Locally Recurrent Rectal Cancer

Nitin Mishra, M.B.B.S., M.S., M.P.H.

Department of Surgery, Mayo Clinic School of Medicine, Mayo Clinic, Scottsdale, Arizona

CASE SUMMARY: A 70-year–old man presented with complaints of passing debris in his urine and occasional pneumaturia. He underwent a Hartmann procedure in 1998 secondary to obstructing rectal cancer. He had received full-course pelvic radiation postoperatively at that time. Pelvic MRI showed a large rectovesical fistula with a mass suggestive of recurrent rectal cancer (Fig. 1). Biopsy taken in the office confirmed adenocarcinoma of the rectum. Imaging did not reveal any distant metastatic disease. Total pelvic exenteration and intraoperative radiation treatment (IORT) with perineal reconstruction using a rectus abdominis flap was performed. Final pathology demonstrated negative margins.

CLINICAL QUESTIONS

- Diagnosis and classification of recurrent rectal cancer
- Patient selection for surgery
- Surgical approach to resection

BACKGROUND

Locally recurrent rectal cancer includes recurrence, progression, or development of new sites of rectal tumor within the pelvis after previous resectional surgery for rectal cancer.[1] Patients with locally recurrent rectal cancer constitute a small group with a difficult disease that needs individualized multimodality management for optimal outcomes. Surgery remains the mainstay of curative treatment for patients who have resectable disease. Surgery for primary rectal cancer has improved over time, and with the use of neoadjuvant chemoradiation the rates of local recurrence have decreased; however, local recurrences still occur in 2.4% to 10.0% of cases.[2] This is much lower than the rate of systemic recurrences. However, local recurrence of rectal cancer may be associated with pelvic pain, foul-smelling discharge, tenesmus, and incontinence, and if left untreated it can lead to a very painful death.

This is a complex problem and requires diligent preoperative planning, meticulous surgery, and specialized postoperative care. These patients should be cared for by surgeons who perform pelvic surgery for recurrent rectal cancer routinely in an advanced center.

PRESENTATION AND DIAGNOSIS

A majority of recurrent rectal cancers are diagnosed within 2 years of the index surgery. Two thirds of patients with local recurrence of rectal cancer are diagnosed because of symptoms such as bleeding, pelvic pain, or changes in bowel habits. After abdominoperineal resection, patients may present with wound healing problems, malignant fistula, pelvic pain, pelvic mass, or bowel obstruction secondary to involvement of the small bowel by recurrent pelvic tumor. Apart from routine history taking the following points need to be inquired: when and where was the patient's previous surgery, what operation was carried out, and what was the preoperative workup, along with details of neoadjuvant treatment, details of adjuvant treatment, details of tumor histology, postoperative complications if any, postsurgery surveillance protocol, current urologic and sexual function history, presence or absence of fecal incontinence, and any history suggestive of involvement of sciatic nerves and urinary system. In addition, details of last colonoscopy, social history, and a complete family history are essential. The following records must be obtained routinely: operative note of the previous surgery, pathological slides and report, all previous imaging, all previous colonoscopy reports, and complete documentation of previous radiation and chemotherapy. It is important to review the records to confirm initial oncological R0 resection with adequate lymph node clearance.

A GI pathologist should review outside slides to confirm diagnosis. Physical examination must include digital rectal examination and vaginal examination in women. If the patient cannot tolerate a physical examination in the office, then an examination under anesthesia should be carried out to complete the ini-

CME Earn Continuing Medical Education (CME) credit online at cme.lww.com. This activity has been approved for AMA PRA Category 1 Credit.™

Funding/Support: None reported.

Financial Disclosure: None reported.

Correspondence: Nitin Mishra, M.B.B.S, M.S., M.P.H., Division of Colon and Rectum Surgery, Mayo Clinic, Scottsdale, AZ 85259. E-mail: mishra.nitin@mayo.edu

Dis Colon Rectum 2018; 61: 651–655
DOI: 10.1097/DCR.0000000000001111

Figure 1. MRI demonstrating recurrence of rectal cancer in a Hartmann stump leading to a malignant rectovesical fistula.

tial evaluation. Digital rectal examination and vaginal examination help assess the tumor location and fixity to surrounding structures in mid-to-low recurrent rectal cancers. For higher recurrences, flexible or rigid sigmoidoscopy may be necessary.

