Cases CrystalCam

2014

Overview

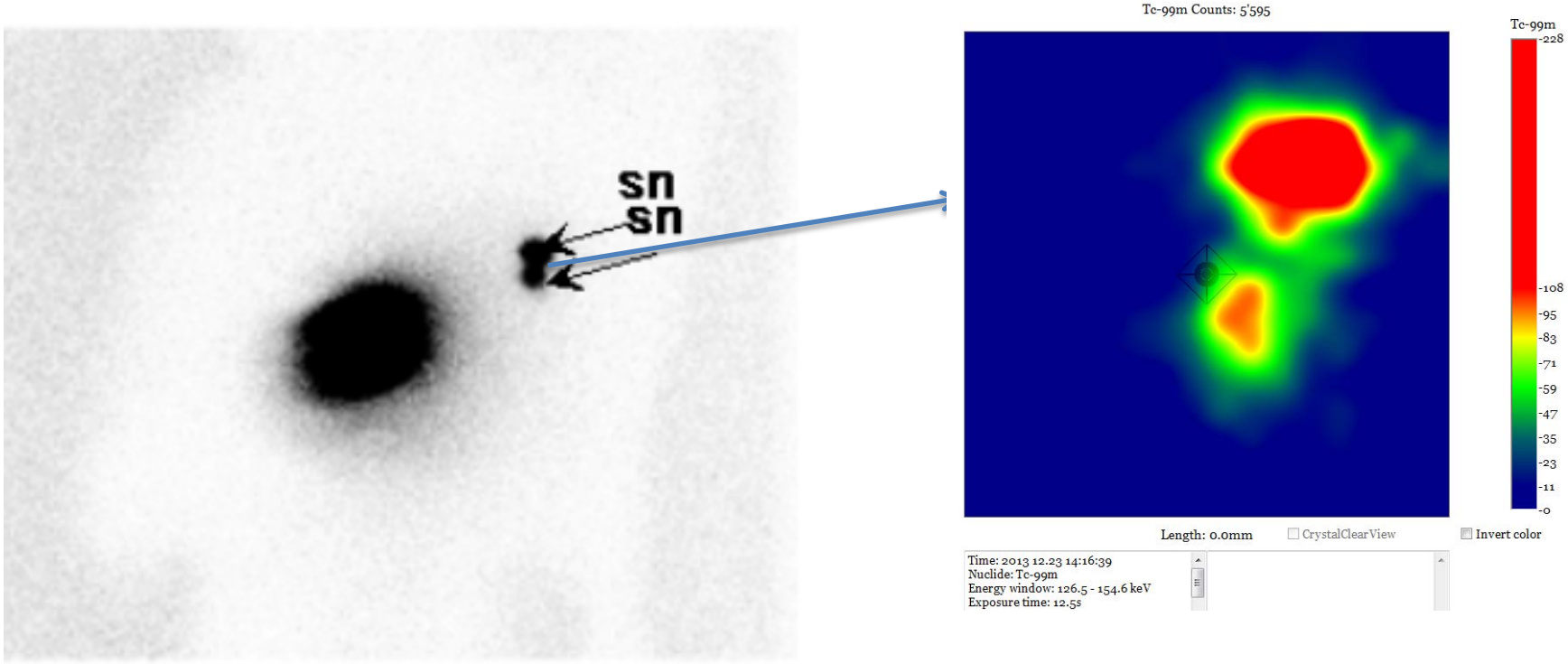
Patient	indication	#SN gamma camera	#SN transcutaneous gamma probe	#SN CrystalCam	Remarks
1	SN breast	1	1	1	
2	SN breast	1	0	1	
3	SN breast	1	1	1	
4	SN breast	4	3	3	
5	SN breast	2	1	2	
6	SN breast	1	1	1	
7	SN breast	2	1	2	
8	SN breast	1	0	1	
9	SN breast	2	0	2	
10	SN breast	1	0	1	
11	SN breast	2	1	2	
12	SN breast	1	0	1	
13	SN breast	1	0	1	
14	SN breast	1	0	1	
15	SN breast	1	1	1	
16	SN head & neck	3	x	3	
17	SN head & neck	2	1	2	
18	SN head & neck	4	x	4	With 3D freehand-SPECT
19	SN melanoma	5	x	5	
20	SN Penile	5	x	3.50	3 or 4 SN * complex case
	total	41	11	38.5	

X= not measured

All measurements took place preoperative at the nuclear medicine department. This means that all SN detection was through the skin. Intraoperative settings might result in better results for both the gamma probe and the CrystalCam.

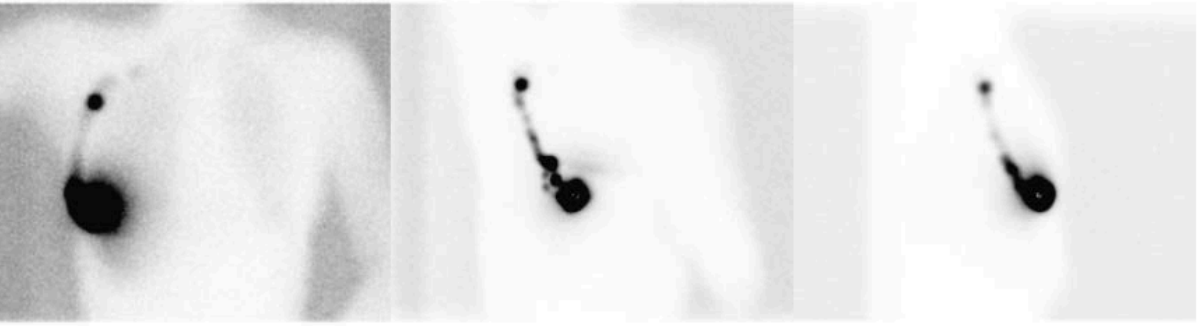
SN breast 1

Lymphoscintigraphy (5min acquisition)



