

The most difficult part of an open prostatectomy, whether by a suprapubic or retropubic approach, is the control of bleeding after the enucleation of the prostate gland.

CONTROL OF BLEEDING BEFORE PROSTATE GLAND ENUCLEATION

With precautionary maneuvers such as (1) temporary hypogastric artery ligation, (2) ligation of the deep dorsal venous complex, and (3) stitch ligation of the prostatic pedicles before the actual procedure, we have had good control of bleeding after the prostate gland has been enucleated.

Temporary Hypogastric Artery Ligation

Although temporary ligation of the hypogastric artery will not prevent bleeding after enucleation of the prostate gland, the maneuver

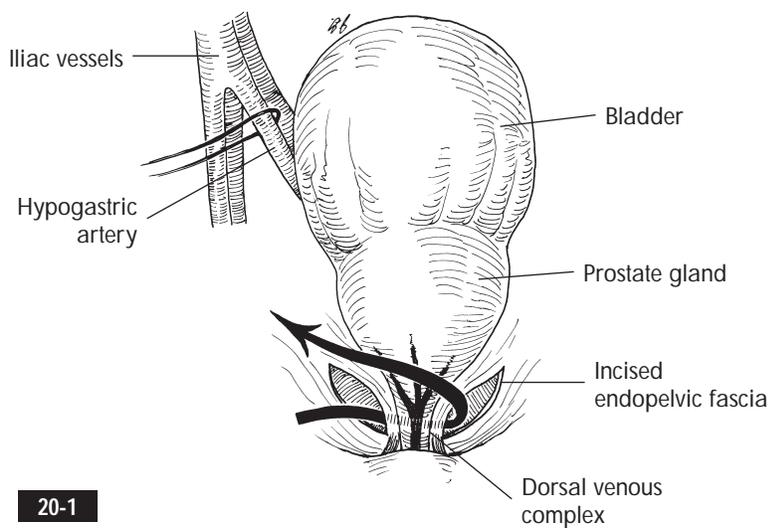
will lessen the bleeding so that the surgeon has an acceptable field of visualization.

FIG. 20-1. As in radical retropubic prostatectomy (see p. 170), retroperitoneal pockets are created first. The malleable blade is used to retract these pockets, and the hypogastric artery is isolated.

Rather than using bulldog clamps, we prefer to use vessel loops looped twice around the vessel and then tied. These vessel loops are easily removed after the main steps of the operation have been completed.

Ligation of Dorsal Venous Complex

Although ligation of the dorsal venous complex has been cited as providing improved hemostasis for retropubic prostatectomy for benign disease,¹ we have found this maneuver useful for the suprapubic approach as well.



20-1

As for radical retropubic prostatectomy (see p. 172), the surgeon first isolates the deep dorsal venous complex (see Fig. 20-1).

FIG. 20-2. After opening the endopelvic fascia bilaterally, the surgeon does *not* divide the puboprostatic ligaments as is done in radical prostatectomy.

FIG. 20-3. The surgeon establishes a plane between the deep dorsal venous complex and the urethra and then passes a suture (0 Vicryl) around the complex and the puboprostatic ligaments as one unit.²

Two ties are usually sufficient for good hemostasis.

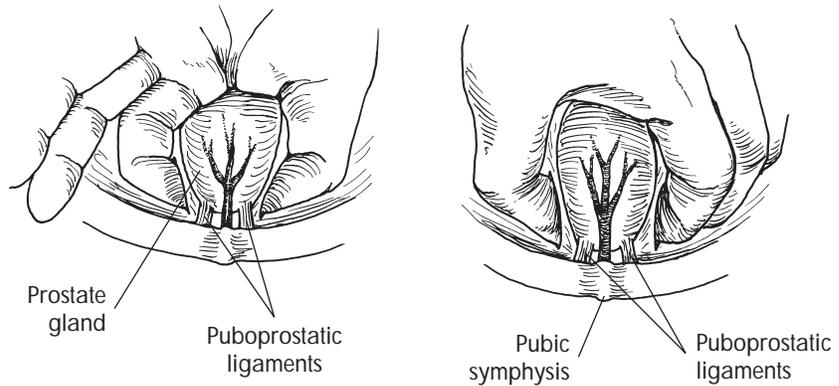
Ligation of Prostatic Pedicles

FIGS. 20-4, 20-5, AND 20-6. The prostatic pedicles are located at the inferior junction between the bladder and the prostate gland at the 5- and 7-o'clock positions.

