A case of uterine carcinosarcoma which was strongly suspected to have metastases to the psoas and gluteus muscles

Yumi Ishidera¹ · Hiroshi Yoshida¹ · Yuka Oi¹ · Kayo Katayama¹ · Noriko Ando¹ · Hiroyuki Shigeta¹

Received: 20 February 2018 / Accepted: 1 June 2018 / Published online: 5 June 2018
© The Japan Society of Clinical Oncology 2018

Abstract

Metastasis to the skeletal muscles is uncommon. We report a case which was strongly suspected to have psoas and gluteus muscle metastases from uterine carcinosarcoma. A 68-year-old woman (gravida, 2; para, 0) underwent retroperitoneal endoscopic paraaortic lymphadenectomy, laparoscopic modified radical hysterectomy, bilateral salpingo-oophorectomy and pelvic lymphadenectomy for uterine carcinosarcoma, suspected to be stage IB. Metastasis to one right pelvic lymph node was observed. Ascites fluid cytology was negative. Postoperative pathological examination revealed stage IIIC1 (pT1bN1M0) disease. Five cycles of chemotherapy with paclitaxel + carboplatin were performed. 10 months after chemotherapy, serum cancer antigen-125 level was elevated. Computed tomography (CT) revealed a 3-cm tumor of the left psoas muscle and magnetic resonance imaging revealed a tumor of the left gluteus maximus muscle. These lesions showed fluorodeoxyglucose uptake in positron emission tomography-CT. Because we considered the tumors were metastases of uterine carcinosarcoma, we recommended her chemotherapy. However, after one cycle of chemotherapy, the patient underwent immunotherapy elsewhere with immune checkpoint inhibitors. 5 months after the recurrence, she was alive.

Keywords Endometrial cancer · Carcinosarcoma · Uterine · Skeletal muscle metastasis · Endoscopic surgery

Introduction

Metastasis to the skeletal muscles is uncommon. Among gynecological cancers, some cases of cervical cancers have been reported; however, only one case of psoas muscle metastasis from endometrial cancer has been reported [1].

We report a case which was strongly suspected to have psoas and gluteus muscle metastases from uterine carcinosarcoma.

Case report

A 68-year-old woman (gravida, 2; para, 0) presented with atypical genital bleeding. Endometrial biopsy revealed carcinosarcoma, and diagnostic images suggested stage IB endometrial cancer. Serum cancer antigen (CA)-125 level was normal. She underwent retroperitoneal endoscopic paraaortic lymphadenectomy, laparoscopic modified radical hysterectomy, bilateral salpingo-oophorectomy and pelvic lymphadenectomy. Before uterine manipulation, a vaginal cuff was formed to close the cervical os. Bilateral fallopian tubes were coagulated to prevent leakage of uterine tumor into the vagina and abdominal cavity. No nodules were disseminated in the abdominal cavity. Myometrial invasion in > 50% myometrium and metastasis to one right pelvic lymph node were found. Ascites cytology was negative. Microscopic examination revealed that the tumor was homologous carcinosarcoma and consisted of serous carcinoma with highly atypical nuclei and endometrial stromal

✉ Yumi Ishidera
uradera2006@yahoo.co.jp
Hiroshi Yoshida
hiroshiyoshidamd@gmail.com
Yuka Oi
yukaoui56@ybb.ne.jp
Kayo Katayama
kayo-eyore@yahoo.co.jp
Noriko Ando
u_and615a123k@yahoo.co.jp
Hiroyuki Shigeta
pgkc-0018@jcom.zaq.ne.jp

¹ Department of Obstetrics and Gynecology, Yokohama Municipal Citizen's Hospital, 56 Okazawa-cho, Hodogaya-ku, Yokohama 240-8555, Japan

sarcoma (Fig. 1a, b). Vascular invasion was negative; however, lymphatic invasion was positive (Fig. 1c). From these observations, she was diagnosed with FIGO stage IIIC1

Fig. 1 Pathological examination of the uterine tumor. **a** The tumor consisted of serous carcinoma (left upper part) and endometrial stromal sarcoma (right lower part) (H&E, low power field). **b** The part of serous carcinoma with highly atypical nuclei (H&E, middle power field). **c** The triangles showed lymphatic invasion (H&E, middle power field)

(pT1bN1M0) cancer. Five cycles of chemotherapy with paclitaxel + carboplatin were postoperatively performed as adjuvant therapy. 10 months after chemotherapy, she noticed abnormal sensitivity in her left thigh and serum CA-125 level was shown to be elevated. She had no fever or pain, and her serum C-reactive protein level was 0.0 mg/dl. Computed tomography (CT) revealed a 3-cm tumor of the left psoas muscle (Figs. 2, 3) and magnetic resonance imaging (MRI) revealed a tumor of the left gluteus maximus muscle (Fig. 4). These lesions showed fluorodeoxyglucose (FDG) uptake in positron emission tomography-CT (PET-CT). Because we considered the tumors were metastases of uterine carcinosarcoma, we recommended her chemotherapy. After one cycle of chemotherapy with paclitaxel + carboplatin, she preferred immunotherapy rather than chemotherapy. She

Fig. 2 Abdominal CT. Arrow shows left psoas muscle swelling

Fig. 3 PET-CT. Arrow shows left psoas muscle tumor, suspecting metastasis

Fig. 4 MRI T2W. Arrow shows small lesion in the left gluteus maximus muscle, suspicious of metastasis

underwent immunotherapy elsewhere with anti-programmed cell death-1 (PD-1) antibody and anti-cytotoxic T lymphocyte associated antigen-4 (CTLA-4) antibody. 5 months after the recurrence, psoas tumor disappeared but gluteus tumor remained.

