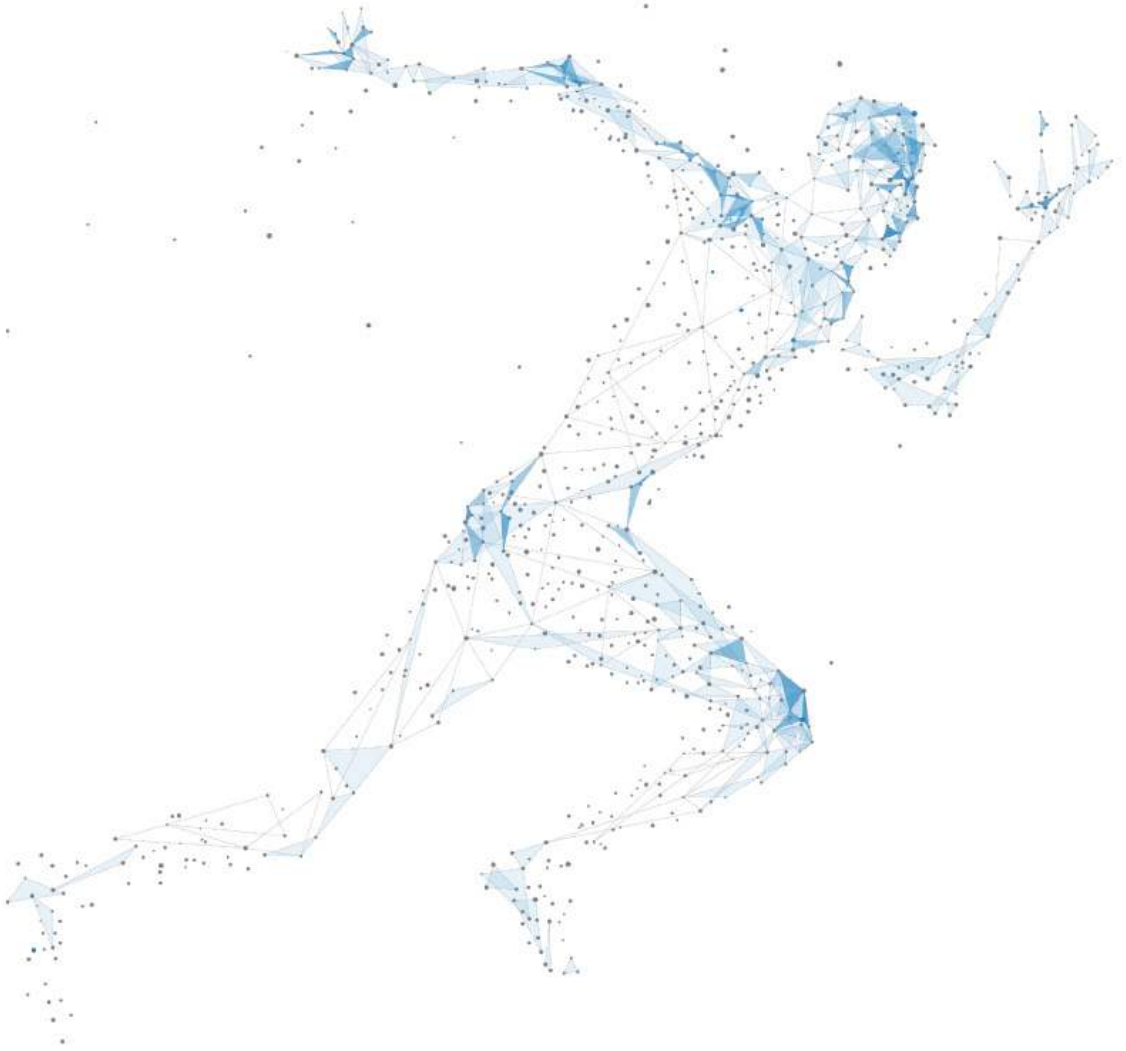




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Post-treatment [^{177}Lu] Lu-DOTATATE SPECT/CT

Total Body Quantitative SPECT/CT for monitoring treatment response on the VERITON-CT[®] digital SPECT/CT

Submitted by Juanjo Martín-Marcuartu MD and Montserrat Cortés Romera MD, PhD. Data and images courtesy of Medicina Nuclear-PET IDI Metro Sud, Hospital Universitari de Bellvitge, Barcelona, Spain.

May 2023.

