

TREATMENT OPTIONS FOR LOW RECTAL CANCER

Review of Anatomy

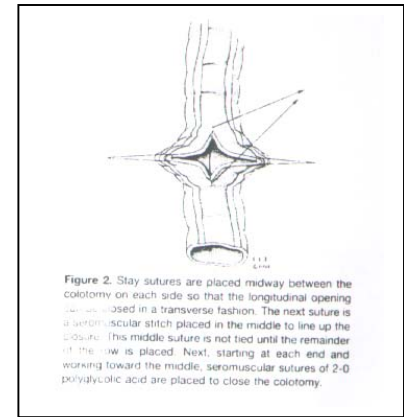
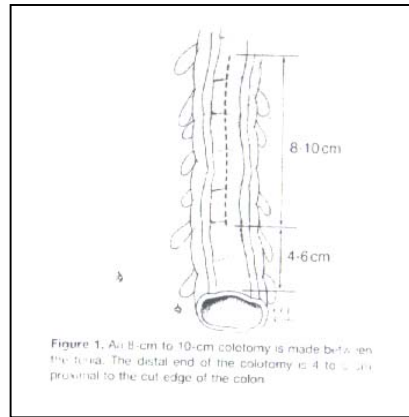
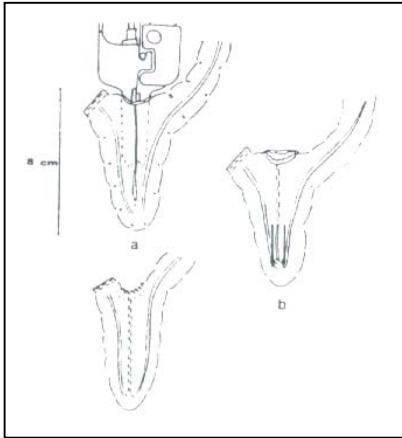
- Anal canal: length ~4 cm in men, ~2.5-3 cm in women
- Rectum: length ~ 12-15 cm, divided into upper, middle, lower
- Junction of rectum and anal canal: at pelvic floor, where puborectalis (part of levator ani) angles bowel forward
- Low rectal cancer: less the 5 cm from anal verge or less than 1 cm from anorectal junction

Staging¹

- Classical staging: by digital exam, describing whether tumor fixed or tethered
- Gold standard: pathological stage after resection
- Transanal ultrasound: best modality for determining invasion into layers of bowel wall, important if local excision is planned; does not show endopelvic fascia
- CT and MRI: show endopelvic fascia, important in determining whether tumor can be treated directly (with or without short course of preop chemoradiation) or is locally advanced and should be treated with longer course chemoradiation and delayed surgery. CT – distal metastatic disease; MRI – best demonstration of soft tissue detail esp. in pelvis

Surgical Options²

- Classical operation: abdominoperineal excision of the rectum with permanent end-sigmoid colostomy
- Continence: Late 1970's, anorectal physiology studies show distal 1-2 cm rectum and upper internal sphincters not necessary for continence
- Margins: Late 1980's, "close shave" study shows resection margin of 1 cm distal to tumor or less produced oncologic outcome similar to margins > 1cm; still controversial but most agree at least 2 cm necessary especially with hand-sewn anastomoses.
- Total Mesorectal Excision: now understood that local recurrence due to lateral spread of tumor, therefore circumferential resection margins have more prognostic significance.
- Low anterior resection: shown to have same or superior oncologic results as APR
 1. Straight coloanal or low colorectal anastomosis
End-to-end; often results in 'anterior resection syndrome,' with symptoms of increased bowel movements, urgency, and incontinence, particularly nocturnal. Suggested that symptoms secondary to loss of rectal reservoir and to damage of inferior mesenteric ganglia and hypogastric plexus
 2. Colonic J-pouch (diagram on left)
Original studies mid-1980's. Pouch size 8-10 cm; patients complained of difficulty evacuating pouch, high rates of provoked evacuation in patients³ thus shortened to current J pouch limb size of 5-7 cm.
 3. Colonic coloplasty (2 diagrams on right)
Addresses technical difficulty of creating reservoir in a narrow pelvis, in patients with fat-laden mesocolon, or in patients with long anal canal and prominent bulky sphincters.⁴



Studies

1986: Resection and colo-anal anastomosis with colonic reservoir for rectal cancer (Paris)⁴

- Patients: N=31; distance from anal verge all > 7cm
- Operative technique: LAR with J pouch 8 cm, temporary transverse loop colostomy in all patients. GIA stapler to create pouch, anastomosis hand sewn.
- Results: All 31 were continent after 1st month; 25% needed to elicit evacuation of pouch with enemas

1998: Long-term functional evaluation of straight coloanal anastomosis and colonic J-pouch: Is the functional superiority of colonic J-pouch sustained? (Cleveland Clinic)⁵

- Patients: All patients who underwent LAR with anastomosis < 4 cm from dentate line classified into 2 groups, straight coloanal anastomosis (N=39) or colonic J-pouch (N=44). Placement into 2 groups nonrandomized.
- Operative Technique: LAR +; all distal margins at least 2 cm. Triple-lumen irrigating sump drain placed in all patients and left for 48 hours. Mean length of colonic J-pouch: 8.9 cm. Double staple technique, routine ileostomy in all patients.
- Results: Statistically significant better function judged by less frequent BMs (4 vs 2.4, p<0.005), less urgency (36.7 vs 7.7, p<0.05), incontinence score (2.2 vs 0.8, p<0.05) up to one year after surgery. At two years, no significant difference. Anastomotic complications 17.9% vs 4.5%, p<0.08, including leaks, rectovaginal fistula; not statistically significant.
- Discussion: suggest increased number of anastomotic complications secondary to end-to-end rather than end-to-side anastomosis; sites separate study in which dopplers used to demonstrate superior blood flow in proximal anastomosis in J-pouch compared to straight coloanal anastomosis

2002: Comparison of J-pouch and coloplasty pouch for low rectal cancers (Singapore)⁶

- Patients: 88 patients for LAR randomized to CP or J-pouch.
- Operative Technique: At least 2 cm margins; mean J-pouch anastomotic height 3.4 cm from anal verge; mean CP anastomotic height 3.2 cm above anal verge. J-pouch limbs 6 cm; double stapling technique; all patients with loop ileostomy. 4 surgeons only.

- **Results:** Post op complications significantly higher in CP group: anastomotic leaks 7/44 (15.9%) vs 0/44 in J-pouch group (p=0.121). All leaks at anterior of coloanal anastomosis, below site of CP; not associated with postop chemo or XRT. Functionally, better in CP group at 4 months (less nocturnal incontinence, able to defer BMs better); this difference no longer significant by 1 year postop. Discussion suggests difference in anastomotic leak rates secondary to better proximal anastomotic blood supply (end to side vs end to end).

2003: Similar outcome after colonic pouch and side-to-end anastomosis in LAR for rectal cancer (Stockholm)⁷

- **Patients:** 100 patients randomized to side-to-end or J-pouch. 78% received short-term preop XRT.
- **Operative Technique:** 3 surgeons, stapled anastomosis. 99/100 had no ileostomy initially. Median anastomosis level in both groups: 4 cm from anal verge.
- **Results:** No significant difference in outcome: pelvic sepsis 4/50 (8%) in pouch group, 5/50 (10%) in side-to-end group, reoperations 12% vs 16%. Bowel function: no significant difference in 2 groups measured pre-op, at 6 and at 12 months, except in single category – ability to evacuate bowel in < 15 min at 6 months. 2/50 patients randomized to pouch group did not receive pouch because of inadequate length of bowel.

References

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