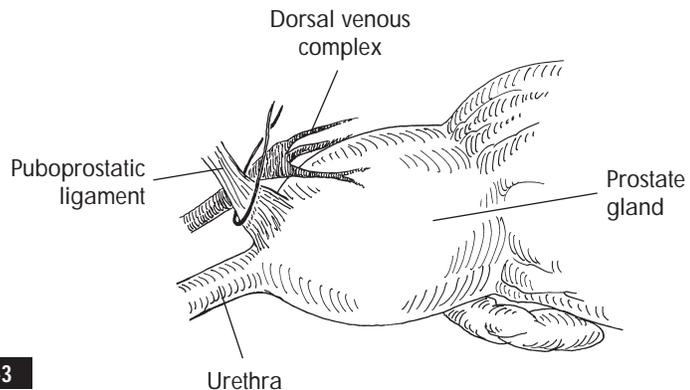
The seminal vesicles are medial and posterior to these pedicles, whereas the rectum is posterior to the seminal vesicles.

After palpating and visualizing the vesicoprostatic junction, the surgeon places a figure-of-eight stitch (0 absorbable) at this junction almost parallel to the rectum.³⁻⁵

Finger-Pinching of Dorsal Venous Complex

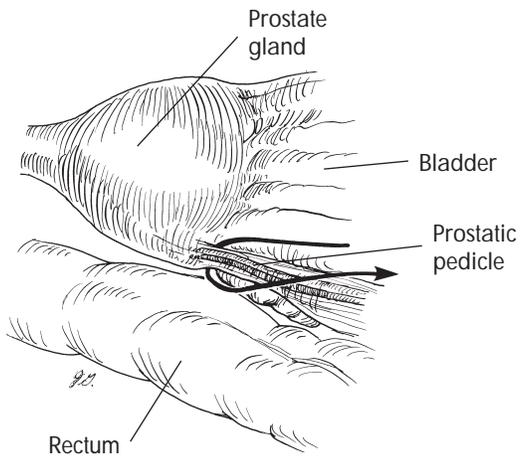


20-2



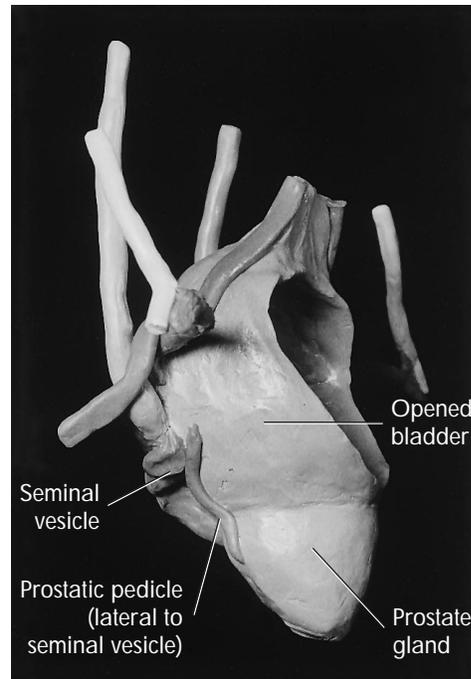
20-3

Lateral View

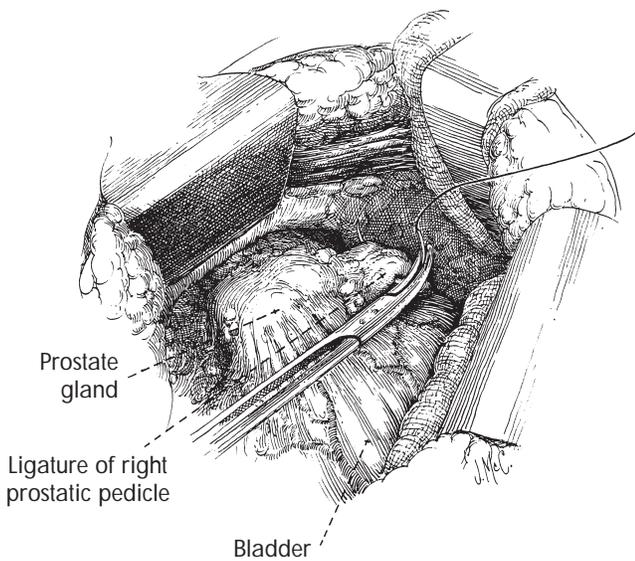


20-4

Oblique View



20-5



From Bensimon H: *Urologic surgery*, New York, 1991, McGraw-Hill.

20-6

EXPOSURE OF BLADDER AND PROSTATE GLAND ENUCLEATION

