Laparoscopic Surgery for Anorectal Malignancies Other than Carcinoma

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ABSTRACT

Objective: Numerous concerns have been raised relative to the appropriateness of laparoscopic surgery for cure of rectal adenocarcinomas. However, because of their rarity, little information exists about the role of laparoscopy for other anorectal malignancies. We report the outcome of five patients who underwent laparoscopic surgery for other anorectal malignancies.

Methods: All patients who underwent laparoscopic surgery for treatment of non-carcinomatous anorectal malignancy were assessed by means of endoscopic, radiological and histopathologic diagnostic tests.

Results: Two patients with anorectal melanoma and one with anal leiomyosarcoma underwent laparoscopic abdominoperineal resection. A laparoscopic loop ileostomy was performed for an HIV-positive patient with rectal Kaposi’s sarcoma. Another patient with anorectal melanoma had intraoperative identification of distant liver metastasis and therefore underwent diagnostic laparoscopy instead of an intended abdominoperineal resection. There were no intraoperative laparoscopic complications. During the follow-up period three patients who underwent abdominoperineal resection were alive, one of whom had rectal melanoma and developed liver metastasis without local recurrence. The two patients with distant liver metastasis and rectal Kaposi’s sarcoma died 46 days and five months after surgery, respectively. There were no port-site or local recurrences.

Conclusion: Laparoscopic abdominoperineal resection for non-carcinomatous anorectal malignancies is technically feasible and avoids many of the concerns associated with attempted curative laparoscopic resection of carcinoma.

Key Words: Laparoscopy, Abdominoperineal resection, Anorectum, Melanoma, Leiomyosarcoma, Kaposi’s sarcoma.

INTRODUCTION

Anorectal melanoma is associated with an extremely poor prognosis regardless of the aggressiveness of surgical therapy; it is commonly incurable at presentation, with many patients developing systemic metastasis within a year after diagnosis. However, reports have noted that long-term survival was seen only in patients who underwent an abdominoperineal resection instead of wide local excision. It is estimated that only 0.1-0.5% of all rectal tumors are leiomyosarcomas; only 136 cases of rectal leiomyosarcoma had been recorded in a 1986 literature review. Local excision carries an approximately 80-85% chance of recurrence. Since 80% of these tumors are in the distal rectum, abdominoperineal excision has been the most frequently performed operation. The five-year survival rate in most series seems to be 20-25% after radical surgery. Kaposi’s sarcoma is the most common malignant tumor in AIDS patients. Kaposi’s sarcoma is often asymptomatic and as such usually requires no treatment, but surgery is sometimes indicated to control bleeding or obstructive symptoms.

There are still considerable oncologic objections to laparoscopic procedures for cure of colorectal carcinoma. Proponents of laparoscopic abdominoperineal resection cite arguments in favor, that the extended lymph node dissection, the mobilization of the rectum and the mesorectum and stoma creation can be laparoscopically performed; furthermore, the transperineal tumor removal is affected.

Nonetheless, local wound recurrence of tumor cells in the port sites of patients who have undergone curative laparoscopic procedures for cancer are of major concern. Due to relative prevalence rates, other series have concentrated on resection of carcinoma. Therefore, the aim of this study was to assess the results of laparoscopic abdominoperineal resection for treatment of non-carcinomatous malignancies.

METHODS

All five patients were referred to our department for treatment of biopsy-proven neoplasms. In four cases prior
local excision had been followed by recurrence. Preoperative staging included computerized axial tomography (CAT) scan and anorectal ultrasound and in all cases failed to identify distant or nodal disease, respectively. All patients underwent conventional preoperative mechanical bowel preparation and received routine oral and parenteral antibiotic prophylaxis.

The laparoscopic operative technique for abdominoperineal resection of the rectum has been previously described.Operative steps include: 1) mobilization of the left colon; 2) division of the inferior mesenteric vessels; 3) division of the mesentery; 4) total mesorectal excision; 5) division of bowel at the sigmoid-descending junction; 6) perineal dissection in the standard fashion with specimen removal; and 7) end colostomy creation.

The operative time, intraoperative findings, transfusion requirement, intra- and postoperative complications, length of hospitalization, and outcomes of surgery were recorded for each patient.

