

Minicam

THE SURGICAL IMAGING PROBE

A collaborative project between:
Eurorad CTT, Strasbourg, France
The Free University Hospital, Amsterdam, The Netherlands
PI-Medical, Joure, The Netherlands.

A special camera for peroperative detection has been developed to enable surgeons to visualize areas of high uptake during surgery. First results are shown.



Characteristics

Area of detection: 49,0x 49,0 mm
Matrix size: 16x16=256 pixels
256 room temperature operating
semi-conductor (CdTe)
spectrometers
High speed data processing unit
in the DSPmodule

Camera size

Diameter: 95 mm
Height: 150mm
Weight: 175kg
Including shielding and collimator
(15mm long, 0,3mm septa and
7,67 mm square bore holes)

Performance

Energy range: 20 to 200 keV
Energy resolution per pixel: around 8,0 keV for 99mTc
Spatial resolution: theoretically 3mm
Different collimators are in development



Clinical cases

Mrs. J., Sentinel node:

Female of 73 years with breast cancer, tumor size 1.2 cm in the right breast. The day before surgery, imaging was performed 5 hours after peri-tumoral injection of 100 Mbq ^{99m}TcTechnetium colloidal albumin.

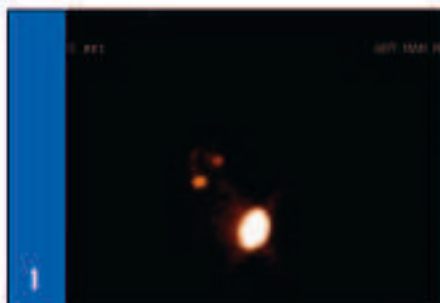
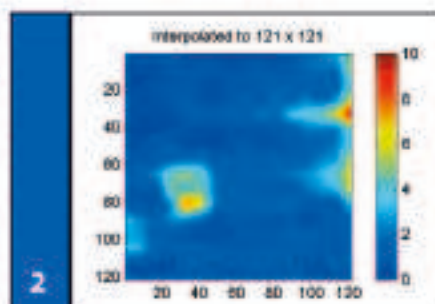


Figure 1: (gamma camera, 128x128 matrix, lateral projection) shows the injection site and 2 active lymph nodes in the right axilla.

Figure 2: (imaging probe, lateral position) shows a part of the injection site and 2 active lymph nodes in the right axilla.



During surgery radioactive lymph nodes were found with a handheld collimated gamma probe. Two radioactive lymph nodes were found in the right axilla (340 cps and 75 cps ex vivo count rate), furthermore 1 lymph node was resected with a low radioactivity level (20 cps ex vivo count rate). All lymph nodes were negative for tumor deposits.

Mrs. U., Rib lesion:

A 48 years old female presented with a mass in the left lung on a regular chest X-ray.

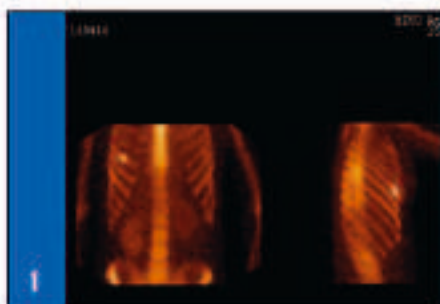
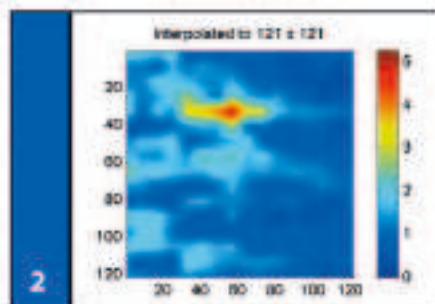


Figure 1: Skeletal scintigraphy (4 hours after 600 MBq HDP, figure left) showed a focal accumulation in a right anterior rib.

Figure 2: A 60 second image made with the imaging probe shows 3 ribs (faint) and the focal accumulation in the right anterior rib.



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