Confirmation of diagnosis is via a biopsy obtained endoscopically or with the help of endorectal ultrasound or CT-guided biopsy. If the biopsy comes back as negative, it should be repeated either using the same modality or a different approach. Intervention without tissue confirmation of malignancy is not recommended. However, in rare instances, tissue confirmation may not be possible despite clinical evidence of tumor recurrence, that is, an enlarging mass on imaging and increasing CEA levels. In these scenarios, a multidisciplinary decision should be made of either continued surveillance with serial imaging (MRI or positron emission tomography (PET) scans) or surgical intervention.

STAGING AND PREOPERATIVE TESTING

Workup of recurrent rectal cancer is very similar to staging of primary rectal cancer and includes the following studies:

1) Chest, abdomen, and pelvis CT scans to detect distal recurrence;
2) Pelvic MRI with rectal cancer protocol using rectal gel with 3-T magnetic resonance scanner, small field-of-view, high-resolution images in 3 orthogonal planes (sagittal, axial, and coronal) by a dedicated GI radiologist;
3) Blood CEA level; and
4) Complete colonoscopy.

Many centers are using whole-body PET–CT scans and whole-body PET MRI in lieu of the chest abdomen and pelvis CT scans. This practice is not currently standard of care, and long-term data are lacking.

CLASSIFICATION OF RECURRENCE

Several classifications have been proposed to characterize recurrent rectal cancer and help in treatment planning and prognostication. The Mayo Clinic calcifications system classify patients into groups depending on the presence or absence of pain and fixity to anterior, sacral, left, and right sides of the pelvis. Pain is subdivided into asymptomatic, symptomatic without pain, and symptomatic with pain. Fixity is subdivided into not fixed to any site and fixed to 1, 2, or 3 sites.[3]

The Sloan Kettering classification system is based on the anatomical location of the recurrence. Recurrences are classified as axial, anterior, posterior, and lateral. Axial recurrences include an anastomotic recurrences, perineal recurrence after abdominal perineal resection, and local recurrence after transanal excision. Anterior recurrence involves urologic or gynecologic organs, posterior involves the bone, and lateral involves the pelvic sidewall structures.[4]

The Leeds group (United Kingdom) classification includes central, sacral, sidewall, and composite recurrence groups. The central group includes tumor confined to pelvic organs without bony invasion, the sacral group includes tumor present in the presacral space and abutting onto or invading the sacrum, the sidewall group includes tumor involving the structures on the lateral pelvic sidewall, and the composite group includes the patients who have both sacral and sidewall recurrences.[5]

ELIGIBILITY FOR SURGICAL RESECTION

Resection for recurrent rectal cancer has the potential to cure the patient but is associated with significant risks for complication and a small risk of mortality. Thus, careful patient selection is essential. Palliative surgery may be considered in a patient with severe local symptoms and minimal distal disease, however, there is no role for debulking surgery in recurrent rectal cancer. Patients should meet all of the following criteria to be eligible for surgery:

1) There should be no unresectable distant metastatic disease.
2) The patient should be *compos mentis* and medically fit to undergo the procedure.
3) Preoperative evaluation should demonstrate feasibility of an R0 resection or an R1 resection with minimal residual disease amenable to IORT.

The following anatomical features are considered to be contraindications to curative surgery:

1) Invasion of upper sacrum (S1) or lumbar spine;
2) Multifocal pelvic disease with circumferential or extensive pelvic sidewall involvement;
3) Lateral invasion of tumor into the sciatic notch; and
4) Encasement of common or external iliac vessels.