Rather than immediately enucleating the prostate gland after the bladder is opened, we prefer first to obtain the best exposure of the bladder and to define the most proximal dissection, thus protecting the ureters. This approach will also facilitate the placement of hemostatic stitches once the prostate gland has been removed.

FIG. 20-7. The placement of four or five sponges within the bladder with a malleable blade retracted cephalad and fixed to the Balfour retractor will provide a good field for the initial maneuvers (A).

The ureteral orifices are identified, and a feeding tube or stent is placed within if needed (B).

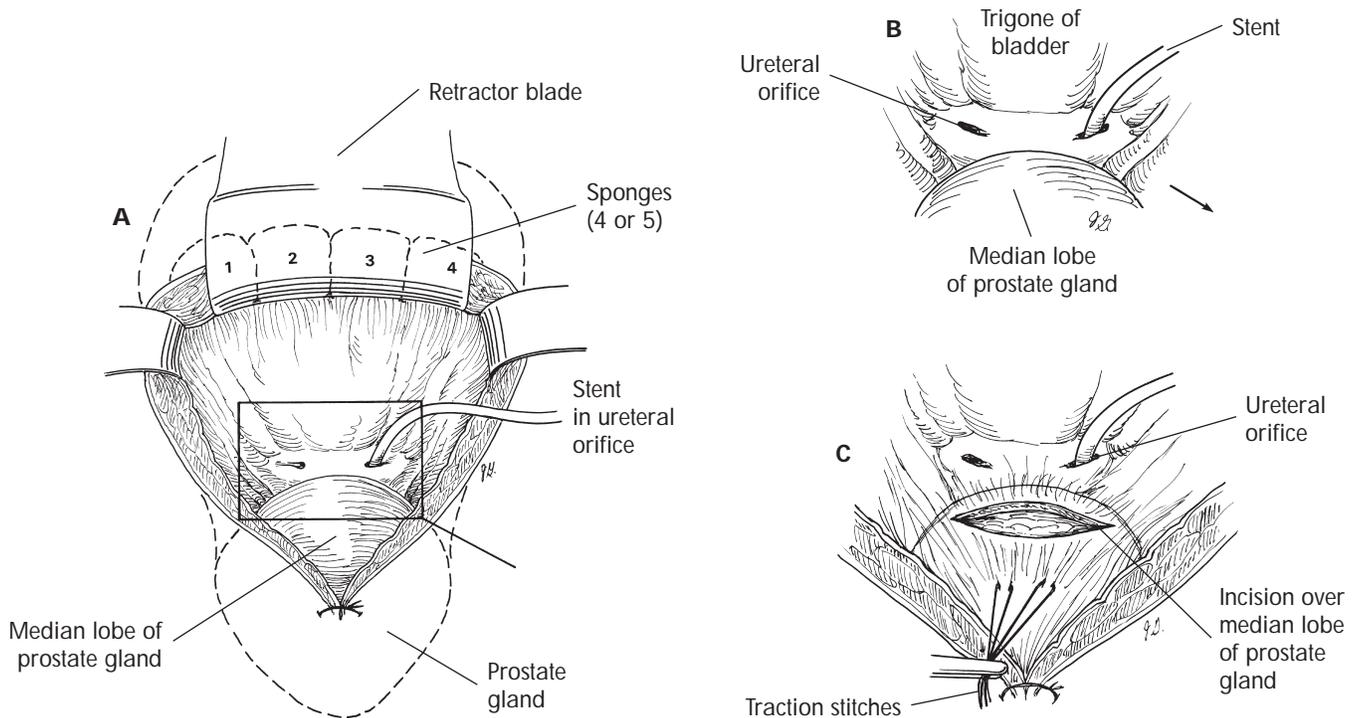
A traction stitch (0 Prolene) is placed into the median lobe of the prostate gland with multiple bites for better maneuverability (C). When the traction stitch is retracted distally, the space between the ureters and the median lobe is better identified.