Discussion

Although skeletal muscles constitute approximately 50% of the total body mass, skeletal muscle metastasis is uncommon, the reason for which remains unclear, with a reported incidence of 0.08–0.16% [2, 3]. It has been reported that cancers produce lactic acid, and an anoxic environment by lactic acid helps induce new blood vessels [4]. Skeletal muscles themselves produce lactic acid, making it difficult for cancers to induce new blood vessels in skeletal muscles, which may be a reason for the rarity of skeletal muscle metastasis.

A review of 52 patients with skeletal muscle metastasis demonstrated the most often involved muscles to be the gluteus (15%), psoas (8.7%) and erector spinae (8.7%) [5]. Common primary cancers were located in the lung (35%), gastrointestinal tract (23%) and kidney (19%) [2]. Widespread metastases usually were present when skeletal muscle metastasis was detected.

Among gynecological cancers, skeletal muscle metastasis is very rare, but some cases of cervical cancers have been reported. Several patients positive for human immunodeficiency virus (HIV) have been reported to have psoas muscle metastasis, most frequently from cervical

cancer [6]. Some cases of cervical cancer in HIV-negative patients also have been reported [7–10]; however, only one case of psoas muscle metastasis from endometrial cancer has been reported [1]. Hematogenous, lymphatic and disseminated spread has been considered as pathways for skeletal muscle metastasis. In our case, we suspected that disseminated tumor attaches on the exposed psoas muscle, resulting in metastasis. However, it seems to be difficult to rule out hematogenous and lymphatic spread as a reason for metastasis to the muscles. The true reason for skeletal muscle metastasis still needs to be investigated.

A CT-guided fine-needle aspiration is useful to differentiate the psoas muscle metastasis from abscess [9]. Nevertheless, we did not do a biopsy because the psoas tumor was located in a difficult place to approach. The tumor was well enhanced diffusely in CT, and blood examination revealed no inflammatory signs; so, we did not consider that the psoas lesion was an abscess.

Chemotherapy was chosen as the treatment for recurrent tumors because surgical excision of the psoas muscle may cause functional disability, and gluteus muscle metastasis was suspected. There was a poor overall prognosis of patients with skeletal muscle metastasis because patients were usually recognized to have systemic disease. However, there are two case reports in which surgical excision of a solitary psoas muscle metastasis from cervical cancer resulted in good control of local disease progression [7, 10]. Therefore, surgical excision of skeletal muscle metastasis can be considered depending on patient conditions.

Acknowledgements The authors would like to thank Enago (<http://www.enago.jp>) for the English language review.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Informed consent Informed consent was obtained from all individual participants included in the study.

References

1. Bayraktutan U, Kantarci M, Yuce I et al (2016) Endometrial cancer metastasis mimicking spondylodiscitis and psoas abscess. *Spine J* 16(1):e9–e10
2. Herring CL, Harrelson JM, Scully SP (1998) Metastatic carcinoma to skeletal muscle. A report of 15 patients. *Clin Orthop Relat Res* 355:272–281
3. Tuoheti Y, Okada K, Osanai T et al (2004) Skeletal muscle metastases of carcinoma: a clinicopathological study of 12 cases. *Jpn J Clin Oncol* 34(4):210–214
4. Seely S (1980) Possible reasons for the high resistance of muscle to cancer. *Med Hypotheses* 6(2):133–137

5. Arpacı T, Ugurluer G, Akbas T et al (2012) Imaging of the skeletal muscle metastases. *Eur Rev Med Pharmacol Sci* 16(15):2057–2063
6. Singh GS, Aikins JK, Deger R et al (1994) Metastatic cervical cancer and pelvic inflammatory disease in an AIDS patient. *Gynecol Oncol* 54(3):372–376
7. Mehdorn M, Petersen T-O, Bartels M et al (2016) Psoas abscess secondary to retroperitoneal distant metastases from squamous cell carcinoma of the cervix with thrombosis of the inferior vena cava and duodenal infiltration treated by Whipple procedure: a case report and review of the literature. *BMC Surg* 16(1):55
8. Sharma A, Dey A, Gupta M (2015) Metastatic cervical carcinoma masquerading as iliopsoas abscess in an HIV negative woman-diagnosed on fine-needle aspiration cytology: a case report. *J Cytol* 32(4):275–277
9. Basu S, Mahajan A (2014) Psoas muscle metastasis from cervical carcinoma: correlation and comparison of diagnostic features on FDG-PET/CT and diffusion-weighted MRI. *World J Radiol* 6(4):125–129
10. Saâdi I, Hadadi K, Amaoui B et al (2003) Muscle metastasis of squamous cell carcinoma of the uterine cervix. *Cancer Radiother* 7(3):187–189