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CASE REPORT

Adrenal metastasis from endometrial cancer: A case report

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Abstract

BACKGROUND

Metastases to adrenal glands originate principally from lung, breast, or gastrointestinal cancers, followed by malignant melanoma and thyroid neoplasms. We present an unusual case of uterine cancer metastasizing to the adrenal glands with a review of the English literature on the management of this rare disease.

CASE SUMMARY

A 53-year-old Caucasian woman with a history of endometrial cancer (grade 2; International Federation of Gynecology and Obstetrics III A) was hospitalized in November 2017 for a left adrenal mass found on a follow-up computed tomography scan 3 years after her gynecological surgery. Laboratory test results were normal. A laparoscopic left adrenalectomy was performed. The postoperative course was uneventful, and no chemotherapy was administered. The pathological report confirmed an adrenal endometrioid metastasis. At 36 mo of follow-up, the patient is alive and well, with no evidence of recurrent disease. A literature review identified only 11 previously-published cases of adrenal metastases from uterine cancer.

CONCLUSION

Adrenal metastasis from uterine cancer is very rare. Laparoscopic adrenalectomy may be an effective treatment in selected cases of localized adrenal metastasis.

Key words: Adrenal gland; Adrenal neoplasms; Uterine cancer; Laparoscopy; Laparoscopic surgery; Case report

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Core tip: Isolated adrenal metastasis from endometrial cancer is uncommon but should be suspected in patients with history of gynecological cancer. We report a case of large, metachronous adrenal metastasis from endometrial cancer successfully treated with laparoscopic resection. Mini-invasive surgery is safe and feasible with good oncological results also for metastatic lesions of adrenal gland.

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INTRODUCTION

Secondary tumors are the second most common cause of adrenal cortex neoplasms, and carcinoma (especially in the advanced stage) accounts for more than 90% of secondary tumors[1]. In order of frequency, the most common primary sites of the metastatic carcinoma are: Lung cancer, breast cancer, and gastrointestinal cancers, followed by malignant melanoma and thyroid neoplasms. The metastatic involvement of adrenal glands by endometrial carcinoma is rare, and there is some controversy over the most appropriate treatment due to the lack of specific guidelines. The prognosis for patients with secondary tumors involving the adrenal glands is generally poor, but survival rates seem to improve in some cases after surgical resection. The National Comprehensive Cancer Network (NCCN) guidelines on malignancies of the adrenal glands recommend a direct open approach, while laparoscopic adrenalectomy is the gold standard in Europe, and the open approach is reserved for masses more than 6-8 cm in diameter, cases of extra-adrenal tissue invasion, or patients with contraindications to laparoscopy[2,3].

We present an unusual case of metachronous uterine cancer metastasizing to an adrenal gland that was successfully treated with laparoscopic resection. A review of cases previously reported in the English literature was undertaken to ascertain what is currently known about the treatment of this unusual condition. A comprehensive search was run in PubMed (Medline) and Scopus as at December 2018 using the keywords: "adrenal gland neoplasms", adrenal metastasis", "uterine cancer", "endometrial cancer". The "related articles" function was used to widen the search and all abstracts, studies, and citations retrieved were reviewed.

CASE PRESENTATION

Chief complaints

A 53-year-old Caucasian woman was admitted in November 2017 for an adrenal mass.

History of present illness

In 2014 she had undergone total hysterectomy, bilateral oophorectomy and pelvic lymphadenectomy for a grade 2, International Federation of Gynecology and Obstetrics (FIGO) stage III A endometrioid endometrial cancer (EEC). Postoperatively, she was treated with six cycles of carboplatin-paclitaxel chemotherapy. She had no known family history of colon cancer, and endometrial cancer related to Lynch syndrome was ruled out.

History of past illness

The patient had a history of laparoscopic uterine myomectomy and tonsillectomy when she was younger.