FIG. 20-8. The urothelium above, the median lobe, and the prostatic capsule are incised via electrocautery. With scissors the surgeon can now establish a clean plane of proximal bladder dissection as well as define the base of the prostate gland within the prostatic capsule.

FIG. 20-9. At this point the surgeon has the option of continuing the dissection with the index finger to either go around the base of the prostate gland toward the prostatic apex (1) or break the anterior commissure, start the dissection at the prostatic apex, and work toward the base (2).

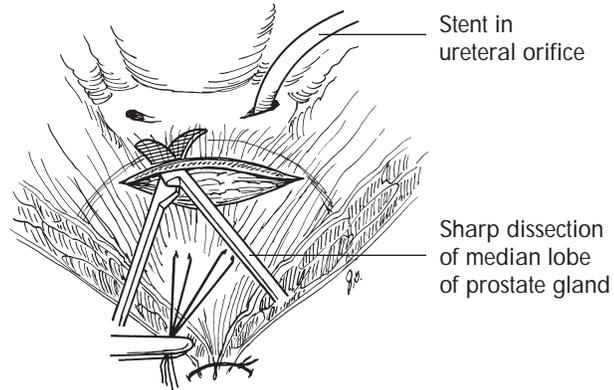
We prefer to work from the base toward the prostatic apex while encircling the urethra and cutting the urethra flush against the apical tissues.

When enucleating the prostate gland, the surgeon should apply finger pressure against the prostate surface and not on the capsular side to avoid false passage and capsular lacerations.



