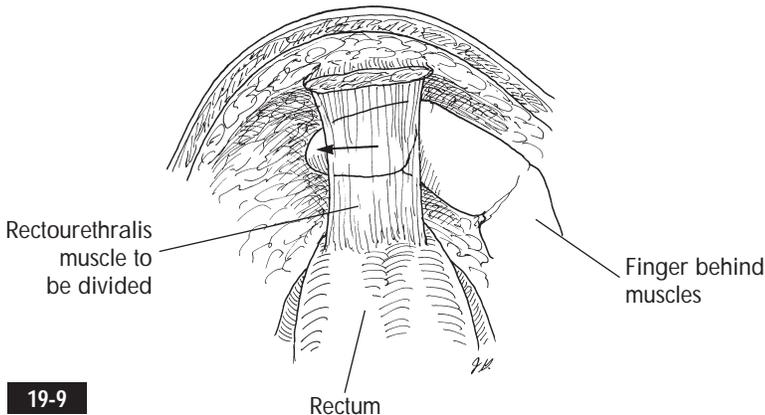
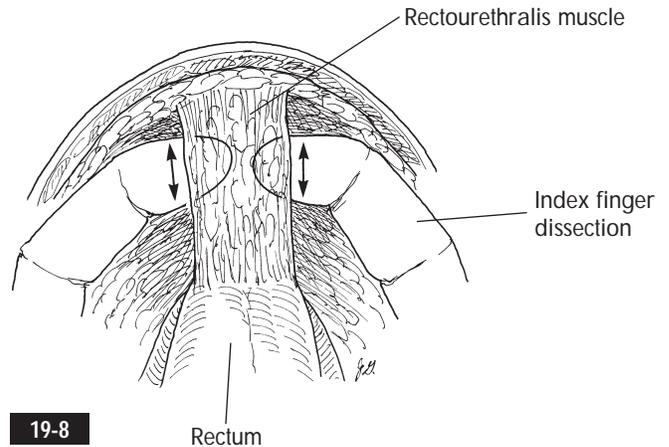


Anterior Posterior View



a lateral position. With this gentle blunt dissection, *always* staying on the surface of the prostate gland, the surgeon uses the index fingers to lift the fibrous tissues overlying the posterior aspect of the prostate gland, maneuvering the fingers toward the midline until they meet. The rectourethralis muscle is now free from the prostate gland.

FIG. 19-9. The rectourethralis muscle is still attached to the rectum below. The surgeon places the left index finger under the muscle and uses the knife carefully to divide the muscle. The posterior surface of the prostate gland is now safely exposed.



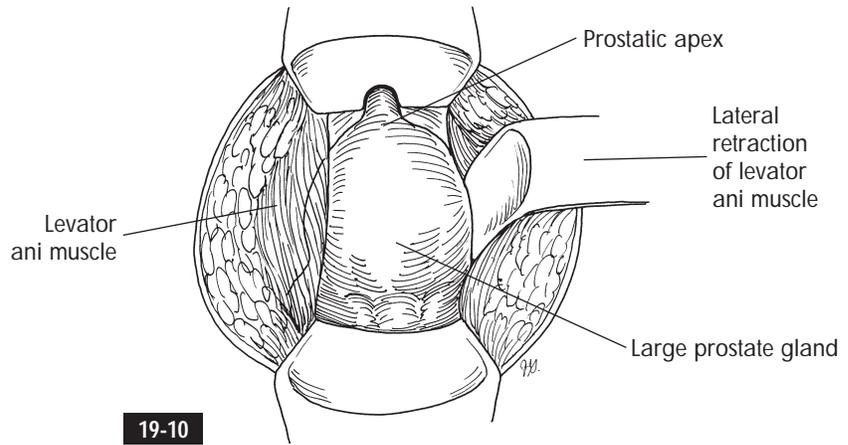


FIG. 19-10. The rectum is thus mobilized posteriorly and covered with gauze. A posterior flat retractor is placed over it and retracted inferiorly for the rest of the surgery.

