Exceptional increase in somatostatin receptor expression in pancreatic neuroendocrine tumour, visualised with ^{68}Ga-DOTATOC PET

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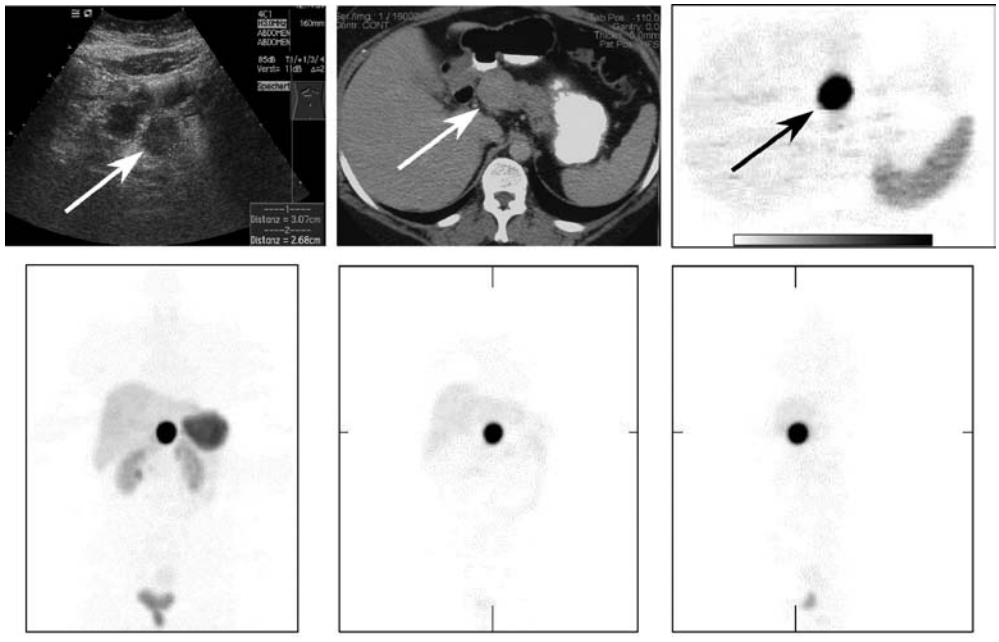

The preparation and application of ^{68}Ga-DOTATOC for PET imaging of somatostatin receptors was initially described in meningiomas [1] and neuroendocrine tumours [2, 3]. In the presented patient, extremely high tumoural uptake of ^{68}Ga-DOTATOC was detected. The mean SUV in the pancreatic tumour was 166.4 (maximum 199.2). This was much higher even than the uptake in the normal spleen, which is the organ with the highest physiological DOTATOC uptake (mean 26.2, maximum 33.1). Mean SUV in normal tissues was as follows: kidneys, 10.7 (maximum 13.8); liver, 6.2 (maximum 7.4); pancreas, 3.1 (maximum 4.9); muscle, 0.9 (maximum 1.9); and lung, 0.7 (maximum 1.1).

After complete resection, histology confirmed a neuroendocrine (NE) tumour of the pancreas. According to the new WHO classification (2000), it was classified as borderline between 1a (NE tumour with high differentiation) and 1b (NE carcinoma with high differentiation). Ki67-proliferation activity was only slightly increased (2%). Gene-Chip analysis (HG-U133A, Affymetrix Inc, Santa Clara, CA, USA) revealed an increase in the gene expression for the somatostatin receptor subtype 2 by a factor of 33.7 (subtype 1: 1.2; subtype 3: 0.9; subtype 4: 7.1; subtype 5: 2.1).

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