

Metastatic endometrial carcinoma presenting as a scapular mass: A case report and literature review

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ABSTRACT

Bone metastases of endometrial cancers are quite rare, especially in the scapula. Only two previous reports of such cases were found in the literature, and in each case a different approach to diagnosis was used. There are no established recommendations for screening for bone metastases at diagnosis or after initial treatment of endometrial cancers. In the present case, a 55-year-old woman with progressive abdominal distension was diagnosed with a cystic mass. Histopathological analysis revealed grade II synchronous endometrioid carcinoma in both the endometrium and the ovaries. The patient received three cycles of combined paclitaxel and carboplatin chemotherapy. Seven months after the last chemotherapy cycle, a palpable lump was found in the right shoulder, suggesting a lesion in the right scapula. A bone scan revealed heightened radioactivity uptake, highlighting the unpredictable nature of the disease progression. The choice of diagnostic imaging modality remains challenging. This case emphasises the need for ongoing investigation of the mechanisms of distant metastasis and for the development of standardised diagnostic and therapeutic strategies.

1. Introduction

Endometrial cancer is the most common type of cancer that affects the female reproductive system, especially in low-income countries. Based on the GLOBOCAN 2020 dataset, almost 417,000 new cases were detected worldwide, with an estimated mortality rate of 97,000 [1]. The recurrence and spread of endometrial cancer primarily occur within the pelvic cavity. Remote metastases, outside the pelvic anatomy, are most frequently seen in the lymphatic nodes, hepatic enclaves, and pulmonary area [2]. Osseous metastases, albeit rare, typically occur only in the vertebral column and pelvic structures [2,3].

The scapula is an unusual location for bone metastases. Only two published cases could be found in which bone metastases in the scapula resulted from primary malignancies of endometrium [4,5]. With the inclusion of the case reported here, all three cases had comparable clinical manifestations but varied in the diagnostic imaging techniques used. The usual approach for treating endometrial cancer metastasis entails using computed tomography (CT), magnetic resonance imaging (MRI) or positron emission tomography (PET), primarily to examine common areas such as the pelvis, lungs, and liver. This article discusses a unique example of endometrial cancer that had spread to the scapular

bone, and it examines the most appropriate diagnostic imaging method. This example emphasises the importance of increased alertness and updated screening procedures for unusual metastatic locations in women with endometrial cancer.

2. Case Presentation

A 55-year-old woman presented with a primary concern of gradual enlargement of the abdomen over the previous four months. An ultrasound scan detected a significant, well-defined cystic mass that extended across the pelvic and abdominal cavities, with dimensions of 15x19x14 cm. Subsequent examination uncovered the presence of right hydro-nephrosis and left nephrolithiasis. The laboratory evaluation revealed elevated levels of CEA (86.70) and Ca-125 (3629.7). A total abdominal hysterectomy and bilateral salpingo-oophorectomy were carried out.

The histopathological examination of the surgical specimens showed grade II synchronous endometrioid carcinomas in both the endometrium and ovaries. The tumour displayed significant penetration into the lower uterine segment, cervix, and fallopian tube while not extending into the ovarian tissue and developing above 50% of the thickness of the myometrium. Additionally, lymphatic infiltration into the uterine region was

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observed. The tumour was categorised as stage IIIA according to the International Federation of Gynecology and Obstetrics and as pT3aNxMx according to the TNM classification. The patient underwent a course of three cycles of chemotherapy, which involved the administration of both paclitaxel and carboplatin. The initial reaction was satisfactory, although subsequent interactions were complex owing to the cessation of medical appointments.

Seven months after the completion of the most recent chemotherapy treatment, the patient reported a lump on the right shoulder that had been present for one month. An easily detectable, separate lump measuring 5 × 6 cm on the top right side of the back indicated a growth in the right scapula. No abnormalities were detected during the gynaecological examination. The histopathological evaluation of the fine-needle aspiration biopsy of the right shoulder indicated the presence of metastatic cancer (Fig. 1). Radiographs of the right scapula (Fig. 2) revealed a lytic lesion characterised by permeative degradation of the bone. Wide transitional zones and cortical fractures were found. Additionally, abnormalities were observed in the right coracoid and acromion. The trabecular bone adjacent to the lesions exhibited no abnormalities. The right scapula was determined to be a secondary bone disease caused by the spread of cancer rather than being a main aggressive tumour.

A bone scan revealed heightened radioactive absorption in the right mandible, clavicle, scapula, humeral head, humerus, and femur. The presence of osteoblastic metastases was confirmed in the right clavicle, scapula, humeral head, humerus, and femur. The presence of dental pathology was identified as the cause of radioactive absorption in the right mandible. A further bone scan was arranged for three months later. At the time of writing, the patient intended to undergo an additional three rounds of paclitaxel and carboplatin treatment. Fig. 3 displays the chronological sequence of events in the case.