Oblique 3hr

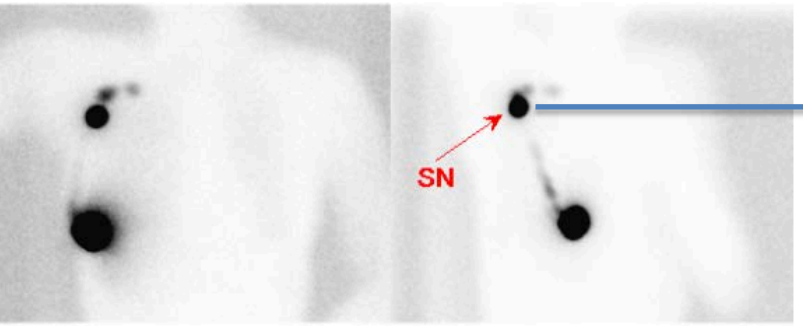
SN breast 2



Ant 15min

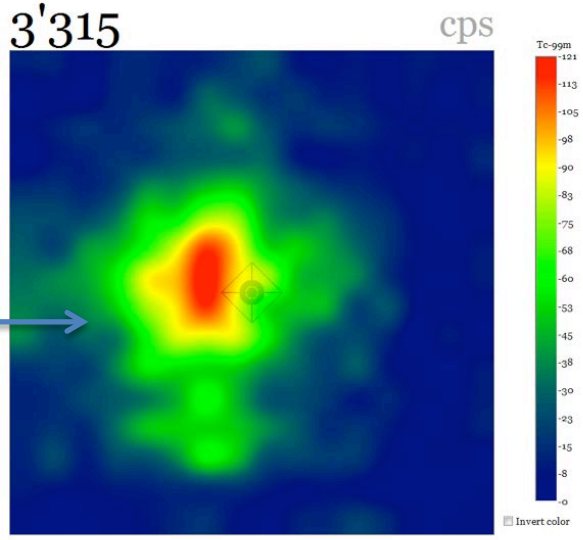
Oblique 15min

Lat 15min



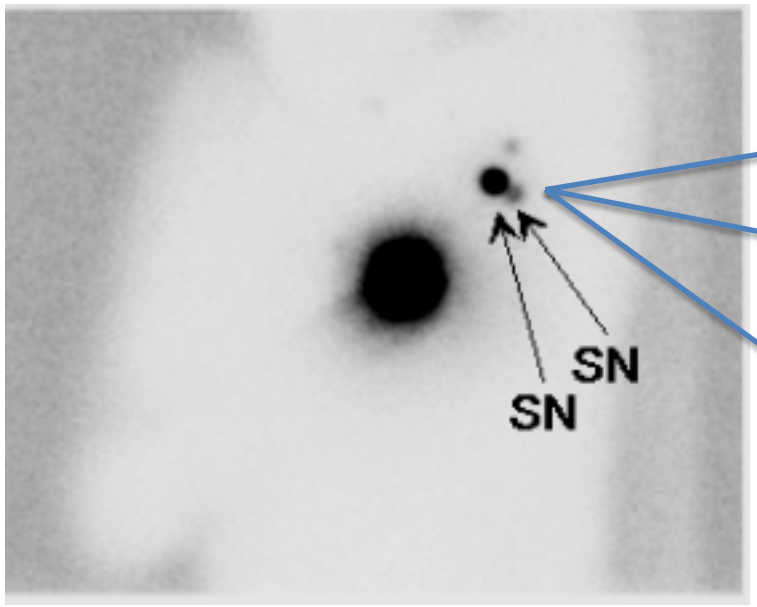
Ant 3hr

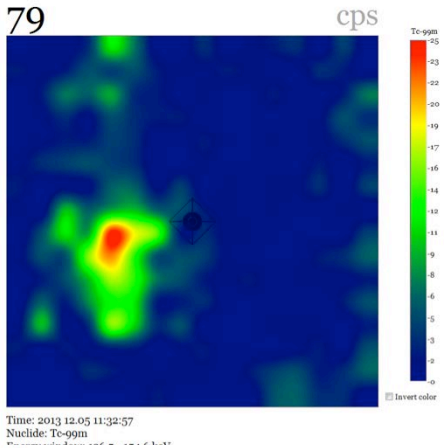
Re Oblique 3hr

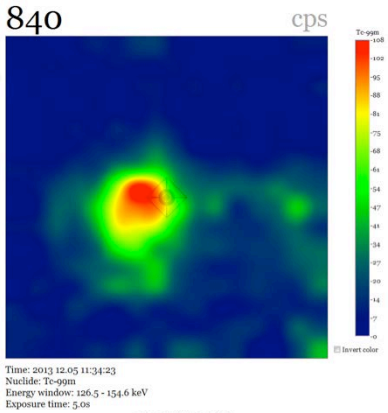


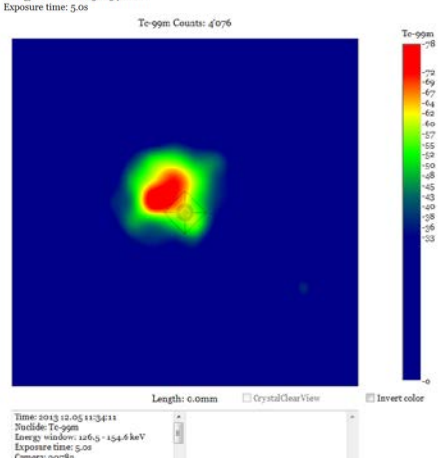
Time: 2013 12.05 11:04:25
Nuclide: Tc-99m
Energy window: 126.5 - 154.6 keV
Exposure time: 2.0s
Camera: 20783
Collimator: LEHS
Calibration: calibration-2013-12-04-08-58-02
Patient ID:
Last name:
First name:
Gender: 0
Birth date (y m.d.):
Comment:

