Clinical summary

- Male 68 year-old with known gastrointestinal stromal tumour (GIST) in the stomach treated with surgical resection 15 months ago.
- Follow-up CT shows a liver metastasis.
- For restaging PET/CT, pre & post-treatment with imatinib therapy.
FDG-avid focus noted in segment II of liver (arrow) and normal tracer activity seen in the left renal pelvis. No residual FDG avid disease in the primary site on post-treatment scan.
Another metastasis noted at the inferior angle of the right scapula on the baseline PET/CT also resolves post-treatment.
Similar pattern noted in patient with oesophageal GIST

Baseline PET/CT

1 week post-therapy

The post-therapy PET/CT scan is consistent with a partial metabolic response to treatment.
Clinical summary

• Male 31 year-old diagnosed as GIST for staging PET/CT which showed extensive tumour in the entire peritoneal cavity and liver metastases.

• Treated with Imatinib for 6 weeks and re-evaluated with PET/CT for treatment response.
Baseline PET/CT shows widespread FDG avid disease in the abdomen, with the most intense focus in the liver. Post-treatment scan is consistent with a complete metabolic response. The liver lesion is now photopenic.
Clinical summary

- Female 55 year-old with previous gastrectomy for GIST.
- Presents 12 years later with a large, bilobulated lesion in the liver suspicious for relapsed GIST.
- Referred for PET/CT scan before and after treatment.
PET/CT findings

FDG PET/CT scan is consistent with intense FDG uptake in the periphery of the massive lesion in the right hepatic lobe with a central hypoactive area.

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The PET scan findings are consistent with a complete metabolic response to imatinib mesylate therapy, with decrease in the liver lesion in the right liver.
Teaching points

• The performances of FDG PET and CT are comparable in staging GIST before initiation of imatinib mesylate therapy.

• However, FDG PET is superior to CT in predicting early response to therapy, therefore is a better option for assessment of imatinib mesylate therapy.

• Imatinib has been shown to have direct inhibitory effects on cell membrane glucose transporters as well as intracellular hexokinase activity.