Sharp Dissection of Median Lobe of Prostate Gland

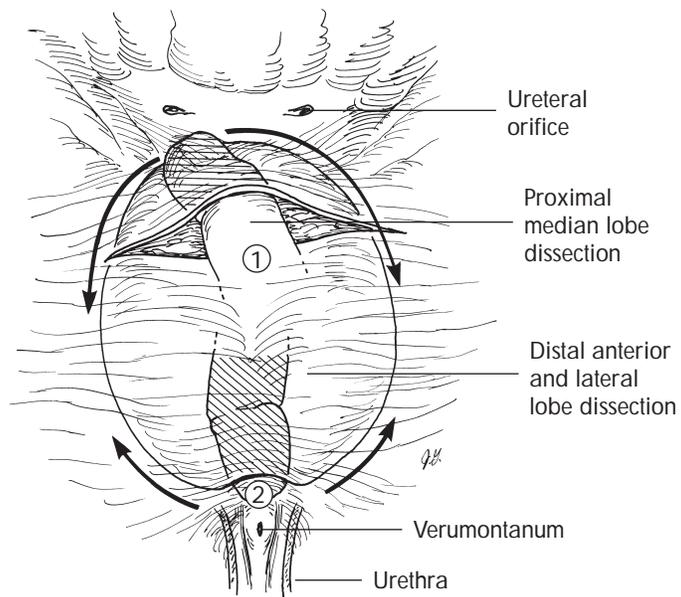
Frontal View



Lateral View



20-8

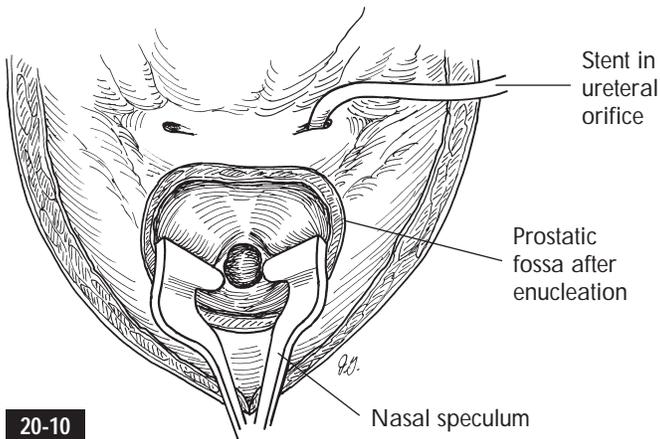


20-9

CONTROL OF BLEEDING AFTER PROSTATE GLAND ENUCLEATION

The *most important maneuver* in suprapubic open prostatectomy is the control of bleeding within the prostatic fossa after enucleation.

FIG. 20-10. By placing a long nasal speculum or a narrow Deaver retractor into the prostatic fossa, the surgeon can better visualize the region for hemostatic stitch placement.

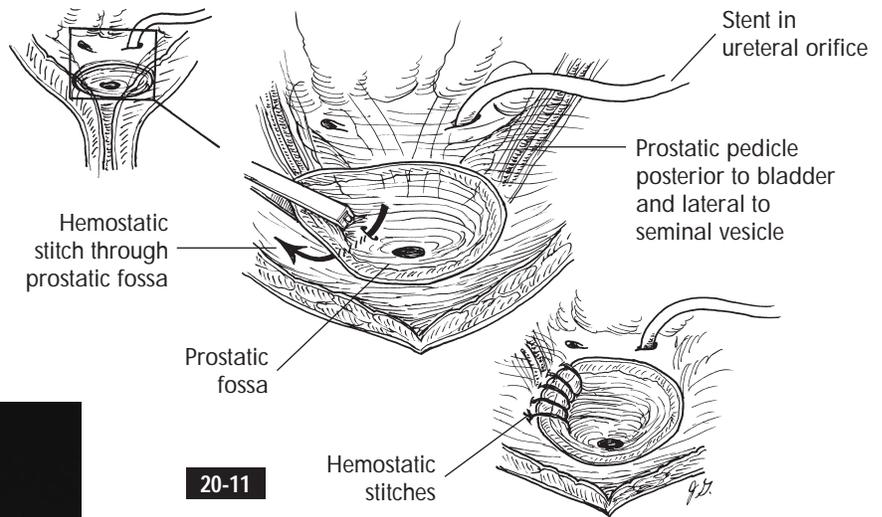


20-10

FIGS. 20-11 AND 20-12. Allis clamps applied at the 5- and 7-o'clock positions of the proximal prostatic fossa and the bladder edges should incorporate at least a 1 to 2 cm depth of the tissues. While applying cephalad traction with clamps, the surgeon can place a running stitch into the 5- and 7-o'clock positions (0 absorbable or 2-0 Vicryl).

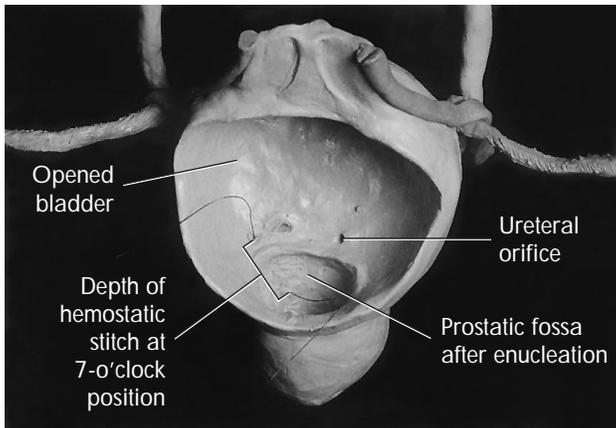
Before placing these stitches, the surgeon should have a good sense of the location of the prostatic pedicles, seminal vesicles, and rectum.

