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IMAGE OF THE MONTH

‘Running on empty’

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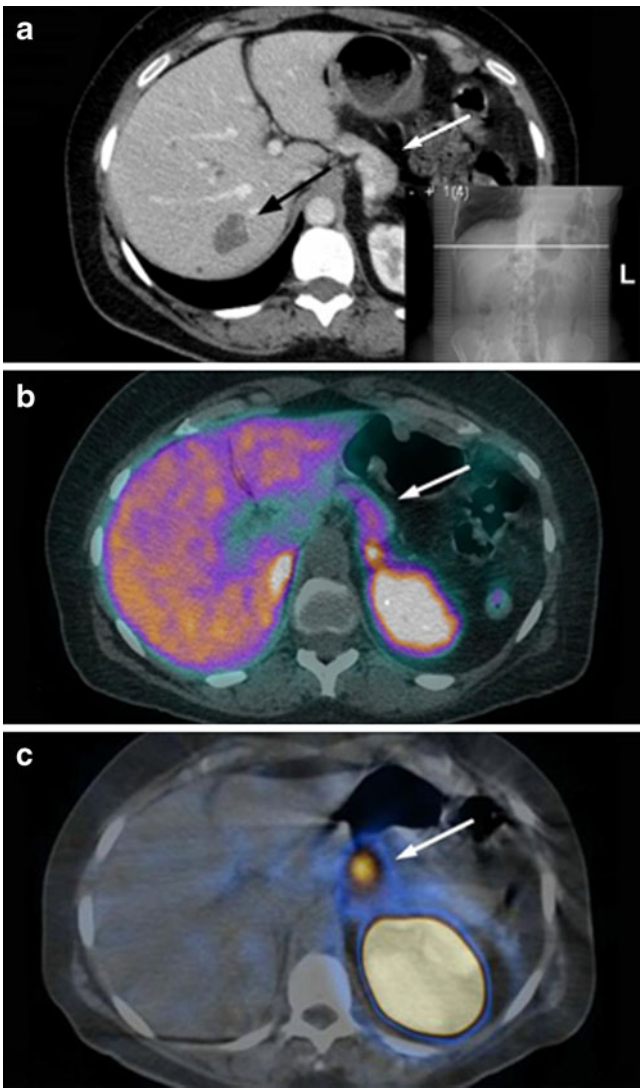
A patient presented with spells of light-headedness, confusion and collapses, improving on eating. During a supervised fast, plasma glucose dropped to 1.7 mmol/l, with inappropriately high insulin, raised C-peptide and no sulphonylurea detectable, diagnostic of an insulinoma [1].

CT, MRI and abdominal ultrasound scanning failed to find any evidence of a lesion in the pancreas and all showed a liver lesion (a: black arrow). Somatostatin subtype 2 (sst_2) receptor imaging with ^{68}Ga-DOTATATE PET/CT was normal (b). The white arrow shows the body of the pancreas in each panel.

Glucagon-like peptide-1 (GLP-1) receptor SPECT/CT was performed. This showed strong focal uptake posteriorly within the pancreatic body (c: white arrow). Notably, the liver lesion



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did not show any uptake. The pancreatic lesion was enucleated and the liver lesion was excised. Histopathology showed a well-differentiated insulinoma in the pancreas. The liver lesion proved to be a metastasis from a salivary gland-type lung tumour, previously resected in 2008. The insulinoma was found on autoradiography in vitro to express GLP-1 receptors but not sst_2 receptors.

GLP-1 is a gut hormone that stimulates insulin release from beta cells and represses glucagon release from alpha cells. ^{111}In-labelled exendin-4 is a GLP-1 analogue and can be used to image tissues that express GLP-1 receptors in high density [2–4]. In a prospective study, GLP-1 receptor imaging correctly located all six insulinomas preoperatively [2]. This new imaging modality may therefore be useful in locating small and occult tumours to guide surgery and to distinguish them from coincident lesions.

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