REPORT OF CASES AND RESULTS
Case 1. A 75-year-old female patient presented to another surgeon with a primary tumor located 5 cm cephalad to the dentate line, on the posterior lateral aspect of the rectum. Macroscopically the tumor was ulcerated and exophytic. Histopathologic evaluation revealed an invasive malignant melanoma with vascular involvement; high mitotic activity (mean 6 mitoses per 10/ high-power field [HPF]); and a positive immunocytochemical profile of 100S-HMB 45/50. Chest, abdominal and pelvic CT scans failed to reveal any local or distant metastasis. The melanoma was transanally removed. Two months later a biopsy failed to identify any local recurrence. Six months after the local excision the patient presented with a gelatinous 4 cm diameter mass, localized on the left posterolateral aspect of the dentate line, extending to the anorectal ring. A pelvic and abdominal CT scan revealed a dense 2 cm ovoid mass on the left lateral wall of rectum, caudal to the levator ani, involving the puborectalis muscle. Although the patient had enlarged lymph nodes in the left ischiorectal fossa at the level of the levator ani, there were no distant metastases noted. At that time the patient was referred to our department for evaluation of severe pain and rectal bleeding and underwent a laparoscopic abdominoperineal resection. Pathologic assessment showed metastatic, multicentric melanoma of the rectum, involving 8 of 9 lymph nodes. The caudal lesion was 1.2 cm from the distal margin of the specimen. The patient had an uneventful recovery and was discharged on postoperative day seven. She declined any adjuvant therapy. Four months after abdominoperineal resection, the CT scan found the liver extensively involved with metastatic lesions without port-site or local metastasis.

Case 2. An 87-year-old male patient presented to another surgeon with a malignant melanoma infiltrating the external anal sphincter and puborectalis muscle. A wide local excision of the lesion was performed 3 cm cephalad to the dentate line. The patient was followed up for 18 months, during which time no distant or local metastases were revealed. Eighteen months later he was referred to our department with a deeply infiltrative 3 cm diameter anteriorly bound tumor at the level of the dentate line, involving the anterior rectal wall. He complained of tenesmus and rectal bleeding. Rectal ultrasound revealed invasion of both the internal and external anal sphincters. After abdominoperineal resection, the pathologist reported a tumor free distal margin of 0.8 cm, and 3 of the 7 pericolic harvested lymph nodes had metastatic foci. Postoperatively he developed a common bile duct obstruction due to stone impaction at the ampulla of Vater, which was successfully removed by endoscopic retrograde cholangiopancreaticography. No adjuvant therapy was administered. The patient had an uneventful recovery and two months after surgery had no evidence of any distal, local or port-site recurrence.

Case 3. A 69-year-old patient presented to another surgeon with a broad-based polypoid lesion of 1.5 cm diameter in the anal canal removed by endoscopic snare. Histologic studies showed a poorly differentiated primary tumor, with high mitotic activity which infiltrated the rectal wall; immunohistochemical profile was positive for S100-HMB 45/50. The patient was followed up for two months, after which a biopsy revealed a local recurrence of malignant melanoma at the anterior dentate line. The patient was referred to our department for curative resection of an early recurrence. Rectal ultrasonography and anoscopic evaluation revealed a 3 mm diameter anteriorly based lesion at the dentate line. Because preoperative CT did not reveal any distant metastasis, the patient underwent laparoscopy with a view towards abdominoperineal resection. Unfortunately, two 4 cm diameter right-sided hepatic metastasis were identified and confirmed by percutaneous fine needle biopsy. Therefore, the decision was made not to proceed with an abdominoperineal resection. The patient was discharged.
home on postoperative day two without any complications. She died secondary to liver metastasis but without any port-site recurrence 46 days after surgery.

**Case 4.** A 68-year-old female patient who was receiving immunosuppressive agents for rheumatoid arthritis was referred to our department for a primary tumor presenting as a firm mass in the left wall of the anal canal. A gray-tan soft tissue weighing 42 grams within a diameter of 5.5 x 3.6 x 3.5 cm was removed by wide local excision, and histologic evaluation confirmed the diagnosis of leiomyosarcoma. After seven months, the patient presented with a recurrent anal mass. CT scan and anal ultrasonography revealed a localized lesion consistent with a possible recurrence. The patient underwent laparoscopic abdominoperineal resection after which the pathologist described the lesion as a lymphosarcoma. The patient was discharged on the fifth postoperative day with no complications. Two years later, the patient presented with a 2 cm diameter left obturator mass, with bilobar hepatic and bilateral pulmonary nodules. However, neither CT scan nor magnetic resonance imaging revealed any port-site recurrences.