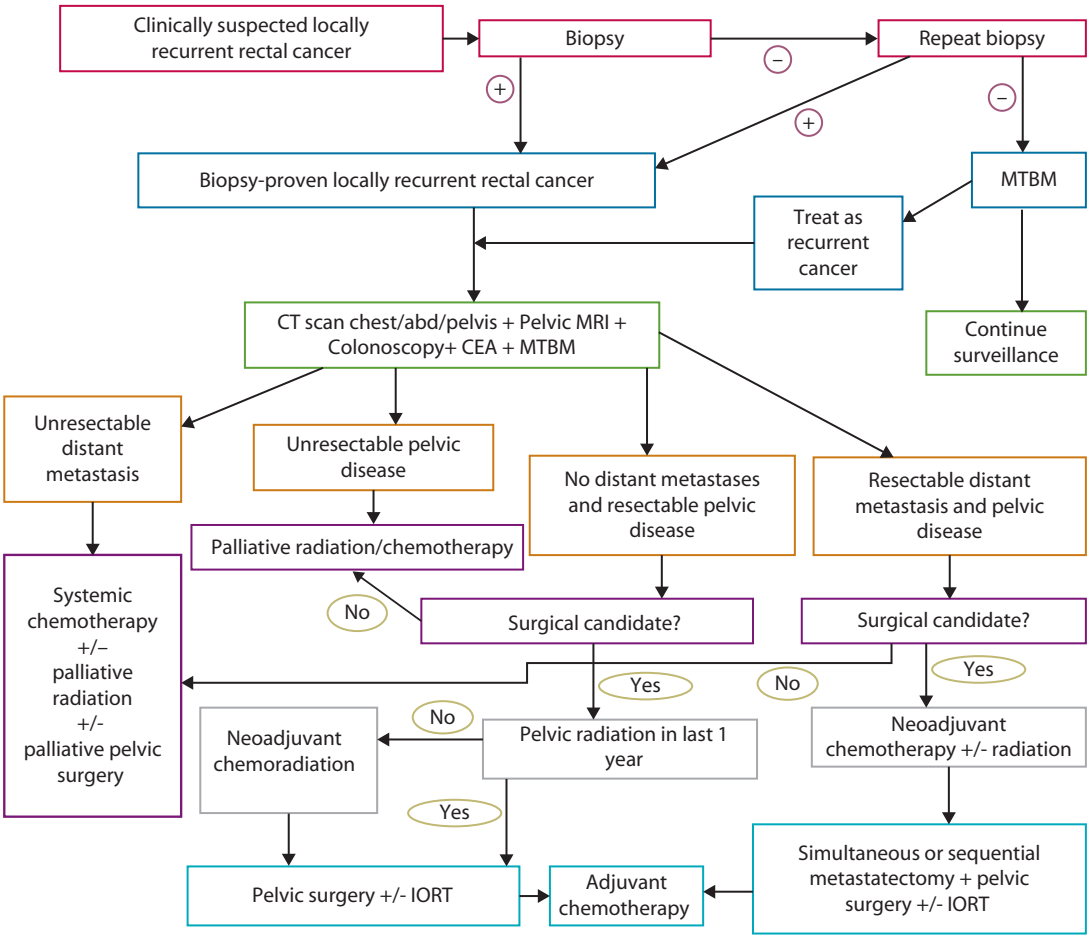
NEOADJUVANT TREATMENT

Radiation-naive patients should receive a full course of chemoradiation treatment with 50.4 Gy of radiation and 5-fluorouracil–based chemotherapy followed by surgery in 8 to 12 weeks. Patients with very bulky recurrence or extensive nodal involvement may be candidates for systemic chemotherapy followed by chemoradiation followed by surgery. Patients who have received radiation in the past should receive a smaller dose of radiation (30 Gy) followed by surgery. Patients who have received radiation within 1 year are usually not candidates for repeat radiation.

SURGICAL TREATMENT

Surgery for recurrent rectal cancer needs careful planning and coordination between several teams. The colorectal surgeon leads a multidisciplinary team, which may consist of urologist, gynecologist, plastic surgeon, radiation oncologist, neurosurgeon, or orthopedic surgeon. Preoperative stoma marking should be done in all patients by the ostomy nurse. The patient is placed in a modified lithotomy position; all pressure points need to be carefully padded, because these operations tend to be very long. Resection of sacrum below the S3 can be carried out in this position; however, the patient will need to be placed prone for resection of sacrum above the S3. Long instruments and headlight are essential, and lighted St. Mark retractors and Bookwalter (or Balfour) retractor are routinely used. The room needs to be set up for IORT. Epidural for postoperative pain control is useful and should be considered. Blood should be available for possible transfusion. Cystoscopy and placement of ureteric stents are needed in most cases but more so in cases with recurrence after abdominoperineal resection, because the

EVALUATION AND TREATMENT ALGORITHM



MTMB = multidisciplinary tumor board meeting; abd = abdomen; IORT = intraoperative radiation treatment.

ureter tends to be medialized and at a very high risk for injury.

