

Abdominal Wall Recurrence After Laparoscopic-Assisted Colectomy for Adenocarcinoma of the Colon

Report of a Case

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PURPOSE: To report an unusual mode of colorectal carcinoma recurrence after laparoscopic-assisted right hemicolectomy. **METHODS:** Retrospective case review. **RESULTS:** Laparoscopic-assisted colectomy has been shown in a variety of settings to be safe and technically feasible. The question of its efficacy in treating colorectal carcinoma remains uncertain. We report a case of a 71-year-old male who presented with a trocar site abdominal wall recurrence 10 months after a laparoscopic-assisted right hemicolectomy. To our knowledge, this represents the first such reported case in the literature. **CONCLUSION:** Questions surrounding the efficacy of laparoscopic colectomy in eradicating colorectal carcinoma support the need for rigorous prospective study of this new technique. [Key words: Laparoscopy; Laparoscopic colectomy; Colectomy; Colon resection; Colon and rectal surgery; Colon carcinoma; Abdominal wall]

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Several studies have shown laparoscopic-assisted colectomy to be technically feasible and well tolerated in both benign and malignant diseases.¹⁻⁷ The question of its efficacy in treating colorectal carcinoma remains uncertain. The abdominal wall is a rare site of recurrence after open curative resection of colorectal carcinoma. Authors have hypothesized an increased likelihood of recurrence at the minilaparotomy incision used to remove the specimen during the laparoscopic tech-

nique. We report a case of a 71-year-old male who presented with a trocar site abdominal wall recurrence 10 months after a laparoscopic-assisted right hemicolectomy for a moderately well-differentiated adenocarcinoma. To our knowledge, this represents the first such reported case in the literature.

REPORT OF A CASE

The patient is a 71-year-old white male who presented with guaiac-positive stool. He underwent colonoscopy with the finding of a moderately differentiated mucinous adenocarcinoma of the hepatic flexure. Colonoscopy and contrast radiography were consistent with an early lesion, and he was therefore considered a good candidate for the laparoscopic-assisted approach. He underwent a laparoscopic-assisted right hemicolectomy for a (T₃N₁M₀) lesion, with 4 of 11 resected lymph nodes positive for metastatic carcinoma. Although only 11 lymph nodes were recovered in the specimen, the lymphadenectomy was considered adequate because the involved mesentery was completely excised with ligation of the right colic artery and the right branch of the middle colic artery at their origins through the minilaparotomy incision. The patient had an unremarkable postoperative course. He was discharged on postoperative day seven after refusing chemotherapy.

Routine postresection screening was unremarkable until 10 months later, when an abdominal wall mass was found in proximity to the right lower quadrant trocar site (Fig. 1). The patient denied

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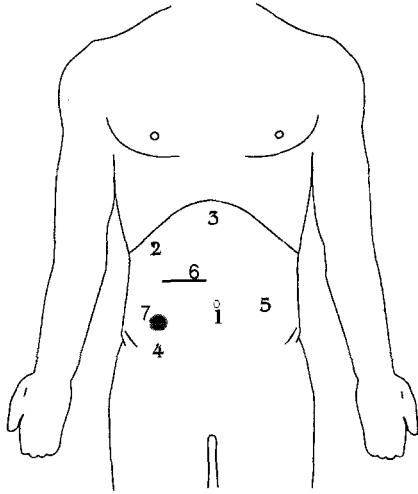


Figure 1. Position of abdominal mass relative to patient's previous incisions: trocar sites (1–5), minilaparotomy incision (6), and abdominal wall mass (7).

weight loss or other signs of metastatic disease. His only remarkable finding on physical examination was a 3- × 2-cm hard abdominal wall mass. Liver function tests were within normal limits. His carcinoembryonic antigen level was minimally elevated at 4.7 ng/ml, which was not significantly changed from his previous level. Fine needle aspiration cytology revealed a mucinous adenocarcinoma consistent with the patient's previous histology. An abdominal computed tomography (CT) scan demonstrated the abdominal wall mass, but no evidence of intraperitoneal disease was present (Fig. 2). No intraluminal disease or suture line abnormality was visualized on colonoscopy. A chest radiograph was unchanged from prior examinations.

The patient underwent a wide excision of the

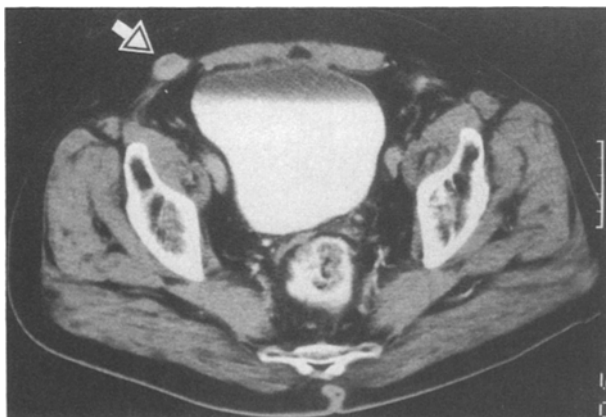


Figure 2. CT scan demonstrating abdominal wall mass (arrow).

mass that arose from the abdominal wall fascia, approximately 2 cm cephalad to the right lower quadrant trocar site (Figs. 3 and 4). Intra-abdominal exploration revealed no intraperitoneal extension of the mass. Resected margins of the mass were all free of tumor. The abdominal wall was reconstructed with synthetic mesh. The patient had an unremarkable postoperative course.