Fearful of injuring the rectum, surgeons generally tend to take excessively shallow suture bites, which have no effect on hemostasis. With experience, the surgeon learns the proper depth of each bite of the stitch.



20-11

Frontal View (with Section of Bladder Removed)



20-12

Alternately, if necessary, the surgeon can actually palpate and check for the appropriate depth of stitch placement by palpating in the rectum with (1) a finger, (2) an inflated rectal catheter, or (3) a sponge stick.

Malament Stitch

The purpose of the Malament stitch is to compartmentalize the prostatic fossa from the bladder and thereby compress the bleeding surfaces of the fossa.^{6,7}

FIG. 20-13. Using a 1-0 nylon or Prolene stitch, the surgeon can use a pursestring or a running stitch 2 cm apart to encircle the bladder neck (A). The stitch should be easily movable and, as it comes through the prostatic capsule at the 12-o'clock position, it should be crossed and brought out to the skin with some tension (B).

This stitch should be under tension to create a true tamponade effect, and it should be removed within 5 to 10 hours postoperatively. If this stitch is left in for a prolonged period (3 to 5 days), it can lead to a bladder neck contracture.

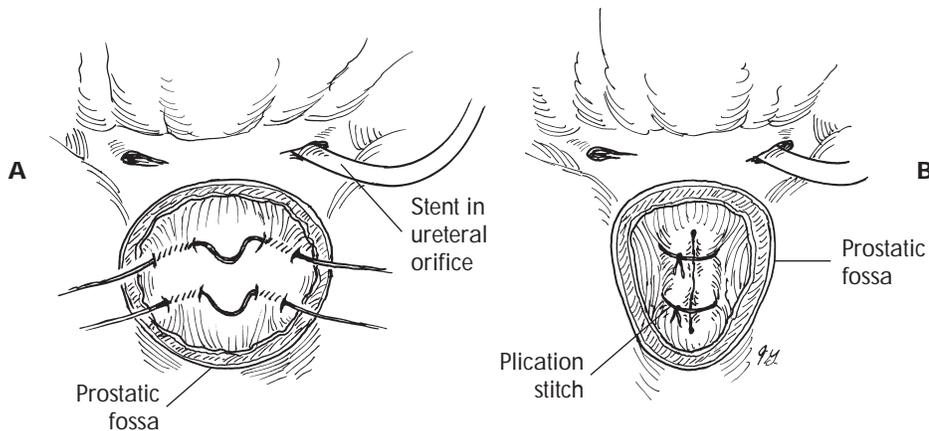
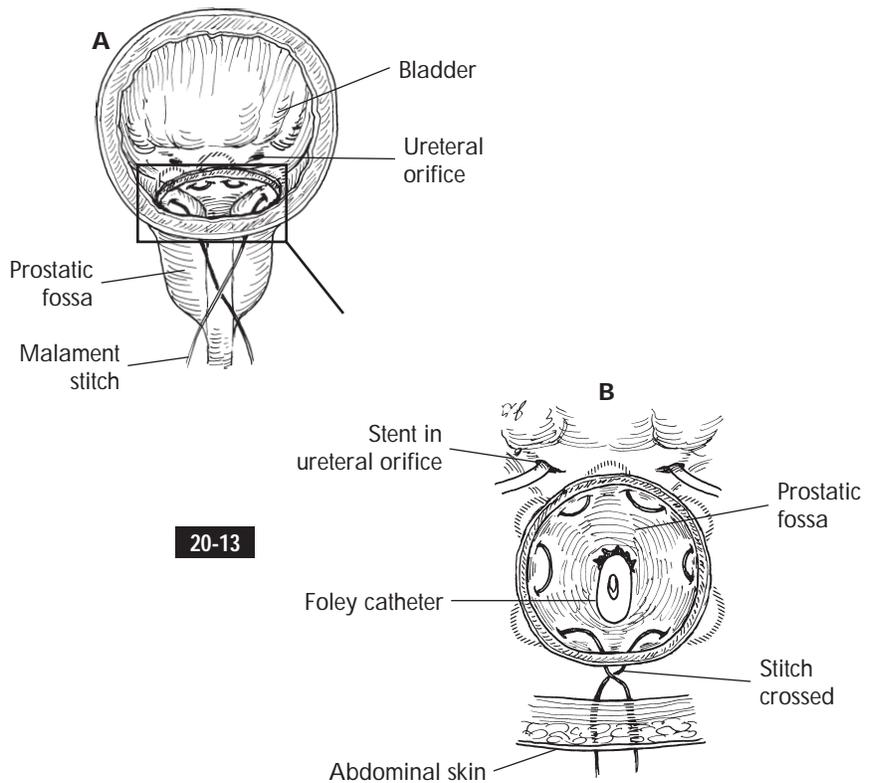
The Foley catheter is best left in for a 10- to 14-day period to avoid cross adhesions at the bladder neck, whereas the suprapubic tube can be removed as soon as the bleeding has subsided and the large clot has been removed.

