IMAGING CORNER

Krukenburg tumour: Role of 18F-FDG PET/CT in identifying the primary site

Sharjeel Usmani[1], Sarah Murad[2], Fareeda al Kandari[3] , Muneera Al Maraghy[4]

[1]Department of Radiology and Nuclear Medicine, Sultan Qaboos Comprehensive Cancer Care and Research Centre, Muscat, Oman; [2-4]Department of Nuclear Medicine, Kuwait Cancer Control Center, Kuwait.

Correspondence: Aamna Hassan. e-mail: aamnah@skm.org.pk

ORCID ID. 0000-0003-0026-0729

Abstract

Krukenberg tumours are a rare form of metastatic tumours of the ovary. They primary site is usually the gastro-intestinal system with the most common being gastric cancer. We present the case of a 35-year-old female coming in with a large pelvi-abdominal mass for investigation. This pelvic mass showed mild to moderate metabolic activity. ^{18}F-FDG PET-CT was able to identify the primary gastric carcinoma. Subsequent histopathology confirmed this to be gastric adenocarcinoma with metastases to the ovary.

Keywords: ^{18}F-FDG PET-CT, metastatic gastric carcinoma, Krukenburg tumour.

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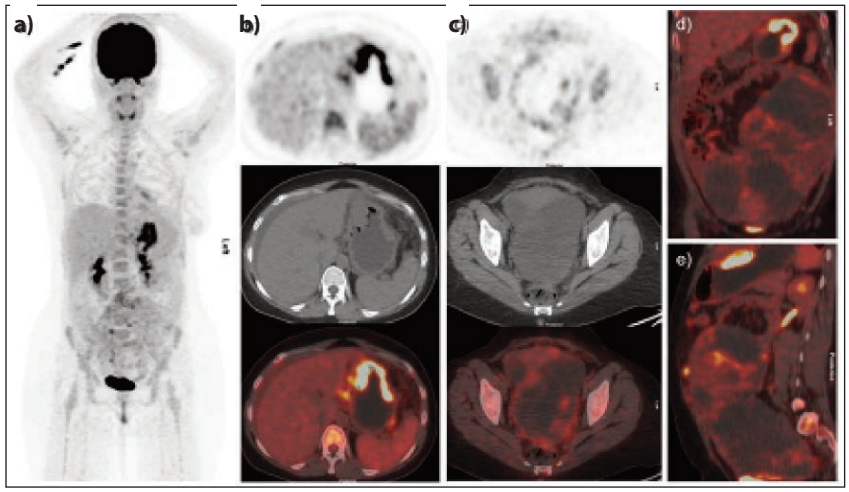

Figure-1: The 35-years old female presented with large abdominopelvic mass likely ovarian mucinous cystadenocarcinoma on ultrasonography. Patient underwent 18F-FDG PET-CT lesion characterization and for biopsy guidance. a) 18F-FDG MIP and b) PET-CT images show intense FDG uptake at the body of stomach.
c) There is a large heterogeneous abdominopelvic soft tissue mass with septa which is inseparable from the adnexal regions, rectosigmoid colon, posterior and inferior surface of urinary bladder with mild to moderate FDG uptake of SUV max 7.1 at the periphery and at the septa. Multiple hypermetabolic peri-gastric lymph nodes, peritoneal nodules and mild ascites are noted.

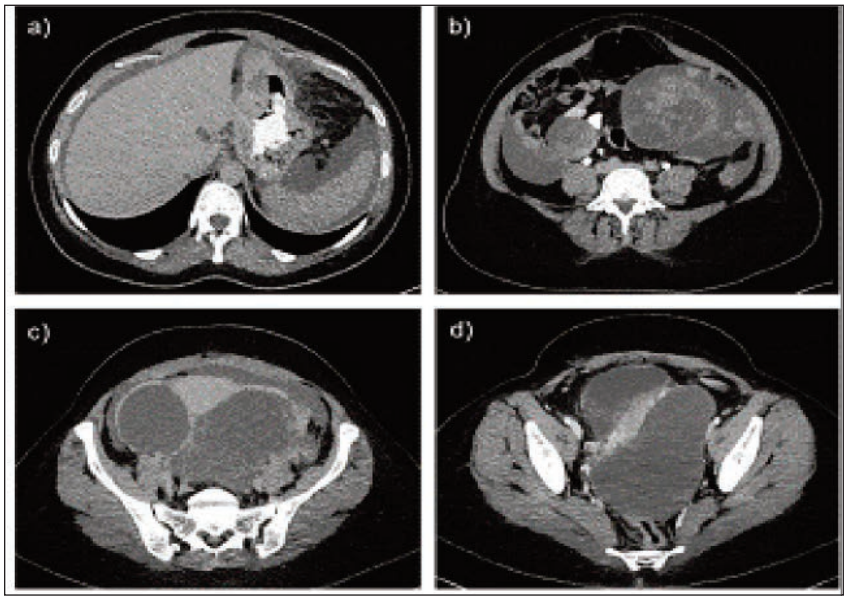

Figure-2: Contrast enhanced axial CT shows large complex, pelvic abdominal mass with septa and enhancing soft tissue component inseparable from the adnexal regions and engulfing the uterus and left broad ligament. The lesion measures approximately 19.3 x 12 x 24 cm. The lesion is seen extending into the pelvis, more on the left side, in close proximity to the rectum with extrinsic pressure effect over the rectum, causing mild displacement of the rectum to the right side. The fat planes are not well identified between the lesion and rectum, at some points.

A 35-year-old female with large pelvi-abdominal mass underwent ^{18}F-FDG PET-CT for characterisation and to help guided biopsy. Images showed unexpected FDG uptake at the body of the stomach along with heterogeneous uptake in abdominopelvic mass (Figure 1). Contrast CT revealed complex enhancing soft tissue mass with septa inseparable from the adnexal regions (Figure 2). Histopathology confirmed gastric adenocarcinoma with metastases to the ovary.

Krukenberg tumours are metastatic signet ring cell adenocarcinoma of the ovary. They account for 1-2% of all ovarian tumours.[1] Ovarian metastases are commonly from the stomach and other gastro-intestinal sites and rarely from breast, lung, contralateral ovary, endometrium, and sarcomas.[1] Pelvic mass may be the patients' initial presentation. Few characteristics are specific to identify the primary tumour site. Ovarian tumours show varying degrees of 18F-FDG uptake.[2] Differentials include metastatic disease versus primary ovarian tumours.[3] Physiological uptake at the time of ovulation is a known pitfall. Role of ^{18}F-FDG PET/CT in our case was to identify the primary disease site which was unexpected in this relatively young patient. Krukenberg tumours mostly show heterogenous intense ^{18}F-FDG uptake with high SUVmax versus low uptake in primary tumour, however careful evaluation is necessary as the metastatic ovarian tumours may also show low ^{18}F-FDG uptake.4 A multidisciplinary approach of clinical history, physical examination, serum markers and histopathology are essential for accurate diagnosis and treatment planning.

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