OVARIAN CANCER RECURRENCE AT THE LAPAROSCOPIC PORT FOR CHOLECYSTECTOMY

Saif S. Al-Sobhi, FRCS(Glasg); Hamza A. Shirah, MBBS; Jamal Subhi, MD;
Tarek Amin, FRCSC; Ahmad Martan, MD; Mashael Al Deery, MD

Cancer recurrence at the laparoscopic ports is a well-known complication of laparoscopic surgery. The frequency of the complication is increasing in recent years because of the wide use and popularity of laparoscopic surgery. We report two cases of ovarian papillary carcinoma which recurred at the port of laparoscopic cholecystectomy. The tumor was localized at the portal site with no evidence of metastases at any other site. The patients had laparoscopic cholecystectomy for cholelithiasis some time before the ovarian tumor was diagnosed. This shows that the incidental presence of intraperitoneal cancer and inflation of the abdominal cavity may lead to the seeding of tumor cells even without manipulation of these tumors. This supports the hypothesis that CO_2 gas leads to dispersion of cancer cells, which may then be deposited on the site of the ports. But metastasis through lymphatics to the scar cannot be ruled out.

Case Reports

Case 1

A 64-year-old woman presented to another hospital for chronic cholecystitis for which she had laparoscopic cholecystectomy, which was uneventful. Three years later, she started to have lower abdominal pain. Investigations showed right ovarian carcinoma. Total abdominal hysterectomy and oophorectomy were performed. Six months after the second surgery, she started to feel pain in her upper abdominal wall at the site of the laparoscopic port. CT scan showed thickening of the rectus muscle at the site of the port. She was observed for four months. Repeat CT scan showed the port had a mass at the level of the rectus muscle (Figure 1). Pelvic and liver examinations showed no tumor. Fine-needle aspiration revealed poorly differentiated carcinoma. A wide local excision of the mass was performed. The abdominal wall was reconstructed, using a Marlex mesh. The wound healed completely. Pathologic examination of the resected mass revealed a metastatic adenocarcinoma with areas of necrosis. The morphology of this tumor was compatible with metastasis from previously resected ovarian carcinoma (Figure 2). Review of the slides from the cholecystectomy specimen revealed no neoplasm. Twelve months after surgery, there was no evidence of recurrent tumor.

Case 2

A 70-year-old woman presented to another hospital because of chronic cholecystitis, for which she had laparoscopic cholecystectomy. Seven months later, she developed a mass at the mid-clavical laparoscopic port. Histopathology report of the excised mass demonstrated metastatic ovarian carcinoma. Investigations showed a 9x7x10 cm adnexal solid mass with ascites. Total abdominal hysterectomy and oophorectomy was performed. Four months later, the patient developed a mass at the same port site. Wide re-excision of the tumor was performed and the abdominal wall was reconstructed using Marlex mesh. The patient had an uneventful postoperative course. Four weeks after surgery, the patient was doing well without any evidence of recurrent tumor.

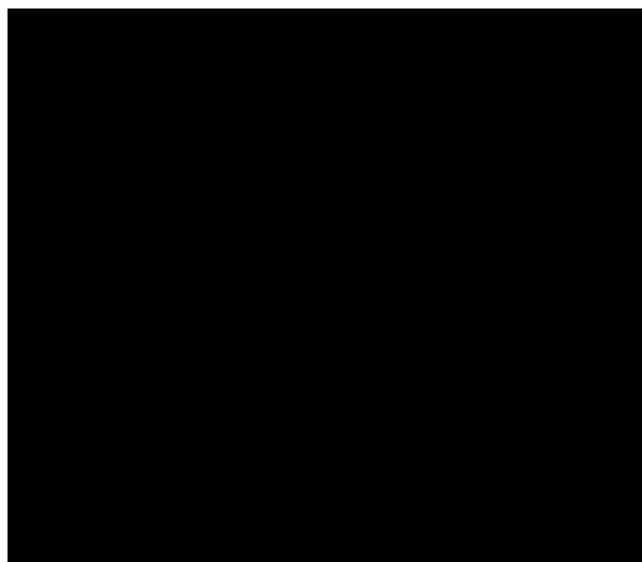

FIGURE 1. CT scan of the abdomen demonstrates thickening of the right rectus.

From the Departments of Surgery and Obstetrics and Gynecology, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia.

Address reprint requests and correspondence to Dr. Al-Sobhi: Department of Surgery, MBC-40, King Faisal Specialist Hospital and Research Centre, P.O. Box 3354, Riyadh 11211, Saudi Arabia.

Accepted for publication 20 June 1999. Received 6 December 1998.

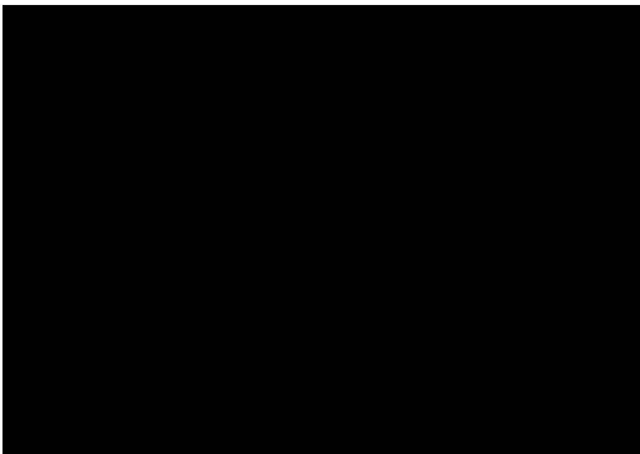

FIGURE 2. Photomicrograph of the mass at the laparoscopic port, featuring a moderately differentiated adenocarcinoma.