CASE 177Lu-DOTATOC

Patient Information:

67-year-old male. Ex-smoker.
Allergy to ac clavulanate acid.
Diabetes Mellitus Type 2
(gliclazide). Dyslipidemia and
chronic ischemia.

Current Illness: Biopsy of left
indurated solid sub-mandibular
angle mass and slow growing high
jugular cervical mass in early 2022:
findings compatible with
paraganglioma metastasis.

Follow up 68Ga-DOTATATE PET
study recommended head-neck
MRI (performed 26.04.2022): MRI
findings of expansive lesion
suspected of vagal paraganglioma.

Treatment with 177Lu-DOTATATE
4 cycles (200mCi/cycle)

VERITON-CT protocol:

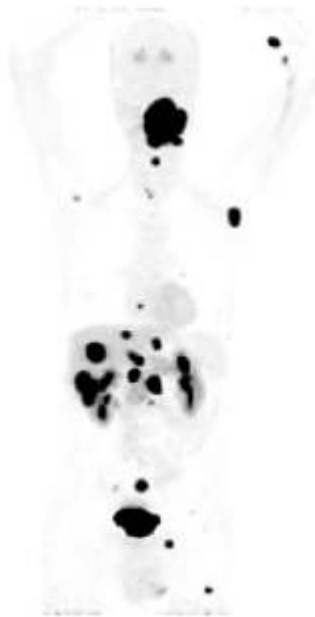
Control images at 24hrs post
177Lu-DOTATE injection

Acquisition:

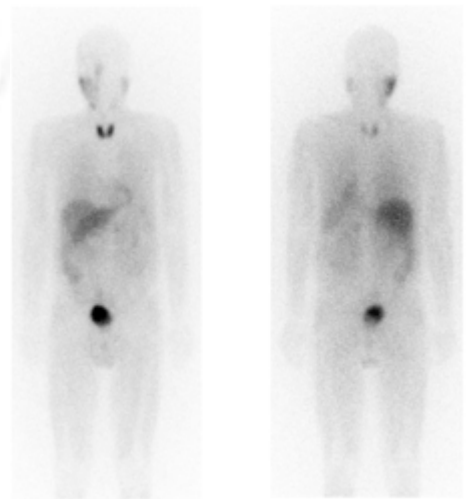
Lu177 whole body 3D SPECT
24-minute acquisition time

Reconstruction:

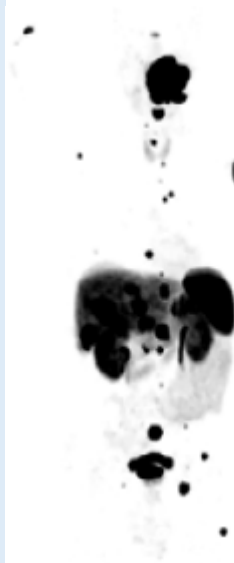
4 iterations 8 subsets, AC,
Penalized Likelihood



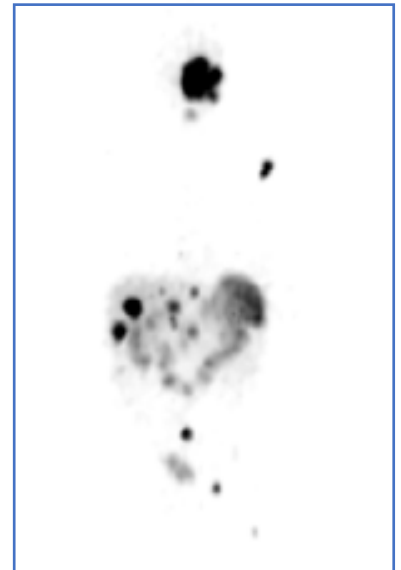
17.03.2022
PET with 18F-DOPA:
cervical mass, pulmonary
nodules, liver lesions



13.04.2022
123I-MIBG scintigraphy: no
avidity for the
radiopharmaceutical.