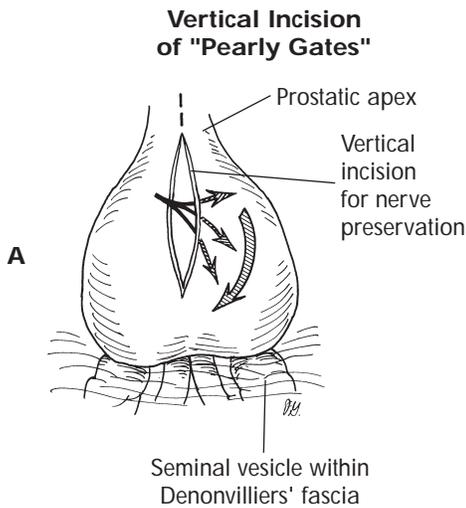
If the prostate gland is large, it may be necessary at this point to incise the medial edges of the levator ani muscles and retract them laterally to gain sufficient exposure for the next steps.

DENONVILLIERS' FASCIA AND THE "PEARLY GATES"

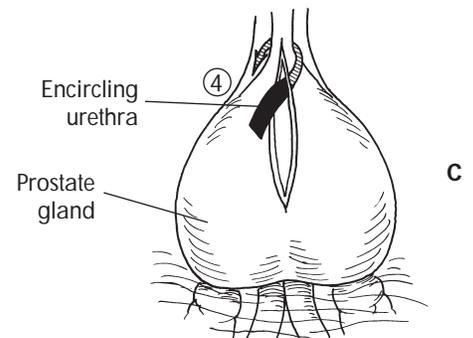
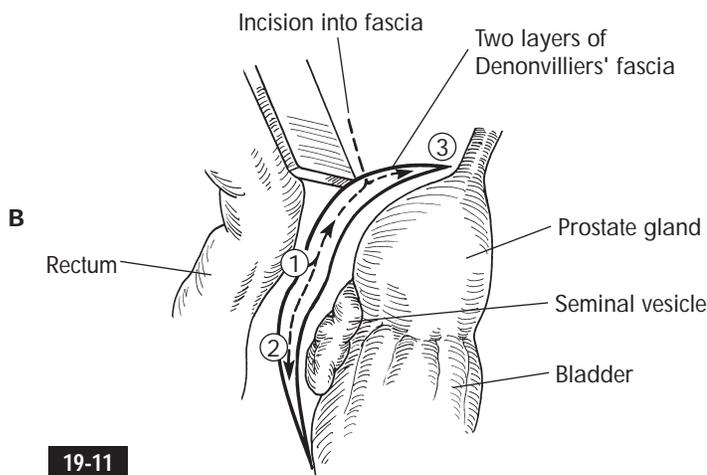
FIG. 19-11. By making a vertical incision over the posterior leaf of Denonvilliers' fascia (1) rather than the classical horizontal one, the surgeon will not injure the neurovascular bundles. This ver-

tical incision must be carried further toward the prostatic base (2) because this potential space between the two leaves of Denonvilliers' fascia may lie more proximally than expected. It is not uncommon to find the leaves of Denonvilliers' fascia fused as the dissection approaches the prostatic apex (3). The "pearly gates" refer to the inner surface of the space between the leaves and are more often encountered near the prostatic base. They classically signify safety, but occasionally the prostate surface is clearly exposed without any "pearly gates" really being recognized.

Once the posterior surface of the prostate gland is clearly seen, the surgeon can now isolate the prostatic apex and encircle the urethra (4). The proximal dissection at this point should extend into the region of the seminal vesicles (2) to make later dissection of these structures much easier.



Lateral View



19-11

URETHRAL AND ANTERIOR PROSTATE DISSECTION

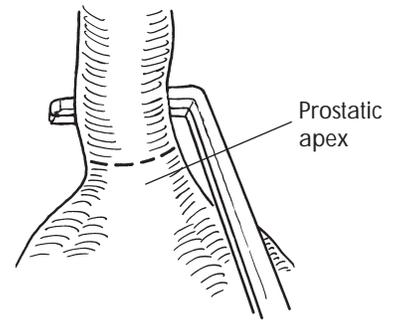
FIGS. 19-12 AND 19-13. The urethra is freed circumferentially distal to the prostatic apex and opened transversely to expose the shaft of the Lowsley retractor.

The Lowsley retractor is replaced by the Young tractor through this urethral opening. The urethra is now completely transected.