Physical examination

Physical examination revealed abdominal tenderness with moderate palpation of the left mid-quadrant of the abdomen.

Imaging examinations

Computed tomography (CT) of the chest and abdomen revealed a solid left adrenal

mass with malignant features (6 cm in diameter, with parenchymal invasion) (Figure 1).

Laboratory examinations

Laboratory test findings, including hormonal assays, were unremarkable.

FINAL DIAGNOSIS

Macroscopic examination of the resected specimen showed the left adrenal gland (7 × 4 × 3 cm) almost entirely substituted by a solid, off-white neoplastic mass (6.8 cm in largest diameter). Microscopic sections showed massive adrenal and peri-adrenal endometrioid metastasis (Figure 2). Immunohistochemical staining was positive for progesterone and estrogen receptors (Figure 3).

TREATMENT

Laparoscopic adrenalectomy was performed.

OUTCOME AND FOLLOW-UP

The postoperative course was uneventful and the patient was discharged 5 d after the surgical procedure. Two months later, 18-FDG positron emission tomography showed no pathological uptake, so no adjuvant therapy was administered. At the latest follow-up (December 2018), the patient was in good clinical condition with no recurrent disease.

DISCUSSION

Endometrial cancer is the most common gynecological cancer in developed countries. Most endometrial cancers are diagnosed at an early FIGO stage, and the most common histological type is EEC. These patients are generally considered at low risk, with 5-year survival rates of 95%; however, survival drop considerably to 69% and 13%, respectively, in the event of regional or distant metastases. Patients with endometrioid cancer in FIGO stages II to III, or with non-endometrioid cancer are at high risk of relapse[4]. The adrenal gland is a rare site of metastases from endometrial cancer. To our knowledge, only 11 previous cases have been reported in the English literature (Table 1), including: 8 cases of metachronous single-site metastases, 2 of metachronous multiple-site metastases, and one synchronous metastasis. Nakano *et al*[5] were the first to report a case of adrenal metastasis from endometrial cancer in 1975. On reviewing all the studies listed in Table 1: The patients' median age was 62 years (range 39-77 years). There were two patients with FIGO stage I disease, two with FIGO stage II, two with FIGO stage III, and two with FIGO stage IV, while the stage was not stated in three cases. Six patients had an endometrioid histology, four had a non-endometrioid type, and no histology was available for one. When stratified according to the European Society of Medical Oncology 2016 Consensus Conference recommendations, nine patients were at high risk of recurrence or distant metastases[4].

In most cases, the adrenal lesions were identified on CT scans. Laboratory tests revealed no hormone overproduction in any of the patients.

Gynecological and oncological societies have no shared approach to the adjuvant treatment of "high-risk" endometrial cancer. While the value of external beam radiotherapy and/or vaginal brachytherapy for local recurrence control is accepted almost worldwide, any use of chemotherapy to prevent distant relapses is at the clinician's discretion[15]. Our review identified seven cases treated with adjuvant therapy after gynecological surgery: 4 patients were administered radiotherapy at least; 3 were treated with chemotherapy alone.

Disease-free survival after hysterectomy naturally varied considerably, given the marked differences between the cases reviewed in terms of disease stage and grade, histology, and adjuvant therapy. It ranged from 6 mo to 108 mo with a median disease-free survival in the series of 15 mo.

The surgical approach to adrenal gland metastases is controversial. Following the NCCN guidelines, many authors treat adrenal metastases directly with open surgery[16], but laparoscopic adrenalectomy has been used successfully for a variety of

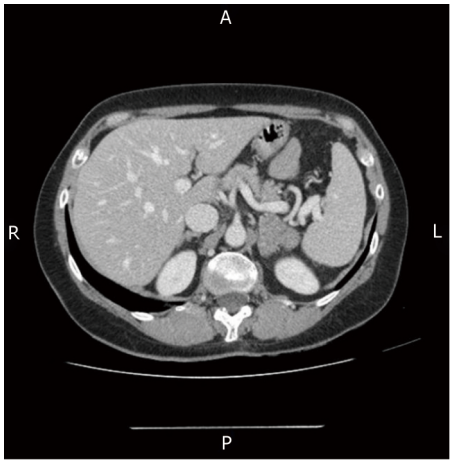

Figure 1 Computed tomography scan of abdomen showing left adrenal mass measuring 40 mm × 34 mm.

secondary tumors[17,18].

