
Femoral metastases from ovarian serous/endometrioid adenocarcinoma

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ABSTRACT

Bony metastases from ovarian cancer are rare, tend to affect the axial skeleton and are associated with abdomino-pelvic disease. The median time interval between diagnosis of ovarian carcinoma and presentation of bony metastases is 44 months (1). We describe a rare case of high grade left ovarian serous / endometrioid adenocarcinoma presenting with a pathological right femoral fracture 4 weeks following diagnosis and optimal debulking of the ovarian tumour. Orthopaedic surgeons must be vigilant when planning treatment of fractures presenting in patients with a history of ovarian cancer.

INTRODUCTION

Ovarian cancer is responsible for almost half of deaths from cancer of the female genital tract because malignant tumours often spread outside the ovary by the time a definite diagnosis is made. However bony metastases from ovarian cancer are rare. They tend to affect the axial skeleton and are associated with abdomino-pelvic disease. Median interval time between diagnosis of ovarian cancer and documentation of metastatic disease is 44 months (1). However median survival of patients with bony metastasis from ovarian malignancy is low, in the range 4-7.5 months (2,3). Therefore early diagnosis and optimal management is crucial.

CASE REPORT

A normally fit and independent 79 year old ex-smoker experienced new onset episodes of urinary retention and incontinence over a 9 month period. She had previously had a total abdominal hysterectomy with ovarian conservation for fibroids. USS showed a well circumscribed 12.5cm x 9.1cm mass, mostly solid with some cystic components pressing on the bladder. Renal outlines and collecting systems, bladder, spleen and liver appeared normal. The gynaecologists undertook a laparotomy, left ovarian cystectomy, right salpingo oophorectomy, and omentectomy with peritoneal washings. There was partial rupture of the cyst during removal but no residual macroscopic disease in the pelvis post-operatively. Tissue histology was that of a high grade left ovarian serous / endometrioid adenocarcinoma with no surface involvement. There was no vascular or lymphatic invasion and no evidence of malignancy in the right ovary. Peritoneal fluid was negative. Positive immunostaining for CK7, Ca 125 and ER confirmed ovarian primary origin. She made a good post-operative recovery and was commenced on a four weekly regime of adjuvant chemotherapy. Follow-up CT abdomen/ pelvis four weeks after the laparotomy revealed possible regrowth of abnormal tissue at the left adnexa measuring 37mm x 36mm x 32mm.

On the day of scanning she was struck by a slow - moving car and presented to A&E with a painful, shortened and externally rotated right leg. X-ray revealed a displaced oblique sub cervical fracture of her proximal right femur with medial displacement of the lesser trochanter. She underwent Gamma IM nail fixation and given her recent diagnosis and abdominal surgery, reamed specimens were sent for histological analysis. A pathological lesion did not seem obvious on any radiographs either pre - or intra - operatively. Tissue histology revealed malignant cells with a degree of nuclear moulding, and occasional intranuclear inclusions and intra - cytoplasmic lumen. Immunohistochemistry showed tumour expression of cytokeratin 7, cytokeratin 20, CA 125, the oestrogen receptor, E - cadherin (CD 324) and TTF1. Comparison to the left ovarian specimen confirmed a similar morphological appearance and immunohistochemical phenotype, consistent with metastatic ovarian carcinoma. Follow-up 592 MBq Technetium bone scanning showed abnormal uptake in the proximal right femoral shaft and neck, distal right femoral shaft, spine, both wings of the sacrum, skull, medial aspect of the right femoral condyle and the left ankle. Following discussion within the multidisciplinary gynaecological oncology team it was decided that she was not fit for further chemotherapy and that her life expectancy was too short for radiotherapy to be beneficial. She was commenced on Tamoxifen. Approximately 10 weeks after her initial presentation she presented once again to A&E with severe lumbar back pain, bilateral leg weakness and confusion. X-ray lumbar spine showed a grade 2 compression fracture of L2 and she was re - admitted. She unfortunately became progressively more confused over the subsequent 10 days, developed DIC, and passed away peacefully 3 months after her initial presentation.

DISCUSSION

Ovarian cancer accounts for 6% of all cancers in females and is the third most common cause of cancer of the female genital tract. Serous tumours account for about 30% of ovarian tumours. 75% are benign or of borderline malignancy and 25% are malignant. Endometrioid tumours account for approximately 20% of ovarian cancers, most of which are carcinomas (4). They spread predominantly directly within the pelvis and abdomen and can form large intra – abdominal masses. Lymphatic spread may also occur. Rose et al studied the autopsy findings of 428 patients with various histologic types of ovarian cancer to determine metastatic patterns. The incidence of bony metastases from ovarian malignancy with epithelial histology was very low at 0.06 – 0.19% (5). Cormio et al (1) determined the incidence of distant metastases in ovarian cancer patients with stage IV disease. They demonstrated that out of 67 metastatic sites, only 2 (3%) were to bone. Median interval time between diagnosis of ovarian cancer and documentation of metastatic disease was 44 months (range 3–105) (1). Dauplat et al (2) reviewed 255 patients with epithelial ovarian carcinoma, and found that only 4 patients (1.6%) had bony metastases. Median survival among these patients was noted to be 4 months (2). In keeping with these studies, an extensive literature review using Pubmed and Google Scholar reveals few documented cases of serous / endometrioid ovarian adenocarcinoma with bony metastases. Particularly rare is the presentation of bony metastases very shortly after the initial diagnosis of apparently early stage ovarian adenocarcinoma.

Bony metastases tend to affect the axial skeleton preferentially, and presentation with femoral fracture, such as in this case, is rare. Kumar et al (3) found that of 103 patients with ovarian carcinoma over 3 years just 4 patients had bony involvement, 2 of which were of serous histology. The commonest sites of bony involvement were vertebrae, pelvic bones and skull (3). Kumar et al (3) also found that 3 of the 4 cases with bony involvement were associated with abdomino – pelvic pathology. Median survival was 7.5 months.

Literary evidence shows that presentation with pathological fracture of the proximal femur from this type of ovarian cancer is uncommon, especially so soon after primary diagnosis. Given the high volume of low energy fractures in elderly patients managed routinely by orthopaedic surgeons this case highlights the importance of a thorough history, abdominal examination and investigations during orthopaedic admission so that cases such as this are not missed and patients mismanaged, especially as median survival after this point is low and subsequent clinical course may be rapid deterioration.

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