02.08.2022
PET with 68Ga-DOTATATE: all
known lesions have
overexpression of
somatostatin receptors.



06.10.2022
VERITON 177Lu-DOTATOC:
Lutetium treatment
commenced with approved
pharmacy commission.

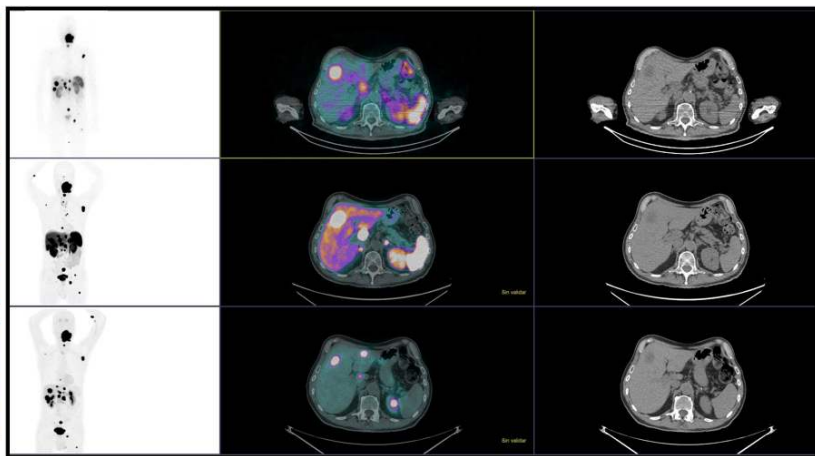


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[¹⁷⁷Lu]-DOTATATE

[⁶⁸Ga]-DOTATOC

[¹⁸F]-Fluorodopa



FINDINGS: Left latero-cervical mass that associates with a high intensity of radiopharmaceutical uptake and has an approximate size of 43x63x72mm. No suspicious lymphadenopathy in the mediastinum, bilateral supraclavicular or axillary regions. Millimeter nodular lesions are demonstrated in the lung parenchyma on fusion images. Multiple hyper uptake lesions in the hepatic parenchyma with bi-lobar distribution in relation to known M1 spread and associated with high radiopharmaceutical uptake (highlighting 33.7mm dia. lesion located in liver segment IV). Multiple hyperactive lesions in the axial skeleton (spine, left scapula, rib cage, sacrum) and in the appendicular skeleton (left femur), all suggestive of bone M1 metastatic spread.



VERITON-CT Technology

Spectrum Dynamics Medical built the VERITON-CT with a new generation imaging technology like no other, wrapping 360° around the body's contour for a personalized exam. The heart of the innovation is Spectrum's proprietary Broadview Technology: a set of 12 digital CZT detectors that automatically move within millimeters of the patient's body.

The scanner was designed with the patient's comfort in mind. The axial field of view, 32 cm, ensures organs such as lungs are imaged in one bed position scan. The 80 cm bore, for both SPECT and CT, accommodates patients of all sizes. For patients worried about feeling a sense of claustrophobia, the detectors will automatically pull back if they are accidentally or intentionally touched.

Clinicians can use the high-resolution, 16sl or 64sl, CT scan data not only for attenuation correction and localization, but also to routinely reconstruct SPECT data with partial volume correction (PVC) for improved contrast and resolution. The 3D hybrid digital scanner gives clinicians comprehensive information to help diagnose with confidence and accuracy.



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Bellvitge University Hospital, Barcelona is an innovative research hospital founded 50 years ago and forms part of the Catalan Institute of Health (Institut Català de la Salut). The hospital has a staff of more than 5000 personnel, and in addition to serving the local Barcelona Hospitalet and El Prat areas, Bellvitge is a regional referral center for the entire southern Catalonia region, with a catchment of more than 2 million people.

Bellvitge University Hospital promotes innovation across all disciplines, with expertise in performing both nationally and internationally innovative procedures in many fields, including robotic surgery, diagnostic imaging, oncology diagnosis and treatment, neurology and neurosurgery, cardiology and endoscopy. The hospital is currently the leading Catalan surgical center, both for oncology related surgeries and as an organ transplant center, where the first liver transplant in Spain was performed in 1984.

Bellvitge is a reference center in Spain for image-based precision medicine. The medical imaging resources across the Bellvitge Campus include multiple systems for PET/PET-CT, SPECT/SPECT-CT (including the first VERITON® system installed in Spain), MRI, CT, angiography, ultrasound, mammography, and X-Ray imaging modalities. This is additionally complimented by the new High Precision Diagnostic Centre which incorporates the first PET/MRI in the Spanish healthcare network.

Research is conducted in collaboration with the Bellvitge Biomedical Research Institute (IDIBELL - Instituto de Investigación Biomédica de Bellvitge), where research fields follow four major themes – oncology, neuroscience, translational medicine and regenerative medicine.

www.bellvitgehospital.cat

www.idibell.cat



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