SN breast 3

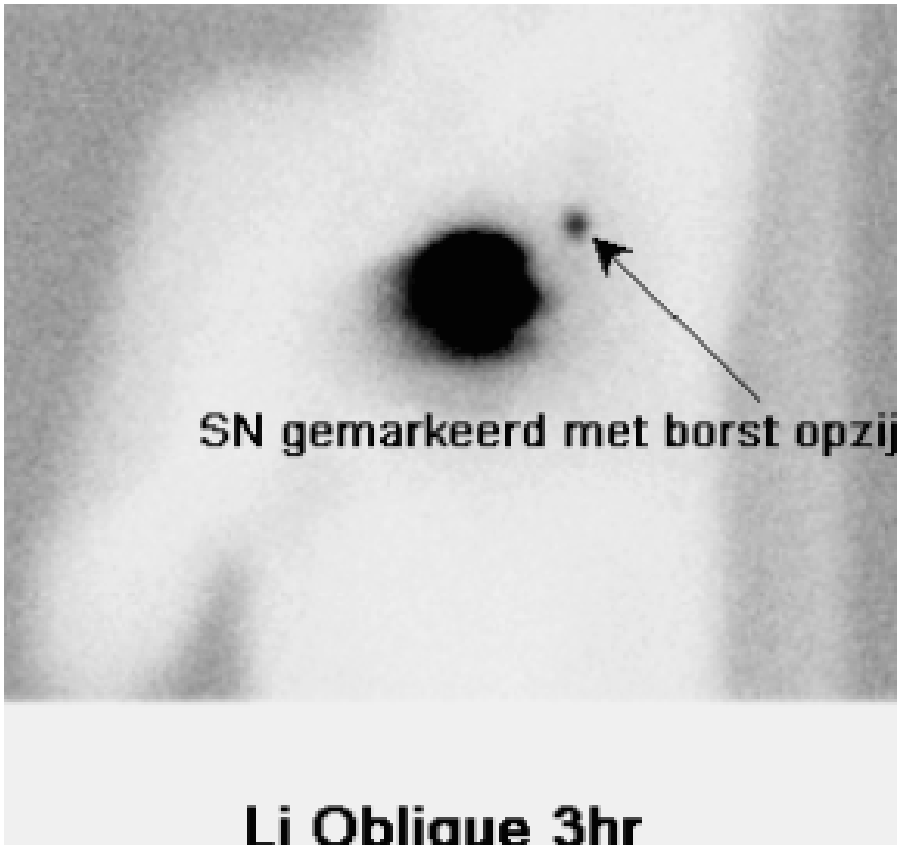

SN
SN

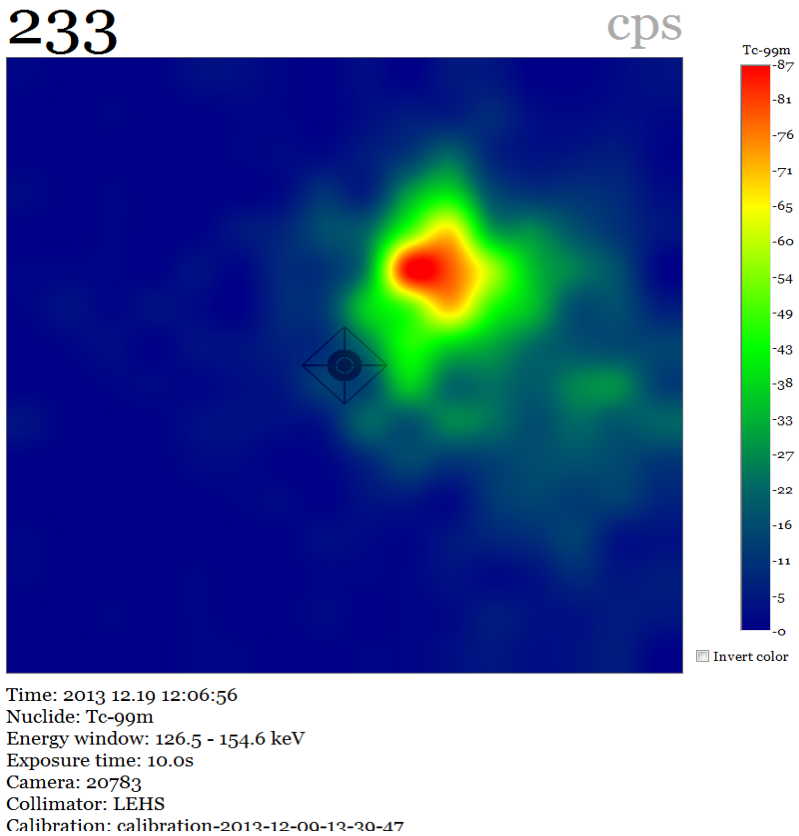

79
cps
Time: 2013 12.05 11:32:57
Nuclide: Te-99m


840
cps
Time: 2013 12.05 11:34:23
Nuclide: Te-99m
Energy window: 126.5 - 154.6 keV
Exposure time: 5.0s


