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Case Study of the Month

Huge Isolated Port-Site Recurrence after Laparoscopic Partial Nephrectomy: A Case Report

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Abstract

A 66-yr-old man with pain and swelling in the right flank was referred to our clinic for diagnosis. In 2005, the patient underwent a laparoscopic partial nephrectomy for renal cancer of the lower pole of the right kidney. A computed tomography scan revealed a 20-cm tumor in the right abdominal wall, resulting in a suspected diagnosis of port-site metastasis from the first laparoscopic operation. The patient underwent open surgery, which confirmed the diagnosis. After the operation, the patient recovered rapidly.

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1. Case report

In December 2007, a 66-yr-old man with pain and swelling in the right flank was referred to our clinic for diagnosis. In 2005, the patient underwent a transperitoneal laparoscopic partial nephrectomy for renal cancer of the lower pole of the right kidney, which showed renal clear cell papillary carcinoma (25 mm; pT1a, high grade) with negative surgical margins by histology. After placing the trocars, the intra-abdominal pressure was maintained at 12 mmHg. During the procedure, the specimen ruptured and was removed in two parts, using two Endocath II bags. The warm ischemia time was 25 min. Fibrin glue was applied to the cut renal parenchymal surface after it was repaired with running sutures.

Sonographic imaging revealed suspected tumor formation at the right side of the abdomen and normal right and left kidneys. We performed a computed tomography (CT) scan, which revealed a 20-cm tumor in the right abdominal wall. This finding led us to suspect port-site metastasis from the first laparoscopic operation (Fig. 1). No pulmonary metastases were found in a CT scan of the chest.

The patient underwent open surgery, which was performed transabdominally by midline incision. The tumoral mass was located in the right abdomen, with infiltration of the superior abdominal wall where the trocar was placed. The mass was completely removed with resection of the abdominal wall.

The definitive histologic report revealed the recurrence of a papillary, partially oxyphilic tumor that was

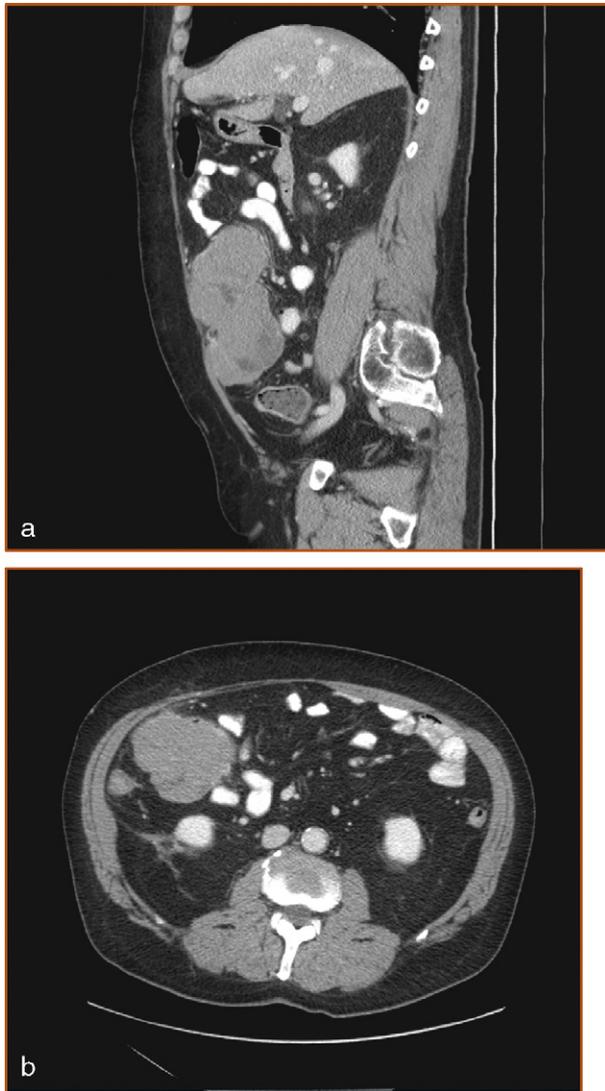


Fig. 1 – Computed tomography: two views (a, b) of a 20-cm tumor in the right abdominal wall.

21 × 13 × 11 cm and 1180 g and had the same type of histologic structure as the primary tumor of the right kidney (Fig. 2). After the operation, the patient recovered rapidly and was discharged after 1 wk, with all drains removed. At 1 yr after the second operation, the patient did not present new metastases.