Our review found that only three of eight cases of single-site adrenal metastases from endometrial cancer (5.7-7.5 cm in diameter) were treated mini-invasively (laparoscopy or robotic surgery). The largest tumor (7.5 cm in diameter) was treated by Rekhi *et al*[13] with robotic adrenalectomy. Five patients underwent open adrenalectomy, and the largest tumor was reportedly 5 cm in diameter (range 3.5-5 cm). Our patient was successfully treated using a laparoscopic approach with no operative complications and with a good survival. A good outcome after mini-invasive surgery was reported by other Authors too. Izaki *et al*[8] and Choi *et al*[9] reported two similar cases, both high-risk patients with FIGO stage IIIC primary endometrial cancer and metachronous single-site adrenal metastases (5.7 and 6.0 cm in diameter, respectively); both patients were treated laparoscopically and had a long follow-up (82 and 45 mo, respectively).

So, despite the small number of patients considered, our review suggests that a laparoscopic approach is a valid alternative to open surgery for isolated adrenal metastases from endometrial cancer.

Finally, there is no general consensus regarding chemo-therapy after surgery for adrenal metastases. Izaki *et al*[8] described a patient who underwent laparoscopic adrenalectomy followed by three cycles of carboplatin-based chemotherapy, with a complete response at 67 mo. Other Authors[10,13,14] administered adjuvant chemo-therapy after surgery for adrenal secondary tumors, but provided no follow-up data.

Only one of the cases emerging from the literature review was managed with no surgery or oncological treatment. Zaidi *et al*[11] reported giving only palliative therapy to a patient with a low-stage uterine cancer and an early adrenal gland metastasis, and the outcome was very poor (she survived only 3 mo after her metastasis was diagnosed).

CONCLUSIONS

Adrenal metastasis from uterine cancer is rare, but should be suspected whenever an adrenal mass is detected in the follow-up after the resection of gynecological cancer. Although the number of cases reported in the literature is very small, laparoscopic resection seems to be feasible and safe, with good oncological results.

Table 1 Patients with adrenal metastases from endometrial cancer

Case reports	Age (yr)	Histology of primary	Stage (FIGO)	Adjuvant treatment	DFS (mo)	Site	Treatment	F-U (mo)
Nakano *et al*[5], 1975	77	Mixed (clear cell-squamous)	Na	Na	26	Metachronous multiple sites	Whole brain irradiation and supportive care	28
Lam *et al*[6], 2001	Na	Na	Na	Na	Na	Metachronous single site	Laparotomic adrenalectomy	Na
Baron *et al*[7], 2008	76	Endometrioid G1	IV B	EBRT	9	Metachronous single site	Laparotomic partial adrenalectomy	24
Baron *et al*[7], 2008	62	Endometrioid G1	Na	VBT + 6 adriamycin-cisplatin cycles	108	Metachronous multiple site	Supportive treatment	110
Izaki *et al*[8], 2010	55	Endometrioid	III C	7 carboplatin paclitaxel cycles	15	Metachronous single site	Laparoscopic adrenalectomy + CT (3 carboplatin cycles)	82
Choi *et al*[9], 2011	62	Squamous	III C	6 cisplatin cycles	10	Metachronous single site	Laparoscopic adrenalectomy	45
Berretta *et al*[10], 2013	67	Mixed (anaplastic-endometrioid)	IV B	Na	Na	Synchronous multiple sites	One-time laparotomic adrenalectomy + hysterectomy and salpingectomy + taxol and carboplatin chemotherapy	Na
Zaidi *et al*[11], 2013	75	Endometrioid G3	I B	Na	6	Metachronous single site	Supportive treatment	9
Singh Lubana *et al*[12], 2015	60	Serous	II	EBRT + C + CT: 3 paclitaxel carboplatin cycles	66	Metachronous single sites	Laparotomic adrenalectomy	90
Rekhi *et al*[13], 2015	39	Endometrioid G2	II	VBT + EBRT	24	Metachronous single site	Robotic adrenalectomy + CT	Na
Mouka *et al*[14], 2016	58	Endometrioid G3	I B	6 CT	12	Metachronous single site	Laparotomic adrenalectomy + CT	Na
Present case, 2019	53	Endometrioid G2	II B	No treatment	36	Metachronous single site	Laparoscopic adrenalectomy	45

