

Laparoscopic Adrenalectomy for Ovarian Metastasis and Underlying Horse Shoe Kidney

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ABSTRACT

Adrenal metastasis from ovarian malignancy is extremely rare. Very few cases in literature have reported surgical removal of isolated adrenal metastasis in patients with ovarian carcinoma. Presence of horse shoe kidney can impose technical challenges in patients planned for laparoscopic adrenalectomy. A 52 years female with high grade serous carcinoma ovary, horse shoe kidney and previous history of two laparotomies for primary malignancy developed adrenal metastasis 3 years after diagnosis of the primary lesion. She underwent laparoscopic left adrenalectomy in right lateral position. She was discharged on the second postoperative day. Laparoscopic adrenalectomy for ovarian metastasis in a patient with horse shoe kidney has not been reported before. Surgical resection of solitary adrenal metastasis offers survival benefit and laparoscopic resection should always be a treatment option in these patients.

Key Words: *Laparoscopic. Adrenal gland. Ovarian carcinoma. Metastasis.*

INTRODUCTION

Adrenal metastasis from primary ovarian malignancy is extremely rare. Trans-peritoneal route is the most common mode of spread and hematogenous spread to visceral organs from an ovarian primary rarely occurs.¹ There are very few cases in literature describing surgical removal of isolated adrenal metastasis in patients with ovarian carcinoma.^{2,3} Laparoscopic removal has not been frequently attempted due to risks of less than adequate excision and positive margins.

Here, we present the first case of laparoscopic removal of solitary adrenal metastasis in a patient with high grade serous carcinoma ovary with an underlying horse shoe kidney.

CASE REPORT

A 52-year-old female presented in 2010 with abdominal distension and flank pain for 2 weeks. She underwent routine laboratory investigations. Imaging including ultrasound and Magnetic Resonance Imaging (MRI) was performed which revealed bilateral ovarian masses and a horse shoe shaped kidney lying close to pelvic brim. Her CA-125 was 1188 U/ml and so an ovarian malignancy was suspected. Intra-operative findings included nodular deposits on peritoneum, liver surface,

spleen and omentum with moderate amount of ascites. Uterus was irresectable and so only bilateral oophorectomy was performed. On histopathology, a diagnosis of high grade serous carcinoma with omental metastasis was made. She was staged IIIC/IV and received eight cycles of chemotherapy (Carboplatin and Taxol) before undergoing completion surgery in 2011 and uterus was removed. On histopathology, residual foci of serous carcinoma were present.

Patient received six further cycles of carboplatin. She was followed 6 monthly with CA-125 levels. Computerized Tomography (CT) scan in 2013 showed bilateral supra renal metastasis and six further cycles of chemotherapy were administered. Right sided lesion responded well; however, left adrenal solid/cystic lesion continued to increase in size and measured approximately 35 x 29 mm (Figure 1A) with a horse shoe kidney. The horse shoe kidney was present at pelvic brim below the level of aortic bifurcation (Figure 1B). She was discussed in multidisciplinary meeting and underwent laparoscopic left adrenalectomy in 2014. Patient was placed in right lateral position. Left colon, spleen and distal pancreas were mobilized to gain exposure to adrenal lesion. The gland was well circumscribed and was freed of adjacent adhesions with an intact capsule (Figure 2). The vascular pedicle was divided with echelon staplers. Patient had a smooth postoperative course and was discharged on the second postoperative day. Histopathology revealed an infiltrating tumor composed of crowded papillae lined by markedly pleomorphic cells invading into surrounding desmoplastic stroma. Tumor cells had vesicular large nuclei and abundant atypical mitosis 20 per 10 HPF. Extensive areas of necrosis were identified. CK7 and WT1 were positive in tumor cells and CA-125 was focally positive in tumor cells favoring metastatic high grade serous papillary carcinoma.