Te-99m Counts: 4'076
Length: 0.0mm
Invert color

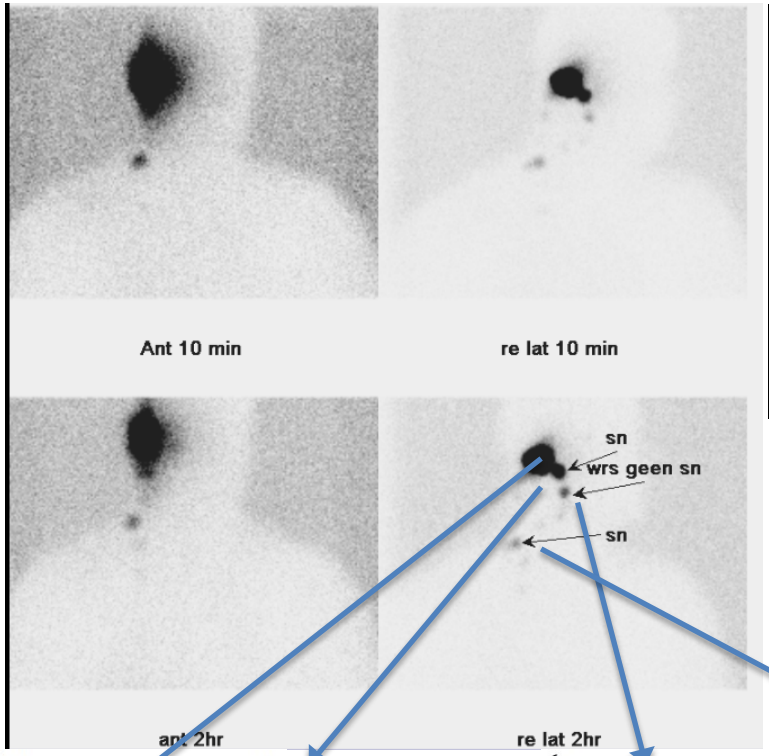
SN breast 4


SN gemarkeerd met borst opzij
Li Oblique 3hr

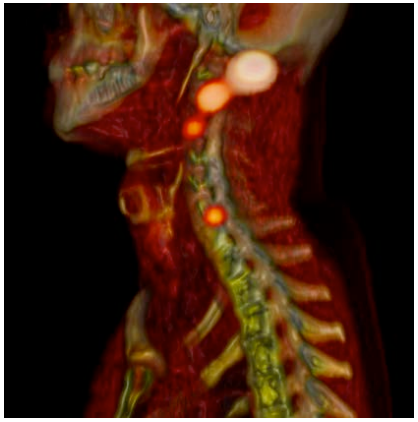

233
cps
Tc-99m
87
81
76
71
65
60
54
49
43
38
33
27
22
16
11
5
0
Invert color
Time: 2013 12.19 12:06:56
Nuclide: Tc-99m
Energy window: 126.5 - 154.6 keV
Exposure time: 10.0s
Camera: 20783
Collimator: LEHS
Calibration: calibration-2013-12-09-13-30-47