**Case 5.** A 34-year-old white male patient presented to another surgeon with an advanced HIV infection. During his course, the patient had experienced both cutaneous and gastrointestinal Kaposi's sarcoma, cytomegalovirus gastritis, cryptosporidium, peripheral neuropathy, wasting, neutropenia and anemia. The patient presented with tenesmus and continued bleeding with evacuation. Office evaluation revealed two 4 cm diameter Kaposi's lesions in the rectum, one 5 cm and one 8 cm cephalad to the dentate line. A circumanal intracutaneous 10 cm diameter perianal Kaposi's sarcoma was also noted. A lesion was found in the transverse colon during colonoscopy. At first the patient was treated by chemotherapy and radiotherapy. However, one month later, he presented with obstructive symptoms, increased bleeding, and severe pain. Proctoscopy revealed near-occlusion of the lumen due to the two rectal lesions. Accordingly, it was elected to proceed with a laparoscopic loop ileostomy after which he was discharged home on postoperative day five in stable condition. The patient died five months after the procedure due to systemic cytomegalovirus infection and seizures. No port-site recurrences were noted at the time of death.

**DISCUSSION**

Anal cancer is a relatively infrequent tumor, accounting for less than 2% of all large bowel cancer and less than 2000 cases annually in the United States. Malignant melanoma constitutes only 3% of tumors arising in the anal canal. Only 1.5% of all malignant melanomas develop in the anorectal region and only 460 cases have been reported in the medical literature. Anorectal melanoma is associated with an extremely poor prognosis despite aggressive surgical therapy. In the literature, the average survival rates vary from 9 months to 2.8 years for all patients with only a 10% five-year survival. Brady et al. (Memorial Sloan-Kettering Cancer Center) published 85 cases; seventy-five percent of patients had tumors greater than 1 cm with a mean survival of only 17 months. Only six patients survived five years, and all of these six had undergone abdominoperineal resection. Interestingly, two of the long-term survivors had mesenteric lymph nodes involved by tumor. Several other authors have found that long-term survival was seen only in patients who underwent abdominoperineal resection and have strongly suggested this procedure for cure. A Swedish group reported that only 2 of 33 patients treated for cure survived for five years. Although one of the two survivors underwent local excision, they found that local recurrences occurred significantly more often after a local excision than after an abdominoperineal resection (50% vs. 27%, respectively).

Other researchers believe that radical surgery does not alter the natural history of a high rate of distant metastasis and, therefore, advocate sphincter-sparing surgery. Siegel et al. in a review of 30 patients, found that the only two 5-year survivors had been treated with local excision. Similarly, Cooper et al. reported that two of six 5-year survivors had local excision.

Although melanoma has been successfully used to produce tumor cell lines with increased metastatic capacity from many other experimental tumors, none of the three patients in our small series developed port-site recurrences.

Leiomyosarcoma of the anorectum is rare, and wide local excision is the best treatment option. Radiation or chemotherapy, alone or in combination, have not been found to be effective, although they may play a palliative role. As emphasized in a St. Mark's series, the treatment of choice for leiomyosarcoma of the rectum arising
from sites other than the muscularis mucosa is abdominoperineal excision. In this current series, one patient who was treated with a previous wide local excision previously had local recurrence and finally underwent laparoscopic abdominoperineal resection.

Kaposi’s sarcoma has been reported from the mouth to the anus. Although most of these lesions are asymptomatic, complications can include bleeding, obstruction, intussusception and mesenteric cyst formation. Treatment of anorectal Kaposi’s sarcoma rarely entails surgery although neither the chemotherapy, radiotherapy, nor immunotherapy is of proven benefit. However, on occasion, fecal diversion or resection of the lesion is necessary. Because of the decreased immune function in HIV-infected patients, laparoscopy may be beneficial.

CONCLUSION
These lesions described in this small series of case reports are infrequently occurring but highly aggressive. It, therefore, seems logical that if these patients need surgery, they be offered the least traumatic, least immune-system compromising type available. In addition, therapy which can expedite hospital discharge and minimize disability is desirable in patients with a limited life expectancy. Issues germane to care of carcinomatous lesions, such as port-site recurrences, may not be as relevant in these other tumors.

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