Inadvertent rectal injury from a urologic procedure is often subtle but has serious postoperative consequences.

With good mechanical bowel preparation plus antibiotic and intravenous antibiotic administration, the surgeon now has better success in primary closure of rectal lacerations without the need for a colostomy for fecal diversion.

During radical perineal or radical retropubic prostatectomy and radical cystectomy, there are certain maneuvers that are associated with a high risk for rectal injury.

**RADICAL PERINEAL PROSTATECTOMY**

After division of the central tendon, the surgeon divides the rectourethralis muscle.

**FIG. 27-1.** With manipulation of the Lowsley retractor, the assistant pushes the prostate gland toward the operative field and almost in a horizontal position. The rectourethralis muscle tethers the “tented-up” rectum and inserts into the region of the prostatic apex (see p. 190).

Even when the surgeon performs gentle blunt dissection using two index fingers approaching from the lateral edges of the rectourethralis muscle to meet in the midline, there is potential for rectal injury (see p. 191).

**FIG. 27-2.** The surgeon palpates the junction of the prostatic apex and the Lowsley retractor within the urethra (1), slides the finger slightly more proximally, and performs blunt finger dissection on the midportion of the posterior prostate gland (2). Because the rectourethralis muscle inserts on the distal portion of the posterior prostate gland (3), manipulations of this area can rarely lead to rectal tears. If rectal injury occurs, it is because the nail of the surgeon’s index finger is not firmly on the...
prostate surface but is instead
penetrating soft tissue away from
the prostate surface.

If there is a rectal tear, the sur-
geon places the finger through the
anus, defines the location and ex-
tent of the tear, and then performs
a two-layer closure with a run-
ning stitch (2-0 absorbable) and
interrupted mattress stitch (2-0
Vicryl).

A later interposition of the ad-
ijacent anal sphincter between the
injured rectum and the new blad-
der neck as well as a watertight
vesicourethral anastomosis are
critical maneuvers to avoid a fis-
tula.1 The collection of fluid in the
dead space and contact of the su-
ture lines predispose to fistulous
tract formation.

Antibiotic solution irrigation
should be liberal in this area, and
broad-spectrum intravenous an-
tibiotics should be administered.

RADICAL RETROPUbic
PROSTATECTOMY

After division of the dorsal ve-
nous complex, while the surgeon
isolates the distal urethra, the risk
for rectal injury exists.

Instead of puncturing the rec-
tourethralis muscle with a right-
gle clamp, we first thin out the
rectourethralis muscle by gently
pinching the tissues with the left
index and middle fingers. This
finger-pinching maneuver thins
out the tissues around the urethra
and prostatic apex (see p. 176). The
right-angle clamp is then
used to puncture the residual at-
chments of the rectourethralis
muscle. We have found that this
maneuver not only is safer and
easier but also ensures a full-
thickness distal urethral stump.

Another common maneuver
with which there is a potential
risk for rectal injury is the division
of the residual rectourethralis
muscle and the striated sphincter
muscle after urethral division.

FIG. 27-3. The Foley catheter is di-
vided and placed under cephalad
traction, thus applying cephalad
traction to the rectourethralis
muscle.

By placing the left index and
middle fingers slightly behind the
rectourethralis muscle and over
the prostatic apex, the surgeon
can first spread the muscle fibers
vertically or parallel to the muscle
before cutting across on the pros-
tate side. The surgeon must “hug”
the prostate gland with the scis-
sors when cutting across the mus-
cle. The two lateral pillars are also
divided (see p. 180).
Chapter 27 Rectal Injury in Urologic Surgery

**FIG. 27-4.** When a rectal injury occurs, it may be partial (serosa and adventitia only) or complete. When it is a complete tear, a two-layer closure with a running stitch (2-0 absorbable) and an interrupted horizontal mattress stitch (2-0 Vicryl) is sufficient. The assistant’s fingers in the rectum will better define the margins of the injury for repair.

Fat or omental interposition near the completion of the surgery should be helpful.² The use of local antibiotic irrigation and intravenous antibiotic administration are important.

**RADICAL CYSTECTOMY IN THE FEMALE PATIENT**

In both men and women, after the incision in the peritoneal cul-de-sac, the surgeon can easily define a plane anterior to the rectum.

**FIG. 27-5.** However, in the woman who has previously undergone hysterectomy, fibrosis around the proximal vaginal cuff and the rectum can obliterate any definable planes (see p. 103). This is the region where rectal injuries can occur.

It is best to divide the peritoneal cul-de-sac and perform as little blunt dissection as possible. By having the assistant push a sponge stick up the vagina, the surgeon can divide the most cephalad part of the vagina cuff while constantly palpating the sponge stick. Once the area is opened, the surgeon can more easily define the lateral planes of dissection with the rectum lying posteriorly.
**Critical Operative Maneuvers in Urologic Surgery**

**Radical Cystectomy in the Male Patient**

**Fig. 27-6.** After the peritoneal cul-de-sac has been divided and a dissection plane has been established between the bladder/prostate gland and the rectum, the easiest approach is to start the distal anterior dissection as is performed for radical retropubic prostatectomy. By joining the two dissections from above and below, the surgeon is left with only the two leaves of the posterior bladder pedicles.

**Fig. 27-7.** The potential for rectal injury occurs when the surgeon connects the distal dissection to the proximal dissection from above. There is usually a web of tissue between the two dissections and the surgeon must divide this web as close to the bladder and prostate gland as possible. This maneuver avoids lacerating the tented-up rectum in the web.

If a rectal tear occurs, the surgeon must consider the following factors when choosing either primary closure and/or colostomy:

1. Patient prognosis
2. Patient’s nutritional status (influence on postoperative healing)
3. Presence of diabetes mellitus (associated with poor healing)
4. Difficulty of the procedure thus far
5. Type of urinary diversion planned:
   - Ileal conduit
   - Continent pouch
   - Ileoneobladder with omental interposition

In complicated cases with the potential for poor healing, we prefer to perform ileal loop conduit, which is the simplest urinary diversion.

**Fig. 27-8.** Loop colostomy or knuckle colostomy of the transverse or descending colon is easy to perform with minimal bowel manipulations.

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**Proximal Dissection in Radical Cystectomy**

- Bladder
- Prostate gland
- Peritoneal reflection
- Denonvilliers' fascia
- Rectum
- Optimal incision and dissection plane
Establishing Continuity Between Proximal and Distal Dissections

Optimal site for incision

Web of tissue

Rectum

Distal dissection

Prostate gland

Bladder

Proximal dissection

Incision in peritoneal cul-de-sac


Loop Colostomy

Intact blood supply

A

Knuckle Colostomy

Sewing to peritoneum

B

Incision
REFERENCES

1 Resnick M (Case Western Reserve University): Personal communication, December 1995.

SUGGESTED READING