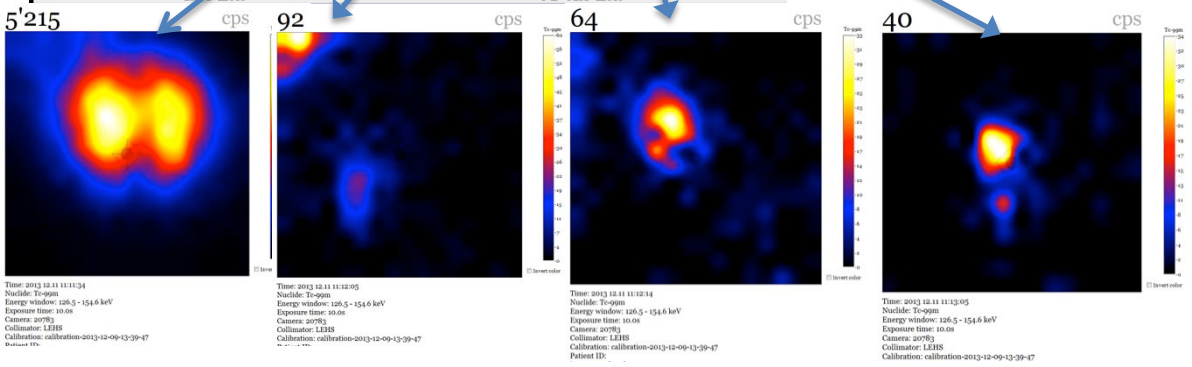
SN head and neck 1

Lymphoscintigraphy

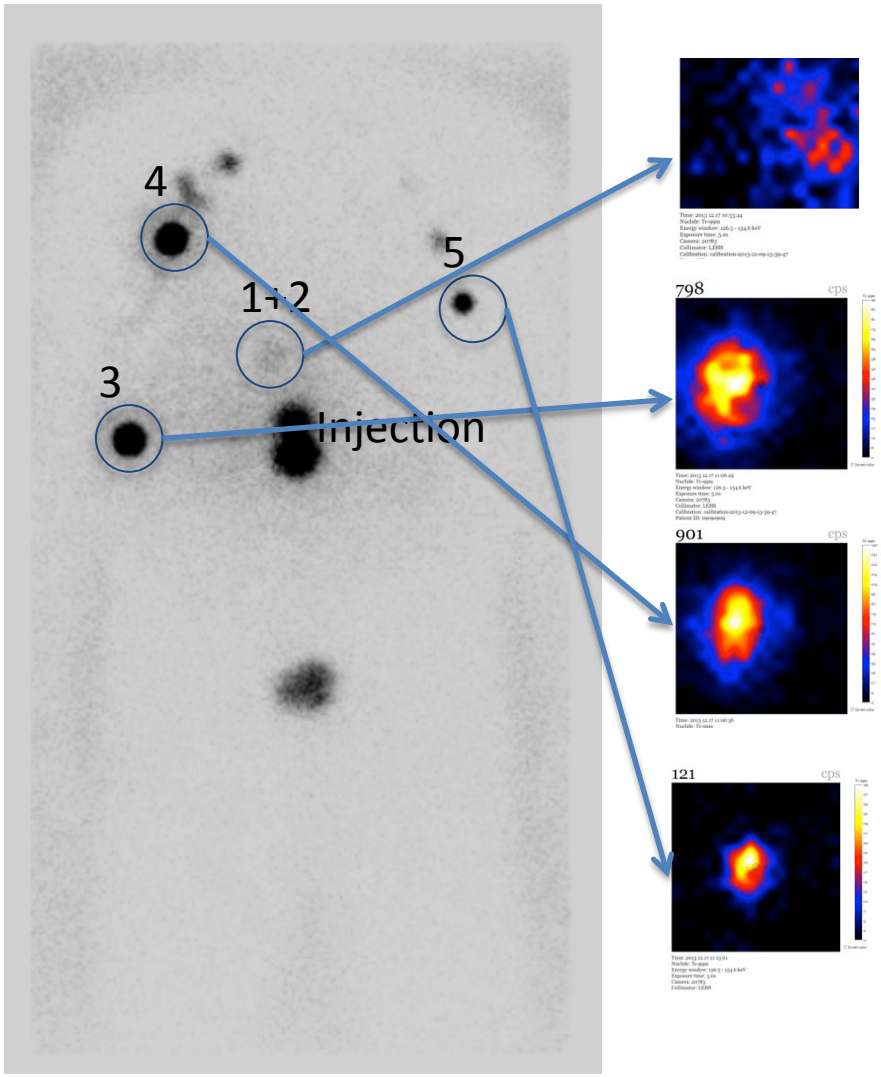


3DMIP SPECT/CT





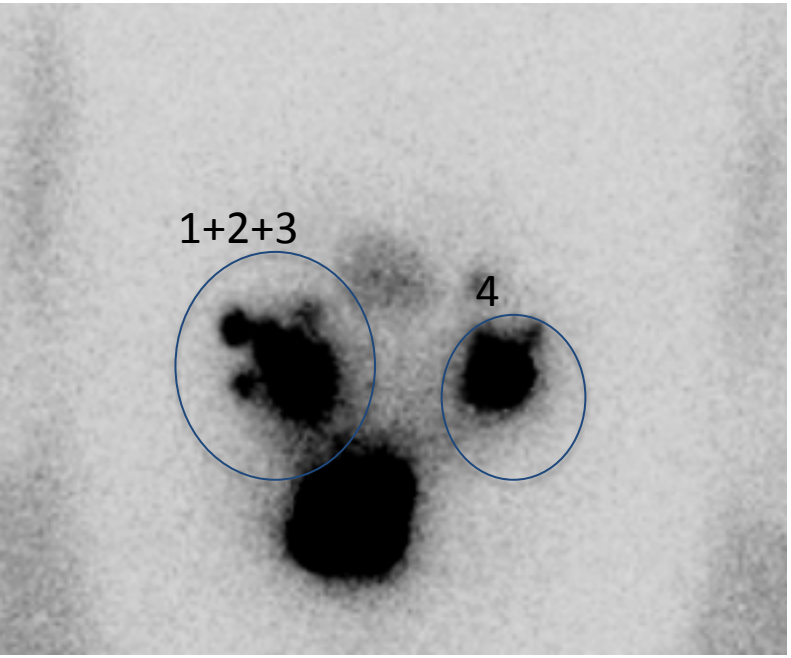
SN melanoma



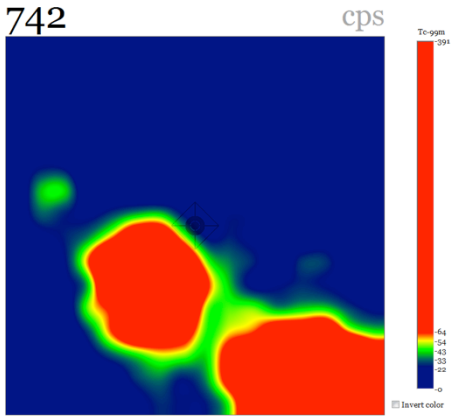
Difficult cases

- SN penile (clusters of SN)
- SN breast (two SN very close to each other)

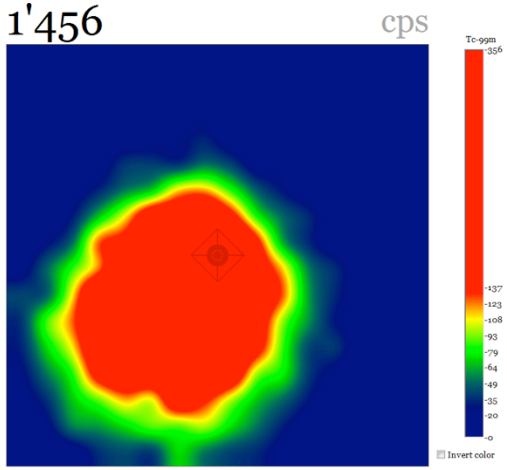
SN penile



Due to complexity hard to image

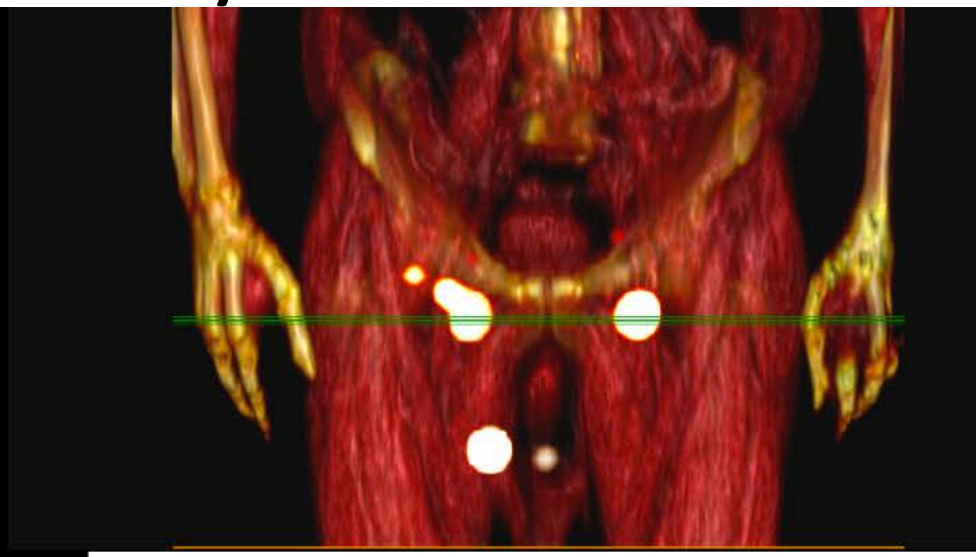


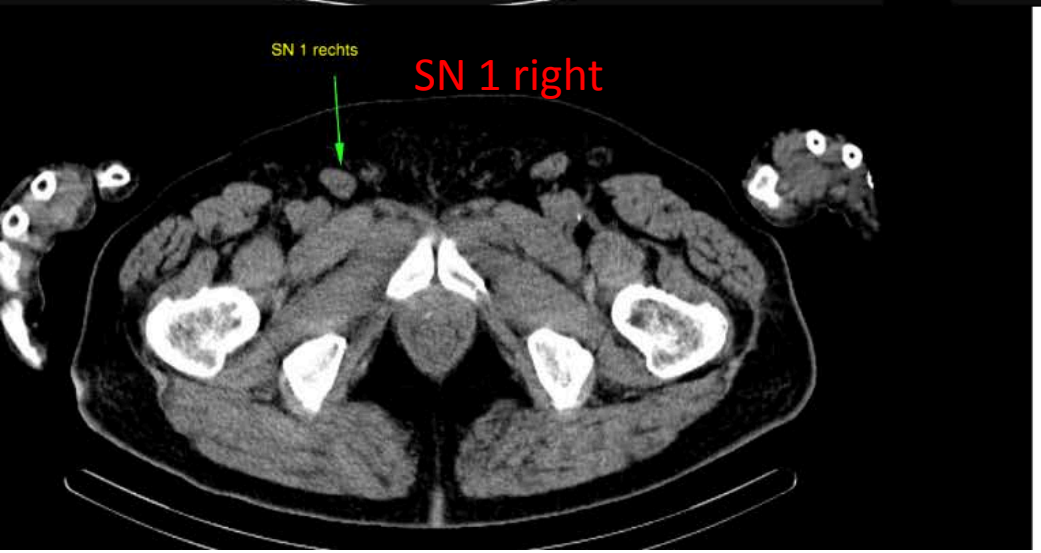
Time: 2013 12.17 11:43:42
Nuclide: Tc-99m
Energy window: 126.5 - 154.6 keV
Exposure time: 13.6s
Camera: 20783
Collimator: LEHS
Calibration: calibration-2013-12-09-13-39-47
Patient ID: 09090909



