

Isolated uterine metastasis from a lung adenocarcinoma

B Knox¹, A Dobrotwir¹, A Ades¹

1. The Royal Women's Hospital, Parkville, Victoria, Australia; benita.knox@gmail.com

Background

Uterine masses are common, benign leiomyomas affect an estimated 70-80% of women.[1] Other less frequent but important causes include: atypical fibroids, smooth muscle tumours of uncertain malignant potential or primary extrauterine neoplasms.[2] Malignant causes include: uterine sarcomas, endometrial primary malignancies, malignancies from another reproductive tract primary.[3] Metastases from extra-pelvic primary cancers are a rare cause of a uterine lesion.[4]

Case report

A 65-year-old woman with recently diagnosed and surgically-managed lung adenocarcinoma was referred with an incidental finding of a FluroDeoxyGlucose (FDG)-avid mass, measuring approximately 9x9cm (Figures 1-3). She had no post-menopausal bleeding or discharge. On bimanual examination mobile 12-week size uterus was noted. Other past history included tuberculosis, two normal vaginal deliveries, and menopause in her early 50s. Pap smears/CSTs were normal to date. She was an ex-smoker (40 pack-year history).

LDH: 688 U/L (normal range 313-618).

Positron emission tomography (PET): 92x87mm fibroid-like uterine mass, with a rim of moderate intensely FDG-avid internal soft tissue surrounding a central core of inactive tissue and a FDG-avid hypodense lesion abutting the right-posterolateral wall.

Magnetic resonance imaging: 92x82x70mm transmural lesion in the right uterine body, displacing the endometrium to the left with predominantly low T2 signal, but marked high signal T2 component at the upper right internal-lateral portion and associated heterogenous restricted diffusion and contrast enhancement and loss of margin.

The case was reviewed in a gynaecology oncology and radiology multi-disciplinary team meeting. The overall impression from imaging was of a likely atypical fibroid or STUMP tumour and decision was made for a total abdominal hysterectomy and bilateral salpingo-oophorectomy with peritoneal washings. The operation was performed by the general gynaecology unit and was surgically uncomplicated. The patient had an uneventful post-operative recovery.