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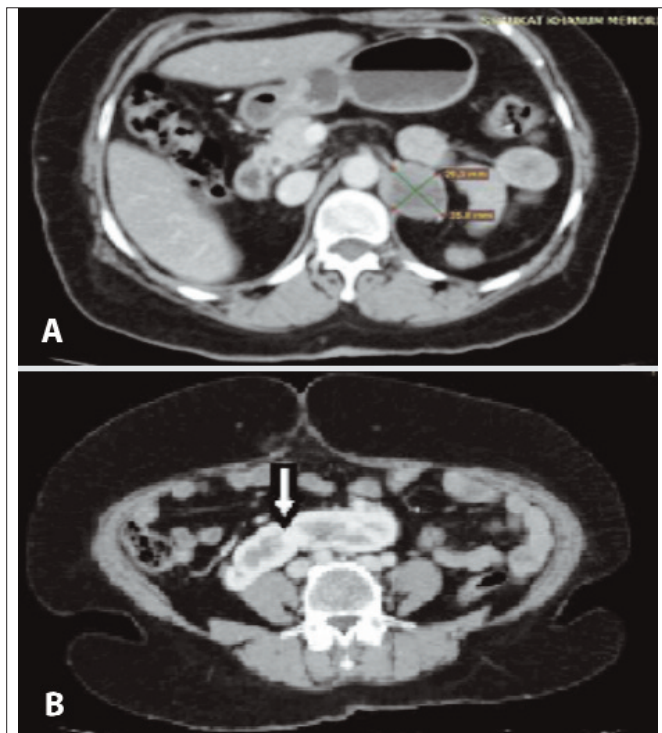


Figure 1: (A) Axial CT scan demonstrating left adrenal lesion closely applied to diaphragmatic crus measuring approximately 35 x 29 mm in size. (B) Horse-shoe kidney (white arrow) lying below the level of aortic bifurcation.

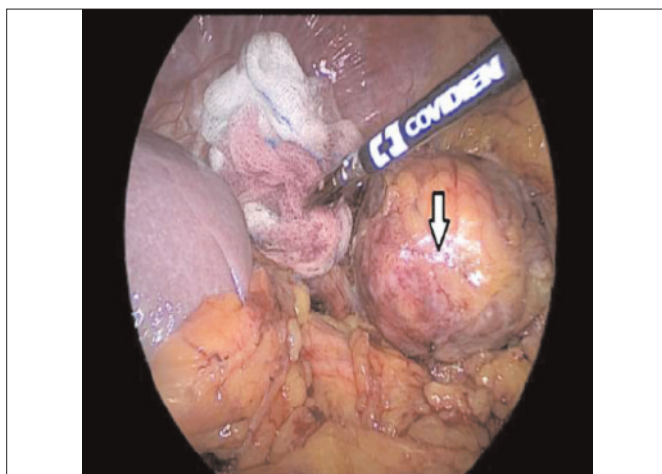


Figure 2: Adrenal gland with an intact capsule (white arrow) dissected off adjacent adhesions.

DISCUSSION

In the past, surgical resection of adrenal metastasis was considered futile. Now it is believed that resection of isolated metastasis improves survival. In the largest study on adrenalectomy for metastasis, Moreno and colleagues reported on outcome in 317 patients who underwent surgery. Resection was associated with improved outcomes. Survival in metachronous adrenal metastasis was significantly better than with synchronous (< 6 months) metastasis.⁴

Although once considered extremely rare, adrenal metastasis is seen in around 15% patients with ovarian

primary on autopsy studies.⁵ It is possible that with increased use of quality imaging, these lesions are picked up more frequently. Laparoscopic removal of benign adrenal lesions is not uncommon unless their size mandates an open procedure.⁶ Development of adrenal metastasis from ovarian primary has been reported in literature.⁷⁻⁹ Tokue reported the first case of laparoscopic removal of an adrenal metastasis from ovarian primary.² Although open adrenalectomy is often performed for malignant tumors of adrenal gland, laparoscopic removal is controversial. Dense adhesions, retroperitoneal fixation and numerous feeding vessels in malignant tumors of adrenal glands make laparoscopic removal a difficult prospect.¹⁰ In the present case, patient had a previous history of two laparotomies for ovarian malignancy which increased technical complexity of laparoscopic removal. Presence of horse shoe kidney had the potential to increase intra-operative complications due to aberrant blood supply. The fact that patient only had one kidney mandated careful dissection preserving vascular renal pedicle. It can be argued that laparoscopic attempt in a patient with previous history of laparotomies increased the risk of iatrogenic injuries. We, however, used a flank incision for optical port access. This area was reasonably away from the incision of previous laparotomies and the chances of encountering adhesions in this region was minimal. Patient was placed in right lateral position to minimize injury to intra-abdominal contents during optical port access. Minimal intra-abdominal adhesions were observed, probably due to excellent response to previous chemotherapy. The adrenal gland was delivered with an intact capsule. Patient had a smooth postoperative recovery and was discharged in 2 days. Early recovery would not have been possible in case a formal laparotomy was performed.

To the best of our knowledge, we present the first case of laparoscopic adrenalectomy in a patient with isolated metastasis from ovarian primary and underlying horse shoe kidney. Although adrenal metastasis from ovarian carcinoma is rare, it should be kept in mind and if expertise exists laparoscopic removal should be attempted.

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