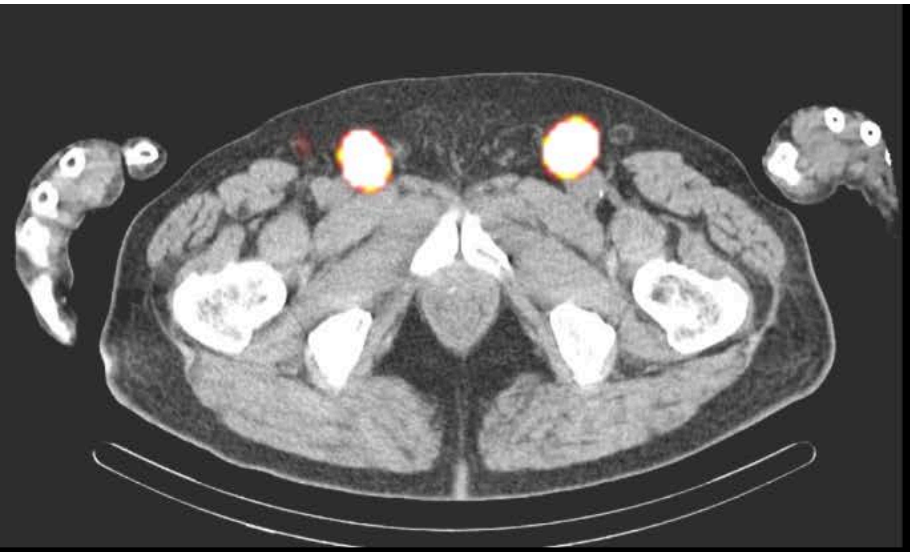
Time: 2013 12.17 11:45:03
Nuclide: Tc-99m
Energy window: 126.5 - 154.6 keV
Exposure time: 11.1s
Camera: 20783
Collimator: LEHS
Calibration: calibration-2013-12-09-13-39-47
Patient ID: 09090909
Last name: wijk
First name:
Gender: 1 Male
Birth date (y m.d.):
Comment: wijk, sn penis links

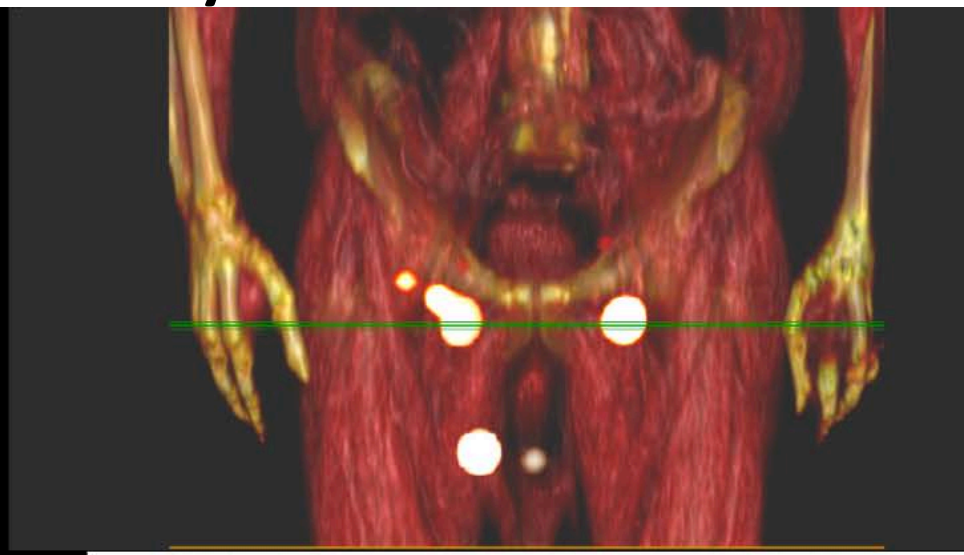
SPECT/CT images to illustrate complexity