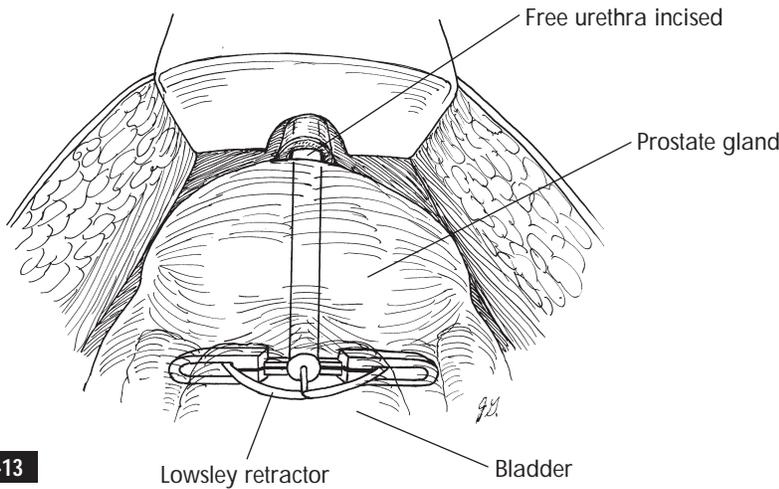
FIG. 19-14. With the left hand on the Young tractor, the surgeon uses the right index finger to es-

tablish a plane between the anterior surface of the prostate gland and its overlying fascia. This is quickly and easily done by finger dissection. Since this dissection is performed between the prostate gland and the anterior fascial layers, the dorsal venous complex is never encountered and therefore bleeding is minimal.

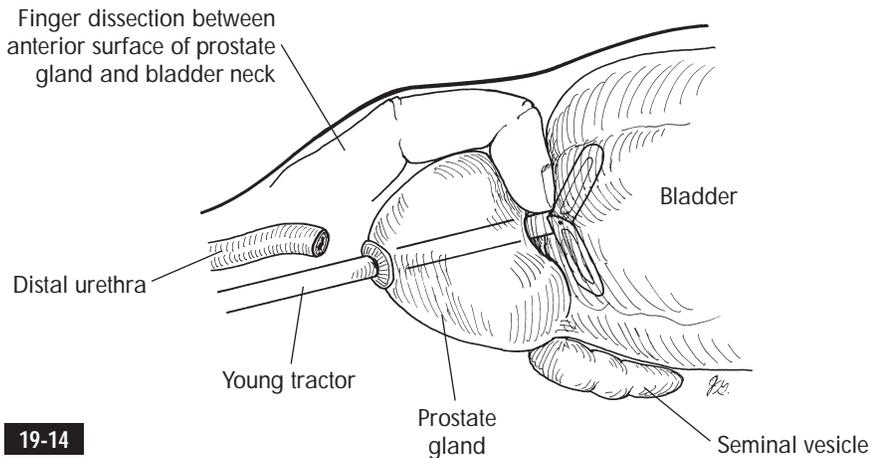
This anterior dissection is continued to the prostate gland–bladder junction and around to the prostatic pedicles laterally.



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BLADDER NECK AND SEMINAL VESICLE DISSECTION

The surgeon now feels the Young tractor at the bladder neck junction and uses mostly blunt dissection to establish a plane between the prostate gland and the bladder. It is remarkably easy to winnow this tissue down to just the bladder neck and pedicles.

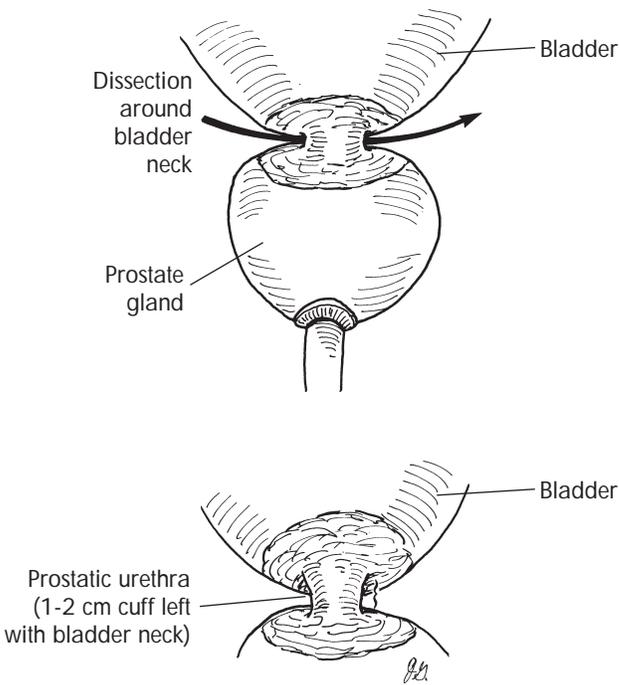
FIG. 19-15. With further finger dissection drawing the prostate gland distally, the surgeon should make every attempt to preserve a cuff of proximal prostatic urethra circumferentially measuring 1 to 2 cm from the bladder neck. We have found this maneuver offers early postoperative recovery of continence with both this operation and radical retropubic prostatectomy.^{1,2} This maneuver also protects against transection occurring too close to the trigone, with attendant ureteral damage. Only rarely is the bladder neck involved with the tumor; in those cases more classical transection can be done. The surgeon still must be careful to cut the bladder

neck or proximal prostatic urethra straight back and avoid any tendency to angle the cut cephalad.