DISCUSSION

Laparoscopic-assisted right hemicolectomy has been shown to be technically feasible and associated with an acceptably low level of morbidity. Many surgeons believe that laparoscopic colectomy is associated with less postoperative pain, shorter hospitalization, and earlier return to normal function. To date, these impressions have not been confirmed with rigorous, prospective, randomized data and long-term follow-up.⁸ Another aspect of the technique that awaits further study is its appli-

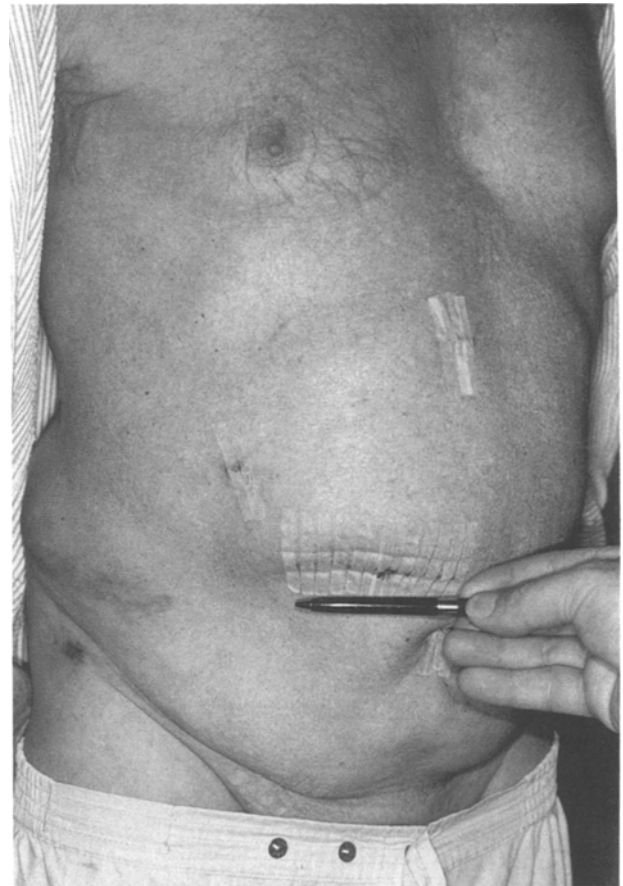


Figure 3. Postoperative photograph demonstrating the location of the incisions used to perform laparoscopic-assisted right hemicolectomy.



Figure 4. Preoperative photograph demonstrating the location of the abdominal wall mass.

cability to malignant disease. The cure rate and local recurrence rate for laparoscopic colectomy have not yet been determined. Some authors speculate that direct tumor seeding of the minilaparotomy incision used to remove the tumor-bearing colon could lead to abdominal wall recurrence.⁹

The occurrence of an isolated abdominal wall recurrence after a curative open resection for colon carcinoma is a rare event. One series from Australia reported by Hughes and colleagues¹⁰ showed only 16 patients with abdominal wall recurrences of 1,603 patients (1 percent) who underwent curative resection for carcinoma of the colon. Of these 16, 11 had recurrences associated with the laparotomy incision or drainage tube site. The remaining patients had recurrences on the abdominal wall remote from any operative site or had unexpected widespread disease on exploration. Abdominal wall tumor recurrence after laparoscopic surgery has been reported by Pezet *et al.*¹¹ They reported the abdominal wall seeding of a gallbladder carcinoma at the umbilical extraction site.

To our knowledge, the case that is the subject of this paper is the first reported abdominal wall recurrence after laparoscopic-assisted colectomy. The location of the nodule was approximately 2 cm superior to the right lower quadrant trocar site. It arose at the level of the fascia in the area corresponding to the oblique tract of the trocar. Neither CT scan nor exploration revealed extension of the nodule into the peritoneum or additional intra-abdominal disease.

The etiology of this recurrence is unclear. The right lower quadrant trocar site was used for dissection and therefore did not have direct contact

with the tumor-bearing colon. Manipulation of the tumor can cause viable malignant cells to exfoliate.^{12, 13} In theory, the trocar sheath protects the surrounding tissue from potential seeding by tumor cells carried on instruments as they are introduced and withdrawn from the trocar. At the conclusion of the procedure, when the trocar is removed, the potential exists for seeding the tract with exfoliated tumor cells prior to reperitonization.

Another much less likely explanation is hematogenous implantation. Because the liver and lungs receive all of the venous drainage from the colon prior to distribution to the rest of the body, it seems unlikely that the tumor would spread hematogenously to the abdominal wall without pulmonary or hepatic involvement. In the series reported by Hughes *et al.*,¹⁰ all 11 patients with incisional recurrences died of widespread disseminated carcinoma within four years, with seven dying in the first 12 months. Hughes and colleagues hypothesized that incisional recurrences may represent the first manifestation of subclinical systemic disease. Likewise, it is possible that our patient harbors subclinical pulmonary or hepatic metastases.

The abdominal wall receives a small percentage of the cardiac output, and, therefore, it would seem an unlikely location for an isolated blood-borne metastasis. There is evidence, however, that tumor cells may be more proliferative in the healing tissues of the laparotomy incision or the anastomosis.¹⁴ This increased propensity for tumor cell growth could be responsible for the occurrence of hematogenous implantation in this unlikely area.

CONCLUSIONS

Long-term evaluation of this procedure will determine whether isolated abdominal wall recurrence is more likely with the laparoscopic technique or is as rare as with open colectomy. Questions surrounding the procedure's efficacy in eradicating colorectal carcinoma support the need for rigorous prospective study of this new technique.

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