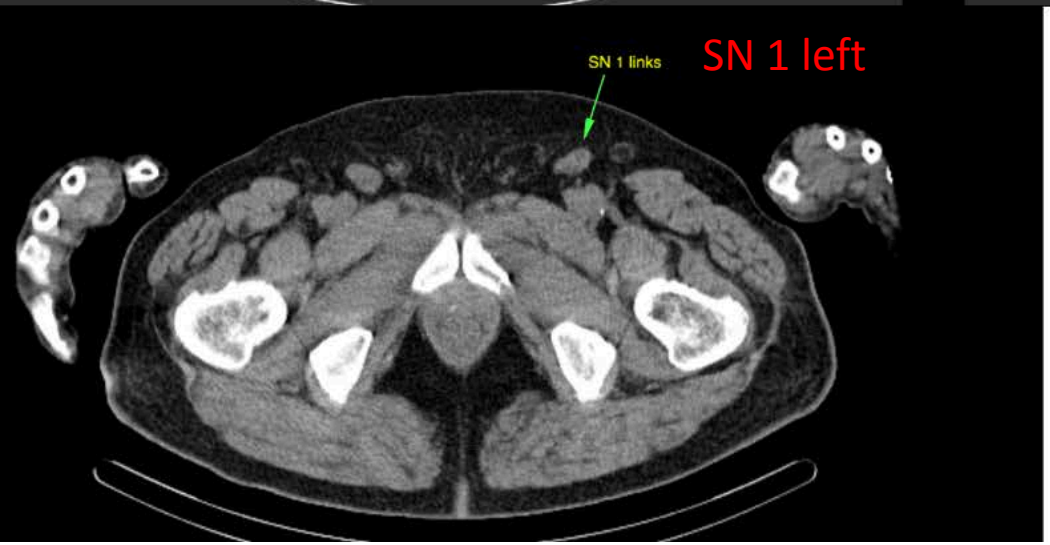




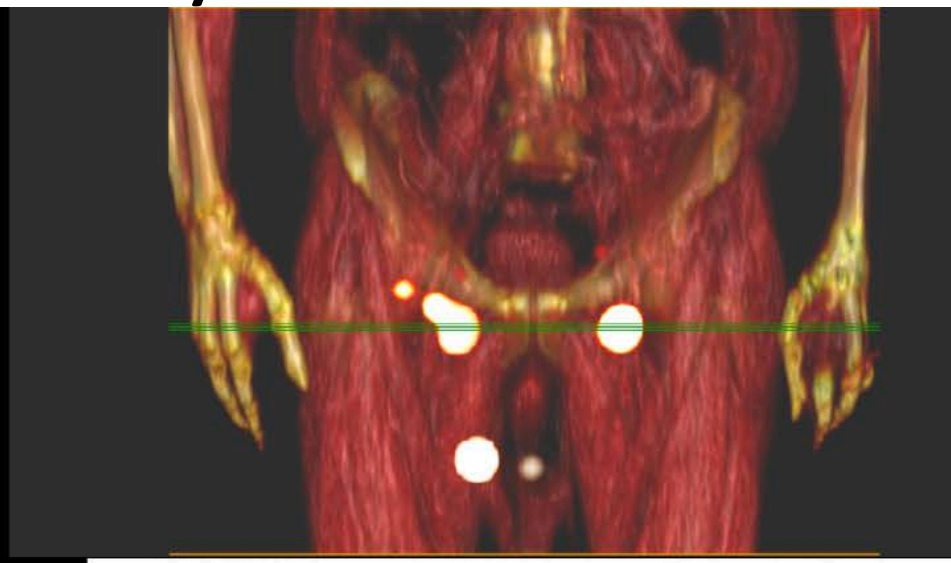
SPECT/CT images to illustrate complexity

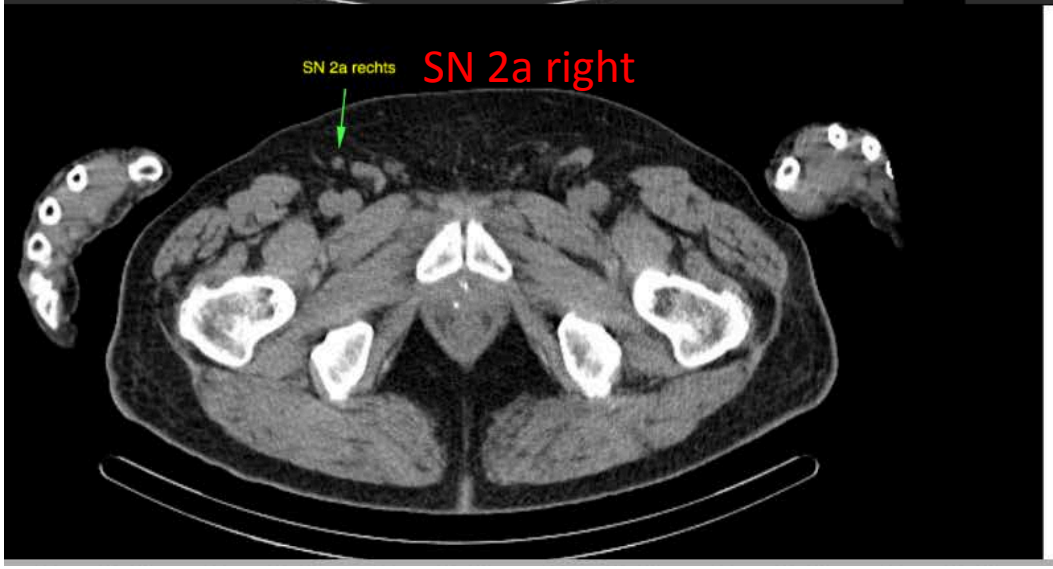


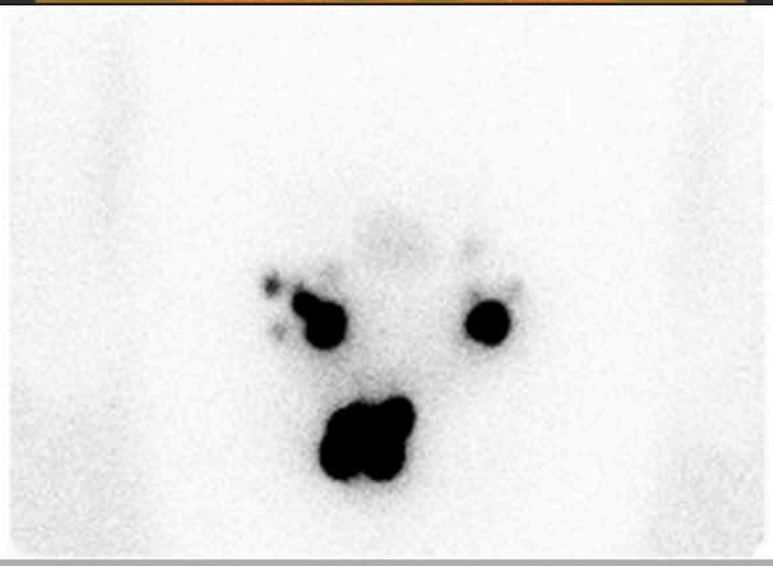




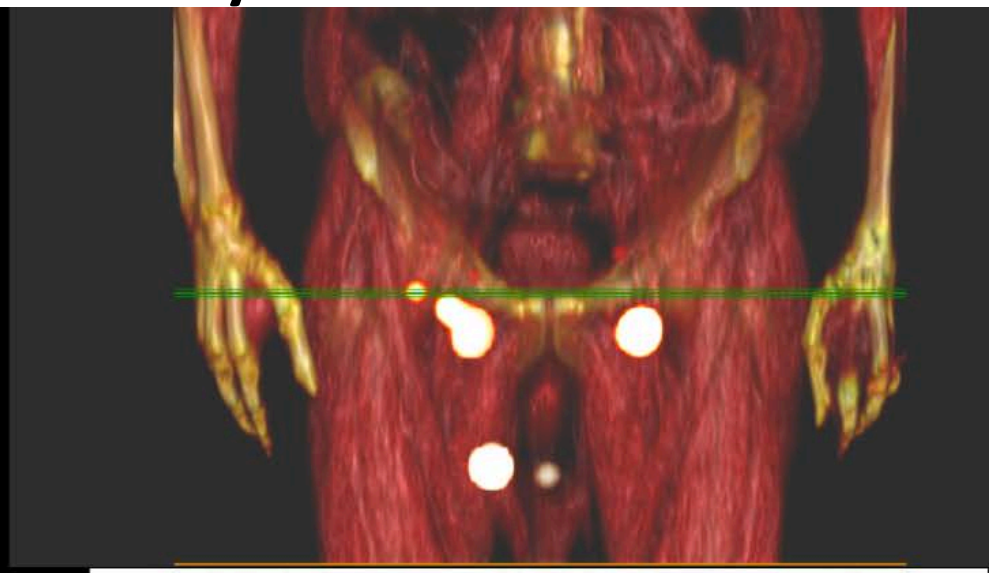
SPECT/CT images to illustrate complexity