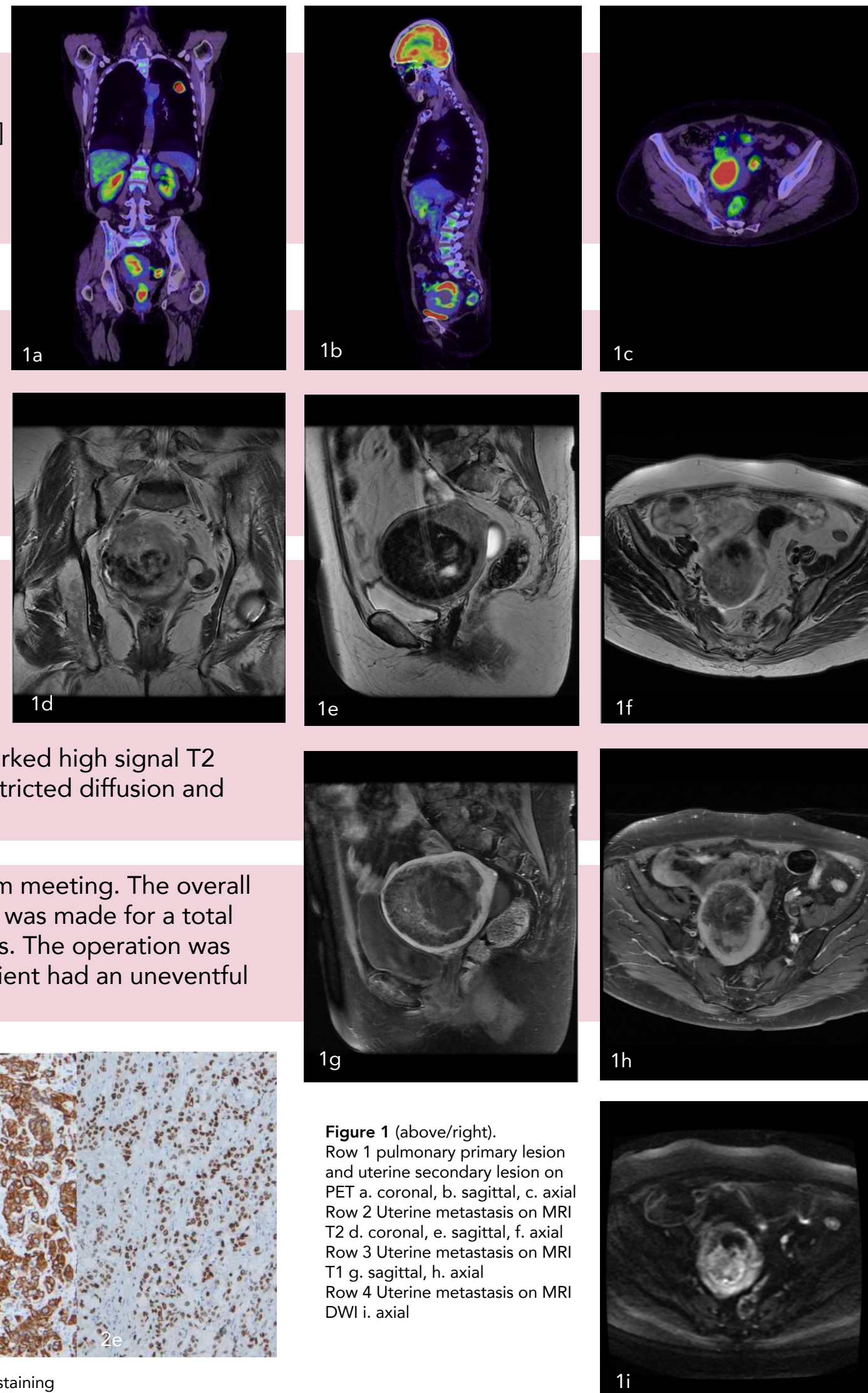


Figure 1 (above/right).
Row 1 pulmonary primary lesion and uterine secondary lesion on PET a. coronal, b. sagittal, c. axial
Row 2 Uterine metastasis on MRI T2 d. coronal, e. sagittal, f. axial
Row 3 Uterine metastasis on MRI T1 g. sagittal, h. axial
Row 4 Uterine metastasis on MRI DWI i. axial

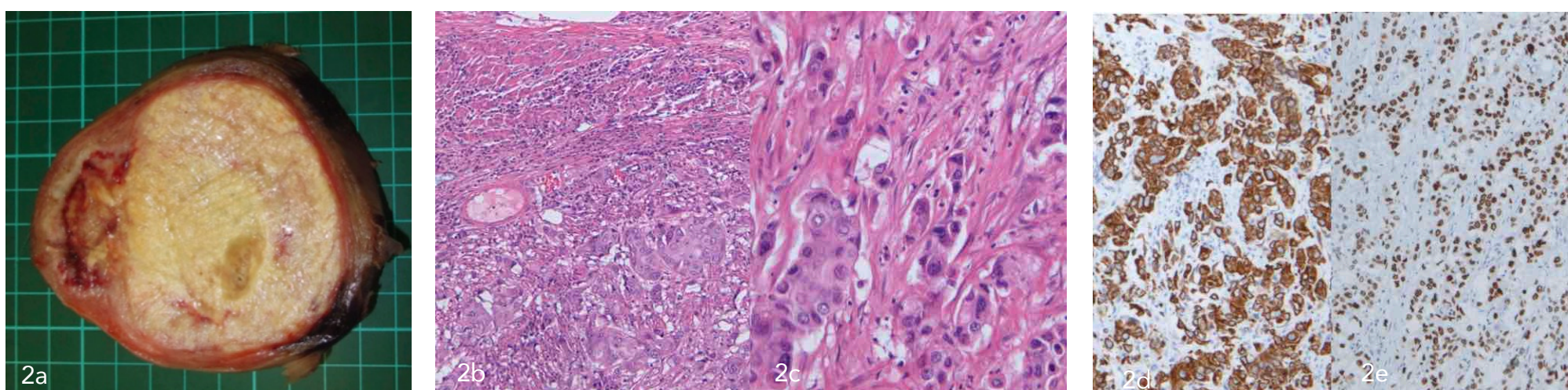


Figure 2. Pathology a. macroscopic fibroid with tumour b. haematoxyline and eosin staining x10 and c. x20, d. CK7 and e. TTF-1 staining

Macroscopic histopathological examination: 97x84x86mm circumscribed mass, with a whited, grey cut surface with an opaque yellow discolouration suggestive of necrosis. At the myometrial interface, there was a 50x45x18mm irregular area of haemorrhage and necrosis. There was no involvement of the endometrium or serosa. Microscopic histopathological examination: a hyalinised leiomyoma infiltrated by a moderately to poorly differentiated adenocarcinoma, likely representing a metastasis. The peritoneal washings were negative. Immunohistochemical stains: tumour cells were cytokeratin 7 (CK7) and thyroid transcription factor-1 (TTF1) positive and cytokeratin 20 (CK20), paired box gene 8 (PAX8) and GATA3 binding protein negative.

She has been followed up by gynaecology and oncology/cardiothoracics with a decision made for no adjuvant therapy. Twelve months after the surgery, the patient remains well with no concerns regarding disease recurrence on regular reviews and currently three-monthly computed tomography (CT) scans of the chest, abdomen and pelvis.

Discussion

Lung cancer is the most common cause of cancer morbidity worldwide.[5] Metastases from lung cancers are typically found in the lungs, liver and adrenal glands.[6] Only a handful of cases of uterine metastases from primary lung cancers have been reported in the literature to date.[4, 7-11]

Of those reported, there are a number of similarities to that which has been outlined here. The youngest patient was 47 (menopausal status was not reported), the majority were adenocarcinoma and PET was used in all for diagnosis. Unlike this case, most women were symptomatic with abdominal pain and/or abnormal uterine bleeding. Interestingly, while immunohistochemical detection of TTF-1 was used in these cases, many additionally identified an epidermal growth factor receptor gene deletion

mutation as part of the diagnosis.[9-11]

Looking more broadly at uterine metastases from extra-pelvic malignancies, Kumar and colleagues[4] noted in their analysis of 63 cases that only 4.8% were from lung primaries and most involved the myometrium. Interestingly, nearly all (92%) of the cases were also adenocarcinoma but only 21% were found in a leiomyoma. However, the majority had concomitant ovarian metastases.

Uterine metastases from extra-pelvic primary tumours are a very rare cause of a uterine mass and thus would not be routinely considered in cases of atypical appearing uterine masses. Careful assessment and work-up can, as in this case, ensure they are managed appropriately.

Acknowledgements

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