Essential steps of surgery are as follows:

1) Digital rectal examination in male patients and bimanual examination in female patients;
2) 4-quadrant exploration of the abdomen to rule out metastatic disease;
3) Lysis of adhesions to delineate pelvic anatomy;
4) En bloc resection of any small bowel loops densely adhered to tumor recurrence in the pelvis;
5) Identification of any virgin tissue plane to start the dissection in the pelvis (finding the divided inferior mesenteric artery pedicle is helpful; if the pedicle was divided at a distance from the origin, then going all the way back to its origin on the aorta can help identify the correct plane);
6) Dissection of vital pelvic structures and not of the tumor itself (this includes identification of bilateral ureters, bilateral internal and external iliac blood vessels, and obturator nerve);
7) Determining feasibility of resection (en bloc resection of urogenital organs and sacrum);
8) Defining margins;
9) Resection with or without frozen sections;
10) IORT;
11) Anastomosis, if feasible; and
12) Tissue reconstruction of perineum.

REFERENCES

1. Beyond TME Collaborative. Consensus statement on the multidisciplinary management of patients with recurrent and primary rectal cancer beyond total mesorectal excision planes. *Br J Surg.* 2013;100:1009–1014.
2. Räsänen M, Carpelan-Holmström M, Mustonen H, Renkonen-Sinisalo L, Lepistö A. Pattern of rectal cancer recurrence after curative surgery. *Int J Colorectal Dis.* 2015;30:775–785.
3. Hahnloser D, Haddock MG, Nelson H. Intraoperative radiotherapy in the multimodality approach to colorectal cancer. *Surg Oncol Clin N Am.* 2003;12:993–1013, ix.
4. Jimenez RE, Shoup M, Cohen AM, Paty PB, Guillem J, Wong WD. Contemporary outcomes of total pelvic exenteration in the treatment of colorectal cancer. *Dis Colon Rectum.* 2003;46:1619–1625.
5. Harji DP, Griffiths B, McArthur DR, Sagar PM. Current UK management of locally recurrent rectal cancer. *Colorectal Dis.* 2012;14:1479–1482.

Expert Commentary on Locally Recurrent Rectal Cancer

Martin R. Weiser, M.D.

Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, New York

Locally recurrent rectal cancer can be difficult to diagnose and a challenge to treat. Before routine use of neoadjuvant therapy and adoption of anatomic mesorectal excision, 25% of all patients with locally advanced rectal cancer (T3/4N0 or TanyN+) experienced a local recurrence. Modern treatment strategies have lowered this rate to 5% to 10%.

Identifying local recurrence after rectal resection can be a diagnostic dilemma. Axial anastomotic recurrence may be identified by surveillance proctoscopy, whereas many lateral sidewall recurrences are more likely to be symptomatic, presenting as pelvic pain. Pelvic recurrence can appear similar to chronic leak or organized pelvic collections on imaging, so biopsy is often necessary. Once confirmed, extent of disease is determined by CT of the chest, abdomen, and pelvis with oral and intravenous contrast and rectal MRI. Positron emission tomography is less useful and performed selectively. Colonoscopy should be performed before surgery to rule out synchronous colorectal lesions.

Multidisciplinary evaluation is critical. The patient's medical fitness and social and psychological support should be assessed before initiating treatment. To downsize the recurrence and assist in complete resection, preoperative pelvic chemoradiation or chemotherapy alone if the patient has received radiation within the last 12 months is often necessary. Intraoperative radiation can be used to target especially high-risk margins.

Successful surgery requires multidisciplinary input from urology, gynecology, orthopedics, and reconstructive surgery. Because tissue planes have been disrupted by the initial surgery, dissection beyond the previously dissected total mesorectal excision plane is necessary. This dissection

Funding/Support: None reported.

Financial Disclosure: None reported.

Correspondence: Martin R. Weisner, M.D., Memorial Sloan Kettering Cancer Center, 1275 York Avenue, New York, NY 10065. E-mail: weiser1@mskcc.org.

Dis Colon Rectum 2018; 61: 654–655
DOI: 10.1097/DCR.0000000000001112