TABLE 1. *Ovarian abdominal wall cancer recurrence after laparoscopic surgery.*

Study (year)	Sex/ age	Procedure	Site of recurrence	Time of recurrence	Status
Dobronte et al. (1978)[7]	F/52	Laparoscopy	Port site	2 wks	Died after 6 wks
Stockdale and Pocock (1985)[8]	F/59	Laparoscopy, biopsy	Port site	8 days	Died after 1 month
Hsiu et al. (1986)[9]	F/30	Laparoscopy, biopsy	Port site	3 wks	9 mns: no evidence of disease
	F/28	Laparoscopy, biopsy	Port site	3 wks	6 yrs: no evidence of disease
Childers et al. (1994)[10]		Second-look laparoscopy	Port site	56 days	Died after 7 mns
Present cases	F/64	Laparoscopy, cholecystectomy	Port site	3 yrs	9 mns: no evidence of disease
	F/70	Laparoscopy, cholecystectomy	Port site	7 mns	4 wks: no evidence of disease

Discussion

Laparoscopic surgery is widely used for benign and malignant diseases. Seeding of tumor cells in the port sites is one of its drawbacks,[1] and a complication which is being reported with increasing frequency.[2] The mechanisms involved in recurrence of cancer at the laparoscopic port are not fully understood. The first suggested mechanism is that constant insufflation of CO_2 necessary to maintain the pneumoperitoneum results in the dispersion of cancer cells, which may then be deposited at the site of the entry of the laparoscopic port. The second mechanism is that the port sites are contaminated by the laparoscope and other instruments, as well as by the resected specimen if the tumor is present in the area of the laparoscopic procedure.[3] However, in our cases, there was no direct contact between the malignant cells and the port site, since at the time of cholecystectomy no gallbladder cancer was present.

Ovarian cancer could be present at the time of cholecystectomy, thus it seems the cancer dispersed and contaminated the port site. Since it is a slow-growing tumor, it takes about three years for these cells to proliferate and form a symptomatic tumor at the port site.

Seeding of the laparoscopic port may occur in a variety of carcinomas, including the gallbladder, colon and stomach.[4-6] Only five cases of recurrent ovarian carcinoma at the laparoscopic port have previously been reported (Table 1).[7-10] In all these cases, there was evidence of either manipulation of the tumor through the laparoscopic port or of a tissue biopsy being performed, thus explaining the occurrence of tumor seeding at the laparoscopic port. Our cases appear to be unique, since no apparent tumor was present at the time of the laparoscopic procedure. Yet, when the patients later developed ovarian carcinoma, there was recurrence of carcinoma at the laparoscopic port about 10 months after total abdominal hysterectomy and bilateral oophorectomy. We cannot speculate when the implantation occurred, since it could have been either at the time of laparoscopic cholecystectomy or at the time of oophorectomy. Recently, Childers et al. reported one case of papillary serous adenocarcinoma of the ovary implanted in the abdominal wall after laparoscopy.[10] Patsner et al. reported one case of umbilical metastasis after laparoscopy in a patient with stage 1B cervical cancer.[11] Metastasis of these cell cancers through the lymphatics channel from the lower abdomen to the upper part of the abdominal wall cannot be ruled out, as the ovarian carcinomas are likely to spread along the abdominal peritoneal surfaces. More experimental studies are needed to determine the exact mechanism for the seeding of malignant cells.

References

1. Greens FL. Laparoscopy in malignant disease. Surg Clin North Am 1992;72:1125-7.
2. Dronard F, Delamarre J. Cutaneous seeding of gall bladder cancer after laparoscopic cholecystectomy. N Engl J Med 1991;325:1316.
3. Thomas WM, Eaton MC, Hewett PJ. A proposed model for the movement of cells within the abdominal cavity during CO_2 insufflation and laparoscopy. Aust N Z J Surg 1996;66:105-6.
4. Cirocco WC, Schwartzman A, Golub RW. Abdominal wall recurrence after laparoscopic colectomy for colon cancer. Surgery 1994;116:842-4.
5. Clair DG, Lautz DB, Brooks DC. Rapid development of umbilical metastases after laparoscopic cholecystectomy for unsuspected gall bladder carcinoma. Surgery 1993;113:355-8.
6. Pezet D, Fondrinier E, Rotman N, et al. Parietal seeding of carcinoma of the gall bladder after laparoscopic cholecystectomy. Br J Surg 1992; 79:230.
7. Dobronte Z, Wittmann T, Karacsony G. Rapid development of malignant metastases in the abdominal wall after laparoscopy. Endoscopy 1978;10:127-30.
8. Stockdale AD, Pocock TJ. Abdominal wall metastasis following laparoscopy: a case report. Eur J Surg Oncol 1985;11:373-5.
9. Hsiu JG, Given FT Jr, Kemp GM. Tumor implantation after diagnostic laparoscopic biopsy of serous ovarian tumors of malignant potential. Obstet Gynecol 1986;68:S90-S93.
10. Childers JM, Aqua KA, Surwit EA, Hallum AV, Hatch KD. Abdominal wall tumor implantation after laparoscopy for malignant conditions. Obstet Gynecol 1994;84:765-9.
11. Patsner B, Damien M. Umbilical metastases from a stage 1B cervical cancer after laparoscopy: a case report. Fertil Steril 1992;58:1248-9.