FIGO: International Federation of Gynecology and Obstetrics; DFS: Disease-free survival; F-U: Follow-up; Na: Not available; EBRT: External beam radiation therapy; VBT: Vaginal brachytherapy; CT: Chermotherapy.

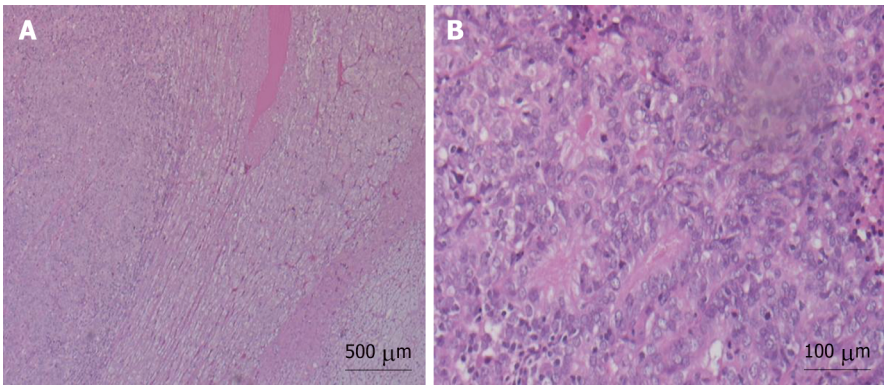

Figure 2 Hematoxylin and eosin stain of endometrial endometrioid carcinoma. A: Panoramic view of left adrenal gland; B: High magnification showing the glandular pattern of neoplastic cells.

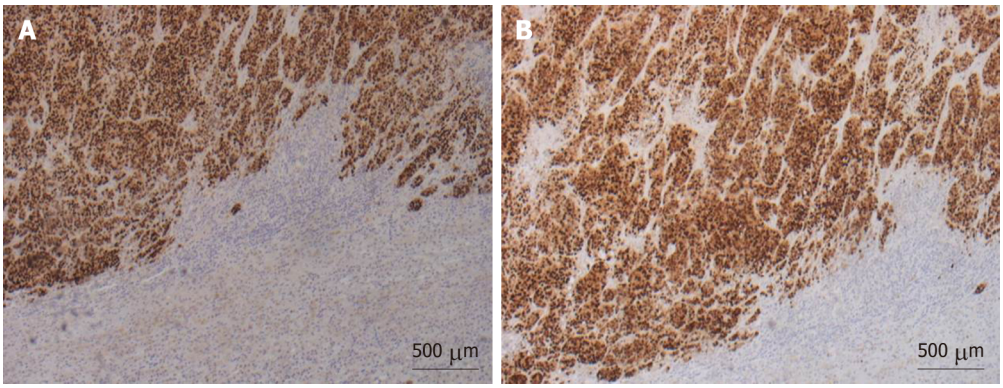

Figure 3 Immunohistochemical staining. A, B: Immunohistochemical staining positive for estrogen receptors (A) And progesterone receptors (B) Shows high reactivity in metastatic cells.

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