2. Discussion

The phenomenon of port-site metastasis has overshadowed the discussion of the benefit and implementation of laparoscopic surgical techniques in the treatment of malignant disease [1]. In the mid-1990s, the first studies appeared in which alarmingly high incidences of

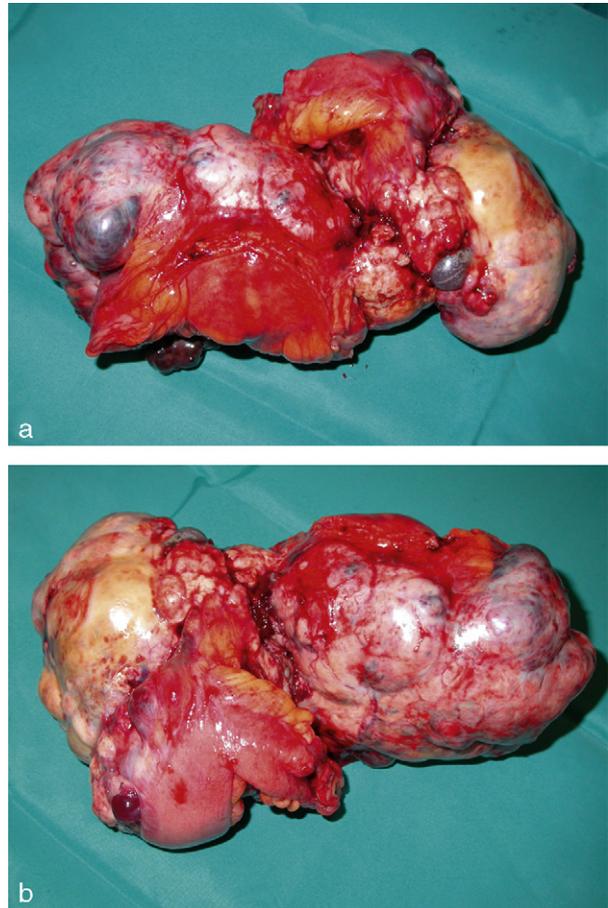


Fig. 2 – Gross photographs (a, b) of the excised mass, measuring 21 × 13 × 11 cm, 1180 g. The tumor was well encapsulated, without evidence of invasion of surrounding structures.

port-site metastases were reported after laparoscopic surgery.

The etiology of port-site metastases is not clearly understood but is probably multifactorial [1–5]. Tsiviani et al [4] concluded that the causes of port-site metastases can be divided into four major categories: (1) tumor aggressiveness, type of tumor, and its natural behavior; (2) local processes in the wound; (3) host immune response; and (4) laparoscopy-related factors, such as gas (gas or gasless, type of gas, pneumoperitoneum, and aerosolization [ie, insufflation, desufflation, and the chimney effect of tumor cells]), surgical manipulation and tumor handling, and morcellation and specimen-removal methods.

With no clear correlation of pneumoperitoneum-related issues as an etiologic factor in port-site metastases [2], the most significant factor is, likely, surgical technique.

Traumatic handling of the tumor, such as intraoperative tumor spillage, was found to play a larger role in the development of port-site tumors [1–5]. Laparoscopy-related factors also play an important role in developing port-site metastasis [1,4].

The constant intraoperative loss of gas causes intra-abdominal turbulence that leads to tumor cell dissemination into immunoincompetent spaces, such as the space between the fascia and muscle. This situation creates ideal conditions for the formation of local metastases because local tissue is traumatized by trocar movement.

In the past several years, reports on port-site metastases have reduced dramatically due to improvements in laparoscopic techniques and skills. Nevertheless, we must be mindful that this complication is a high risk associated with laparoscopic procedures. Every laparoscopist must avoid conditions that accelerate the formation of port-site metastases. Such conditions include laparoscopic surgery when there are ascites; trocar fixation to prevent dislodgment; gas leakage along and around the trocar; sufficient technical readiness of the operating team (adequate laparoscopic equipment and technique, minimal handling, and avoidance of tumor-boundary violation); use of a bag for specimen removal; placement of drainage when needed before desufflation; povidone-iodine irrigation of instruments, trocars and port-site wounds; and suturing of ≥ 10 -mm trocar wounds [4].

Conflicts of interest: The authors have nothing to disclose.

EU-ACME question

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Question:

Where do most port-site metastases form after localized laparoscopic surgery?

- A. At the extraction site.
- B. At the port entries.
- C. At all of these locations.
- D. At none of these locations.

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