3. Discussion

This case report describes a rare occurrence of metastasis in a patient with endometrial cancer. Of the two reports of such cases found in the literature, one documented scapular bone metastasis as the initial manifestation of endometrial cancer [4], while the other involved a type of endometrial cancer recurrence [5]. Both individuals exhibited identical endometrioid histopathology. Table 1 displays the clinical data obtained from each case report. The present case report is an extra source of information regarding the unusual manifestation of bone metastases in the scapular bone in a patient diagnosed with endometrial cancer.

In the present case, the diagnosis of endometrial cancer was verified with a biopsy, which showed the presence of synchronous grade II

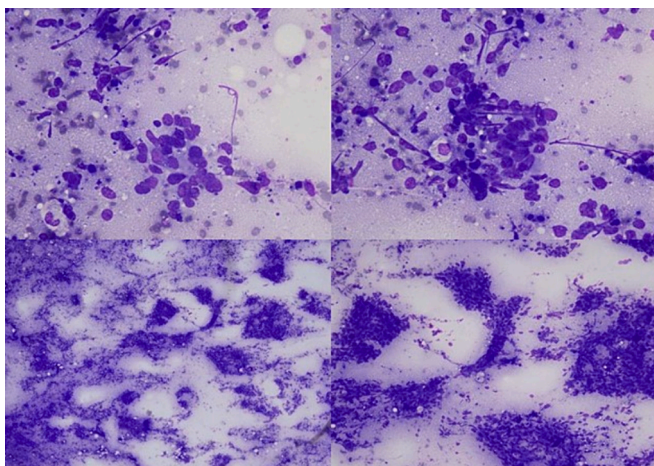


Fig. 1. Histopathological findings.

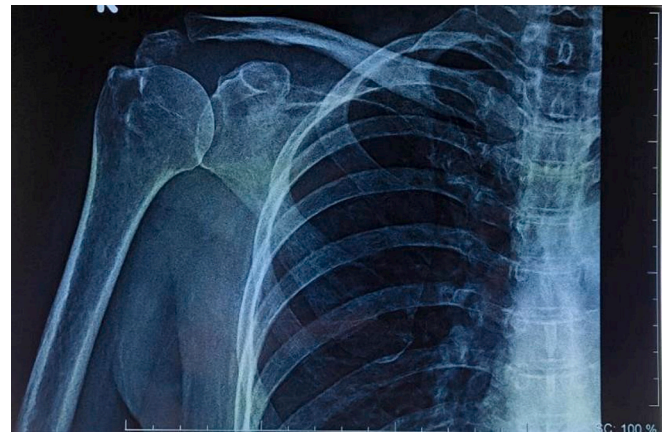


Fig. 2. Radiographs of the right shoulder (antero-posterior and lateral views). Expansive lytic lesions typified by permeative destruction with a wide transitional zone and cortical breakage in the coracoid and acromion of the right scapular bone.

endometrioid carcinoma in both the endometrium and the ovaries. After considering the main tumour detected on the surface of the ovary, the presence of lymphatic invasion in the uterus, and the presence of tumours in both fallopian tubes, it was determined that the ovarian tumours were metastatic and originated from the endometrium. This conclusion is based on the classification established by Young and Scully [6]. The histological findings of endometrioid cancer indicate a more favourable prognosis and lower rates of recurrence compared to non-endometrioid histology, even in cases including lymphatic invasion, endocervical invasion, or FIGO grading [7].

Following initial treatment with surgery combined with paclitaxel and carboplatin, there was a recurrence of distant metastases. Although cytoreductive surgery in combination with chemotherapy has been shown to result in increased overall survival rates, the patient initially exhibited a positive response to chemotherapy alone [8]. The paclitaxel and carboplatin regimens are consistent with the findings of the GOG 209 study regarding advanced endometrial cancer [9].

The diagnosis was established through the patient's complaint, radiological findings, and biopsy results. Bone scans, selected for their cost-effectiveness and widespread availability, could identify bone metastases despite having lower specificity than PET/CT. Low specificity can be compensated by clinical-anatomical correlations, as evidenced by the elevated pathological radioactivity observed in the bones around the right scapula, both femurs and the mandible. The presence of radioactivity in the mandible may have been caused by a localised illness, leading to inaccurate indications of metastasis [10].

Research has shown that individuals who experienced bone metastasis as a recurrence had a longer overall survival rate than those who initially presented with bone metastasis as the original finding. The former group had an average overall survival of 36 months, whereas the latter group had an average overall survival of 13 months [2,10]. The prognosis is dependent on the histological type and the number of metastases. Different viewpoints exist about whether endometrioid kinds and single-bone metastases have a more favourable prognosis [11] or if the histological type and number of bones involved do not impact prognosis [10]. A conclusive prognosis for the patient reported here, who had endometrioid-type endometrial cancer with metastases in the right scapular bone and bilateral femurs, could not be determined.