Plication Stitch of Prostatic Fossa

FIG. 20-14. The plication stitch essentially obliterates the prostatic fossa while compressing potential bleeding sites.⁸ Large bites with absorbable sutures (e.g., 0 absorbable) is the best choice.

The Foley catheter (24 Fr) with the balloon inflated to 30 ml can be placed under traction to compress the prostatic fossa whether or not the surgeon uses hemostatic stitches.

Malament Stitch



20-14

KEY POINTS

CONTROL OF BLEEDING BEFORE PROSTATE GLAND ENUCLEATION

- The hypogastric artery is ligated temporarily.
- The dorsal venous complex is ligated.
- Suture ligation of the prostatic pedicles is performed.

PROSTATE GLAND ENUCLEATION

- The bladder is exposed using a malleable retractor blade.
- The ureteral orifices are identified and stents are placed.
- A traction stitch is placed in the median lobe of the prostate gland.
- Proximal bladder dissection is performed via electrocautery incision in the prostatic capsule.
- Sharp and blunt dissection of the prostate base or distal dissection at the prostatic apex is performed.
- Finger pressure is applied against the prostate surface during prostate gland enucleation.

CONTROL OF BLEEDING AFTER PROSTATE GLAND ENUCLEATION

- A nasal speculum can be used for improved exposure of the prostatic fossa.
- At the 5- and 7-o'clock positions of the proximal prostatic fossa, running stitches can be placed.
- A 1-0 nylon Malament stitch can be used to compress the bleeding surfaces of the prostatic fossa.
- Plication stitches (0 chromic) can be placed to obliterate the prostatic fossa.

POTENTIAL PROBLEMS

- *Capsular laceration during enucleation:* Repair laceration and continue with the operation
- *Injury of ureteral orifice:* Place stent
- *Bleeding after enucleation of prostate gland:* Consider all maneuvers before and after enucleation as discussed

REFERENCES

- 1 Walsh PC, Oesterling JE: Improved hemostasis during simple retropubic prostatectomy, *J Urol* 143:1203, 1990.
- 2 Yu GW, Melograna FS, Miller HC: Surgical modifications for ligation of deep dorsal vein complex from the retropubic space, *Urology* 40:545, 1992.
- 3 Bensimon H: *Urologic surgery*, New York, 1991, McGraw-Hill, pp 253-261.
- 4 Cockett ATK, Koshiba K: *Manual of urologic surgery: comprehensive manuals of surgical specialties*, vol 5, New York, 1979, Springer-Verlag.
- 5 Mayo G, Zingg EJ: Prostatectomy. In *Urologic surgery: diagnosis, techniques, and postoperative treatment*, New York, 1976, John Wiley, pp 326-330.
- 6 Cohen SP, Kopilnick MD, Robbins MA: Removable purse-string suture of the vesical neck during suprapubic prostatectomy, *J Urol* 102:720, 1969.
- 7 Malament M: Maximal hemostasis in suprapubic prostatectomy, *Surg Gynecol Obstet* 120:1307, 1965.
- 8 O'Connor VJ Jr: Suprapubic prostatectomy. In Glenn JF, editor: *Urologic surgery*, Philadelphia, 1983, JB Lippincott, pp 853-860.