Case of the Quarter

Clinical History:

47-year-old female with a previous history of melanoma of the right leg in 2002. Represented following acute small bowel obstruction secondary to an intussusception due to histologically proven metastatic melanoma. Staging PET-CT requested to assess extent of disease prior to further treatment.

Findings:

An FDG scan was acquired from skull base to below knees together with a low dose CT scan for attenuation correction and image fusion.

Two foci of intense tracer uptake are seen in the right upper quadrant inferior to the liver. On the CT component of the study these correlate with two soft tissue masses within the gallbladder, one in the body and the other in the gallbladder neck. There are also two discrete foci of increased tracer uptake seen associated with subcutaneous nodules, measuring 9mm and 14mm respectively, just above the medial aspect of the right knee. Tracer distribution is otherwise physiologic.

Note is made of a 6mm non-FDG avid nodule in the left anterior chest wall, several small gallbladder calculi, and a small bowel anastomosis. No further significant CT findings are identified.

Interpretation:

The scan findings are in keeping with two in-transit metastases and two gallbladder metastases.

Comment: Whilst the differential diagnosis for the gallbladder appearances includes cholecystitis, the patient was clinically asymptomatic at the time of the scan.

Follow-up:

The patient subsequently underwent a segment IV and V liver resection with en block cholecystectomy and resection of the two subcutaneous nodules from the right leg. Histology of the polypoid gallbladder lesions and nodules confirmed metastatic melanoma.

Key Teaching points and Discussion:

- During the last thirty years, incidence rates of malignant melanoma in Great Britain have increased more rapidly than any of the current ten most common cancers and malignant melanoma is now the 5th most common cancer in the United Kingdom
- Whilst malignant melanoma can metastasise to virtually any organ, lung, liver and brain are the most common sites aside from lymph nodes. Metastases to the gallbladder are rare; an autopsy study by Dasgupta and Brasfield demonstrated gallbladder metastases in 15% of patients with metastatic melanoma of the gastrointestinal tract. Such metastases are usually clinically asymptomatic. Primary

gallbladder melanomas are even rarer and can be difficult to distinguish from metastases.

- Aggressive surgery, including cholecystectomy, appears to prolong survival and improve the quality of life.
- The role of adjuvant therapy for both primary and metastatic melanoma of the gallbladder remains undefined.
- ^{18}F FDG PET scan protocol for melanoma should include images of both the upper and lower extremities for patients with disease that involves the extremities and images of the head for patients with known or suspected scalp involvement.
- This case, along with published case reports, highlights the ability of PET-CT to accurately define the extent of disease in malignant melanoma and to detect unsuspected disease and disease at unusual sites, all of which help with future treatment planning and patient management.

References:

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Evidence-based Indications for the use of PET-CT in the United Kingdom 2012 – Skin Tumours

- Staging of patients with known disseminated melanoma to assess extent of disease prior to treatment
- To assess for distant disease in patients with melanoma when radical dissection is contemplated
- To assess response to isolated limb perfusion for malignant melanoma
- **Not** indicated for early stage patients who should undergo sentinel node biopsy

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http://www.rcplondon.ac.uk/resources/evidence-based-indications-use-pet-ct-uk-2012

http://www.rcr.ac.uk/ docs/radiology/pdf/BFCR(12)3_PETCT.pdf