The administration of paclitaxel-carboplatin for the treatment of recurrent metastases is in line with a previous study which showed quite favourable outcome [9,12]. Bisphosphonates as alternative treatment choices for bone metastases have demonstrated clinical amelioration and alleviation of symptoms [13,14]. Nevertheless, there are currently no clear guidelines for the treatment of recurring bone metastases in



Fig. 3. Timeline (in months) of episodes of care.

Table 1
Clinical features of three patients with scapular metastasis from endometrial cancer.

Case	Age	Type of EC	GR	ST	Metas. (Initial Diagn)	Surg.	Adju Ther	Initial Chem	First Recurr (month)	Rec Site	Symptoms of Bone Metas	Bone Site	Adv Img	Chem (recur)
Present case	55	ET	GII	IIIA	Ovary	TAH/BSO	NA	PC	7	Bone	Shoulder mass	Scapula, Femur	Bone Scan	PC
Turner et al., 2011	77	ET	NA	IVB	Bone, lung	NA	PR	NA	NA	NA	Shoulder mass, pain	Scapula Ilium, Femur, Vertebra	CT scan	NA
Kavitha et al., 2022	50	ET	GII	IB	NA	TAH/BSO	BRT	NA	5	Bone, liver	Shoulder mass	Scapula	PET/CT	PC

BRT, Brachytherapy, BSO, bilateral salpingo-oophorectomy; EC, endometrial cancer; ET, endometrioid type; GR, grade; NA, not available; PC, paclitaxel-carboplatin; PR, palliative radiotherapy.

cases of endometrial cancer.

4. Diagnostic Imaging Modality for Bone Metastasis

There are currently no guidelines for screening for bone metastases in endometrial cancer. The case reported here is unique in that it is the only one in which a bone scan was used for follow-up purposes to identify bone metastases. The bone scan verified the existence of lesions at the sites where clinical symptoms had appeared, as well as perhaps more unidentified bone lesions that did not show any symptoms. Although bone scans are cost-effective and have acceptable sensitivity and accessibility, they have limitations in terms of specificity and imaging capabilities, which may result in the detection of benign bone conditions. Usage of single photon emission computed tomography (SPECT) can enhance the specificity and precision of bone scans [15].

Despite being cost-effective and readily available, CT has little efficacy in detecting bone metastases. PET/CT has the greatest specificity and accuracy in identifying abnormalities in bones and soft tissues, surpassing bone scans and SPECT, and approaching the level of accuracy achieved by MRI. Nevertheless, the limited availability and great expense of PET/CT are notable disadvantages [16,17]. MRI, which is more suitable for analysing soft tissue, has certain limitations when it comes to evaluating bone metastases. These drawbacks include lengthier examination times and a restricted field of view [18].

PET/CT is the preferred imaging technique when there are clinical indications of bone metastatic cancer, even when bone scans are cost-effective and sufficient. The constraints of bone scans can affect the process of planning treatment, particularly in identifying abnormalities that are located beyond the bones. However, it is important to consider cost and infrastructure limitations when considering other imaging methods.

5. Conclusion

This case highlights the exceptional nature of scapular bone metastasis in endometrial carcinoma, which has been rarely documented. Despite its typically favourable prognosis, the synchronous occurrence of endometrioid carcinoma in the endometrium and both ovaries highlights the unpredictable nature of the disease progression. The choice of diagnostic imaging modality for bone metastasis in such cases remains challenging, and no established recommendations have been made. While bone scans offer cost-effective total-body examination, PET/CT is the most sensitive and specific imaging modality for detecting bone metastases and soft-tissue involvement. However, accessibility and cost should be considered when selecting the appropriate diagnostic tools. These issues highlight the need for further research and consensus to guide the selection of diagnostic imaging modalities for bone metastasis in patients with endometrial cancer. The prognosis and optimal treatment approach for patients with bone metastasis remain unclear, necessitating further research to identify the influencing variables. This case emphasises the need for ongoing investigation of distant metastasis mechanisms and for the development of standardised diagnostic and therapeutic strategies.

Contributors

Eccita Rahestyningtyas contributed to patient care, the conception of the case report, the acquisition and interpretation of data, the literature review, and the drafting of the manuscript.

Wita Saraswati contributed to the conception of the case report, performed the literature review, and the drafting of the manuscript.

Both authors approved the final submitted manuscript.

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Patient consent

Written informed consent was obtained from the patient for the publication of this case report and use of the accompanying images.

Provenance and peer review

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Conflict of interest statement

The authors declare that they have no conflict of interest regarding the publication of this case report.

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