

# Contralateral tumor seeding of renal cell carcinoma mimicking late metastasis of liver after laparoscopic nephrectomy: A case report with review of the literature

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## DISCUSSION

Numerous reports cited in the literature have asserted the superiority of laparoscopic surgery over open surgery as for postoperative and cosmetic outcomes (4, 5). However comparisons between long-term oncologic outcomes of laparoscopic interventions and open surgery have been questioned because of port site metastases developing long after LPN. Recent studies have demonstrated that oncologic outcomes of laparoscopic surgery are at least as successful as those seen after open surgery. However the incidence rates of abdominal implant and port site metastases are at a comparable level (5, 6).

Pathophysiology of peritoneal implant or port site metastases is not clear-cut. However, peritoneal injury at the trocar entry site, excessive manipulation of the tumor, peritoneal injury secondary to gas insufflation, gas leakage, contaminated instruments, diameter and grade of the tumor and inadequate laparoscopic experience of the surgeon are probable risk factors (7).

Theoretically, it is known that in nearly 50% of the patients who have undergone open surgery, shedding of the tumor cells occur. As indicated in the literature, to solve this problem, the surgical site and intraabdominal cavity should be irrigated with distilled water (8).

However intraabdominal irrigation can not be effectively utilized during laparoscopic interventions. In addition, as an obvious fact, in laparoscopic surgeries, blood products oozing from the surgical site can not be eliminated after the procedure. In laparoscopic interventions direct inoculation of tumor cells during trocar site implantation or while taking the specimen out of the abdominal cavity or peritoneal implantation with contaminated instruments are easily understandable causes of tumor seeding (9, 10). Particularly, refraining from using endobag or morcellation procedures performed in the intraabdominal cavity further increases the risk of tumor seeding.

As an important principle, urologic malignancies should be closely followed up as for postoperative development of metastases and recurrences just like the case with other malignancies. Metastatic lesions are generally observed in regional lymph nodes, liver, lungs and bones (11). Recurrences tend to occur on the surgical

site. However tumor seeding can be observed after open surgery and less frequently after laparoscopic procedures in tissues in the vicinity of the surgical site (12, 13). Tumor seeding generally develops after iatrogenic interventions and it can be observed without any risk factor. In the urology literature, port-site metastasis or intraabdominal implant have been more frequently reported in cases with transitional cell carcinomas (14). In a multicentered study 10.912 laparoscopic procedures were analyzed and in 0.1% of the cases tumor seeding was observed. In the same study tumor seeding was reported in 2604 cases who underwent LRN (13). In another literature review, a total of 17 studies were analyzed and tumor seeding was detected in 31 cases after laparoscopic interventions applied for urologic malignancies. In 6 of these 31 cases tumor seedings were secondary to laparoscopic interventions performed for RCC (14). In another study performed, 3 port-site tumor recurrences were observed after laparoscopic interventions performed with the indication of RCC (15, 16). Tumor seeding was reported after cryoablation and biopsies performed for RCC (17). Tumor seeding can be observed not only after transperitoneal LRNs, but also after retroperitoneoscopic radical nephrectomy. In a recent study, in a patient with clinical stage cT1bN0M0, RCC implantation was reported along the port access route at postoperative 33. months (18).

In our case surprisingly, peritoneal seeding was seen on contralateral side of the peritoneum, at postoperative 1 year follow up after LRN of the left kidney. Perioperative oncologic principles were complied with. During placement of trocars, massive peritoneal damage was avoided and specimen was taken outside in an endobag. None of the risk factors which would induce tumor seeding were not present in our case. Despite all of these measures, an implant was observed on the peritoneum contralateral to the operative site. At this point, we think that presence of multiple urologic malignancies in the patient and minimal peritoneal injury secondary to gas insufflation are culprit factors. Besides, contrary to open surgery, contraindication to irrigation of the surgical field and intraabdominal cavity with distilled water might contribute to tumor seeding.

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