Diffusely increased muscular uptake of [^{18}F]fluorodeoxyglucose: a clue for the diagnosis of insulinoma?

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A 27-year-old man presented with a 2-year history of seizures precipitated by fasting and relieved by glucose, positive extended fasting test and an enhancing focal lesion in the uncinate process of pancreas on MRI, raising clinical suspicion of an insulinoma. The skeletal muscles showed increased [^{18}F]fluorodeoxyglucose (FDG) uptake (a), with an additional focus of tracer uptake (arrow) in the pancreas (b). Symptomatic relief was reported following surgical removal of the pancreatic mass at a different hospital.

Physical exertion, talking, chewing and increased respiratory muscle activity before, during and after radiotracer injection can result in intense [^{18}F]FDG uptake in skeletal muscles [1–3]. Hypoglycaemia and insulin administration before tracer injection also show similar effects. Insulin stimulates glucose transport and phosphorylation within skeletal muscle through overexpression of GLUT4 and hexokinase II [4] and may also cause marked uptake of [^{18}F]FDG in cardiac muscle with uneven distribution in skeletal muscle [5].

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