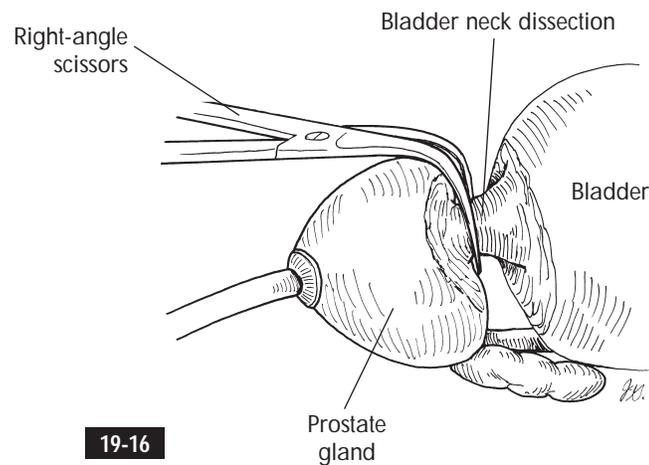
FIG. 19-16. The Young tractor is removed and the proximal prostatic urethral cuff is transected with right-angle scissors.

FIGS. 19-17 AND 19-18. A urethral catheter is placed through the prostate gland for traction. A Foley catheter may be placed in the bladder with the balloon inflated to 30 to 50 ml for gentle retraction cephalad.

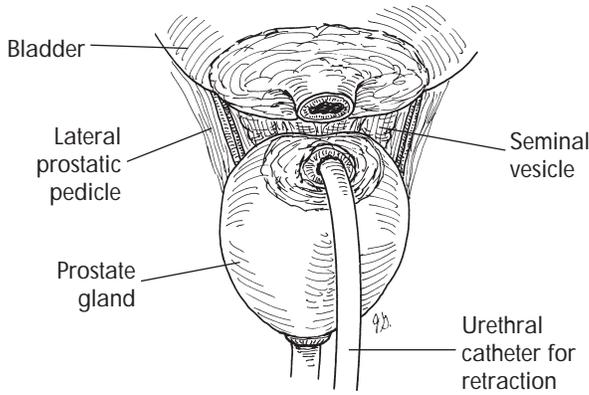
The only structures holding the prostate gland now are the vasa deferentia, seminal vesicles, and lateral prostatic pedicles. These structures are ligated and divided by either the anterior or posterior approach. The artery of each seminal vesicle is located almost at the tip of the seminal vesicle; it is small but worth controlling. Cancerous involvement of the seminal vesicles is almost always only in the intraprostatic portion of the seminal vesicles, so leaving a small cephalad fragment of these friable structures is not a crime.



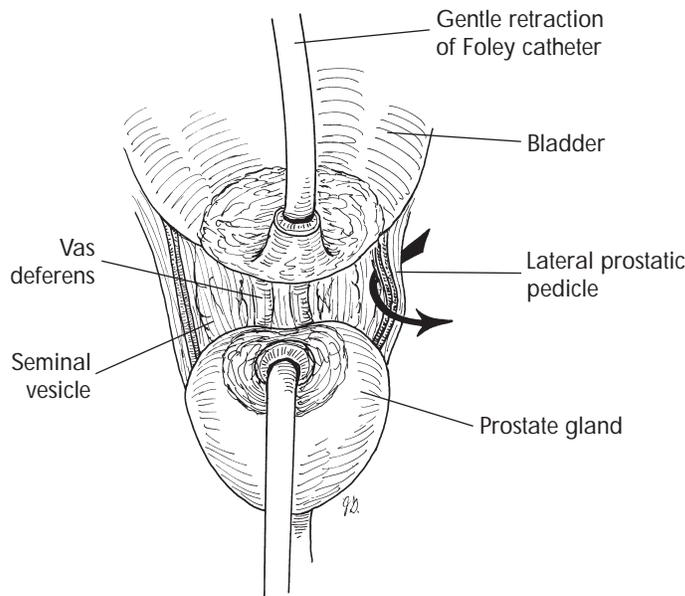
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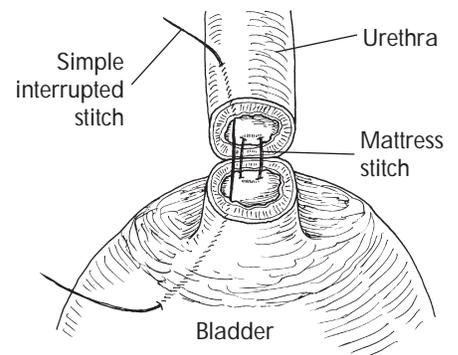


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Vesicourethral Anastomosis



19-19

URETHRAL-BLADDER NECK RECONSTRUCTION

In contrast to the retropubic approach, the easiest part of this operation is the urethral-bladder neck anastomosis. Sometimes the structures of the bladder neck and distal urethra are so close that it almost appears as if no stitches at all are needed. They are, though.

FIG. 19-19. A good, secure horizontal mattress stitch (2-0 Vicryl) is placed in the anterior 12-o'clock position before the Foley catheter (22 Fr with 30 ml balloon) is inserted through the distal urethra and into the bladder.

The remaining three simple interrupted stitches are placed at the 3-, 6-, and 9-o'clock positions. The trigone and ureters are usually well back from the anastomosis, but it does not hurt to check once again. There is no need for bladder neck "tailoring."

A drain is placed, and the levator ani muscle, central tendon, subcutaneous tissues, and skin are reapproximated with simple interrupted stitches. A mesh panty holds a simple dressing in place and the Foley catheter is placed for constant drainage.

KEY POINTS

- The patient is positioned so that the perineum is parallel to the operating room floor.
- The Lowsley retractor is manipulated by the assistant to push the prostate gland toward the perineum.
- An incision is made halfway between the scrotum and the anus and medial to the ischial tuberosity.
- The central tendon is divided.
- The rectourethralis muscle is mobilized by the surgeon with two index fingers.
- The levator ani muscle must be mobilized laterally if the prostate gland is large.
- A vertical incision is made in the posterior leaf of Denonvilliers' fascia to expose the "pearly gates" of the anterior leaf. This vertical incision preserves the neurovascular bundles for a nerve-sparing procedure.
- Dissection posteriorly is performed distally around the urethra and proximally up over the seminal vesicles.
- The urethra is incised against the Lowsley retractor and then this retractor is removed.
- The Young tractor is depressed, allowing quick and simple anterior prostate dissection with a finger, avoiding the dorsal venous complex entirely.
- The plane between the prostate gland and the bladder is easily bluntly developed using the shaft of the Young tractor as a guide.
- The bladder neck is dissected, preserving a 2 cm cuff of the prostatic urethra.
- After the Young tractor is removed, the bladder neck and/or cuff are divided.

- A urethral catheter is placed through the prostate gland for traction.
- The vasa deferentia, seminal vesicles, and lateral prostatic pedicles are ligated and divided.
- A horizontal mattress stitch is placed at the anterior 12-o'clock position and then three simple interrupted stitches are placed to complete the urethral-bladder neck anastomosis.

POTENTIAL PROBLEMS

- *Poor exposure of perineum:* Check for proper positioning → manipulate the Lowsley retractor
- *Rectal laceration:* Perform a two-layer closure → interpose the anal sphincteric muscle when finishing the surgery → ensure that a watertight closure of the bladder neck has been obtained → cover with systemic antibiotics for 7 days
- *Large prostate gland:* Mobilize the levator ani muscle laterally
- *Unable to find space between two leaves of Denonvilliers' fascia:* Extend vertical incision more proximally and expose prostate surface
- *Penetration of dorsal venous complex during anterior prostate dissection:* Apply manual pressure over the complex → resume dissection in the correct plane
- *Bleeding from lateral prostatic pedicles:* Visualize the pedicles and apply suture ligatures → pack the area for a tamponade effect
- *Unanticipated extension of tumor into bladder neck:* Resect the tumor if at all possible and tailor the bladder neck
- *Bladder neck transection is too close to trigone:* Tailor bladder neck by closing it posteriorly so that anastomosis is made to the anterior bladder neck opening

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- 2 Malizia AA et al: Modified radical retropubic prostatectomy: double continence technique [abstract]. Presented at the Annual AUA meeting, Dallas: May 10, 1989.

SUGGESTED READINGS

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