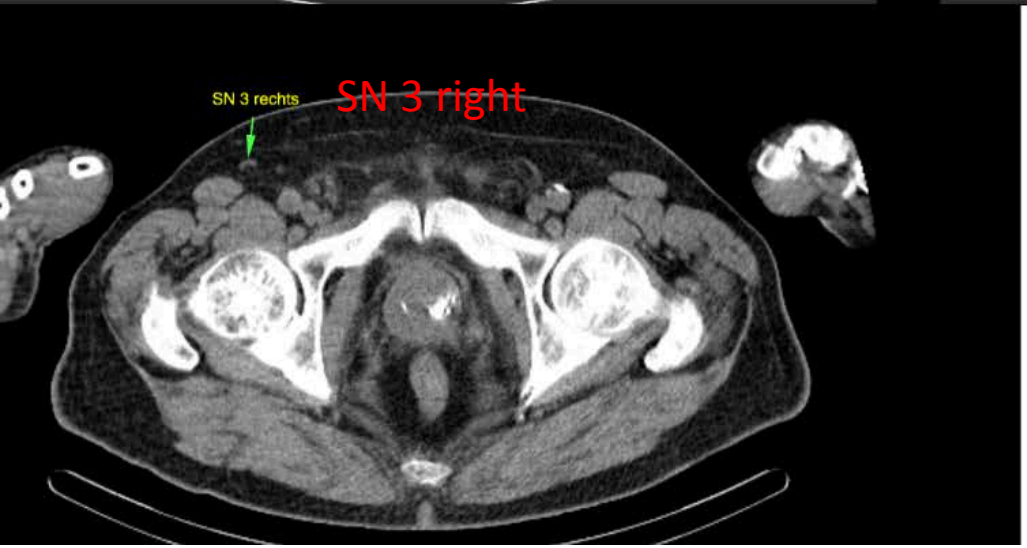


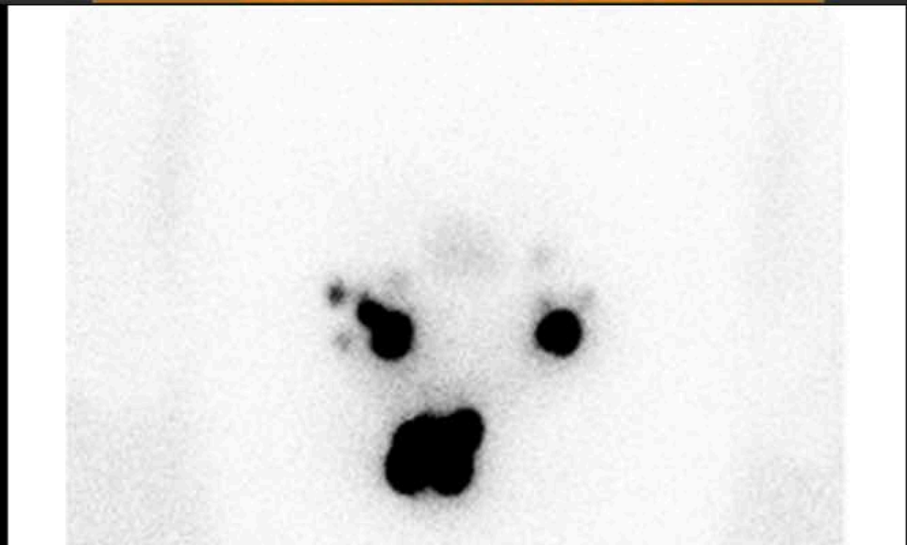




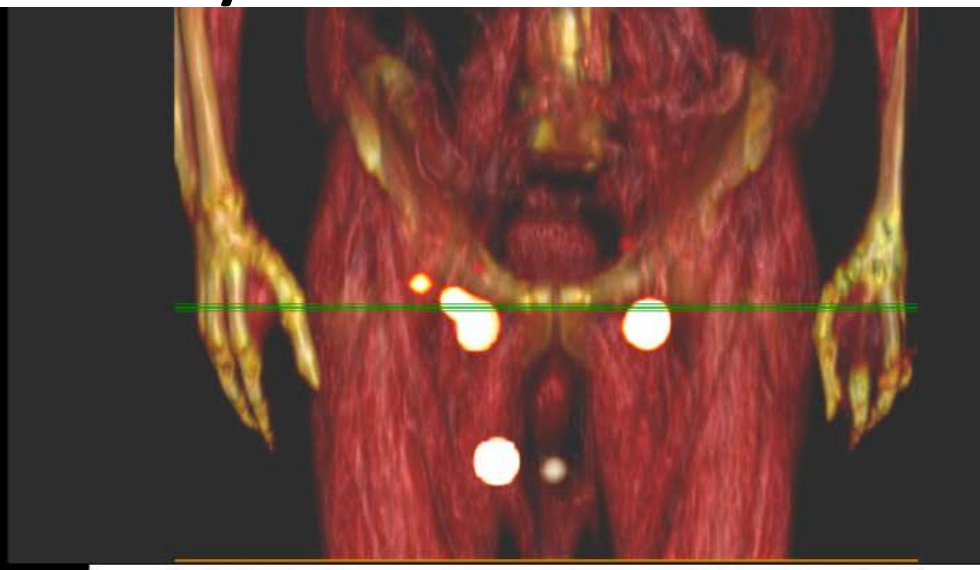
SPECT/CT images to illustrate complexity

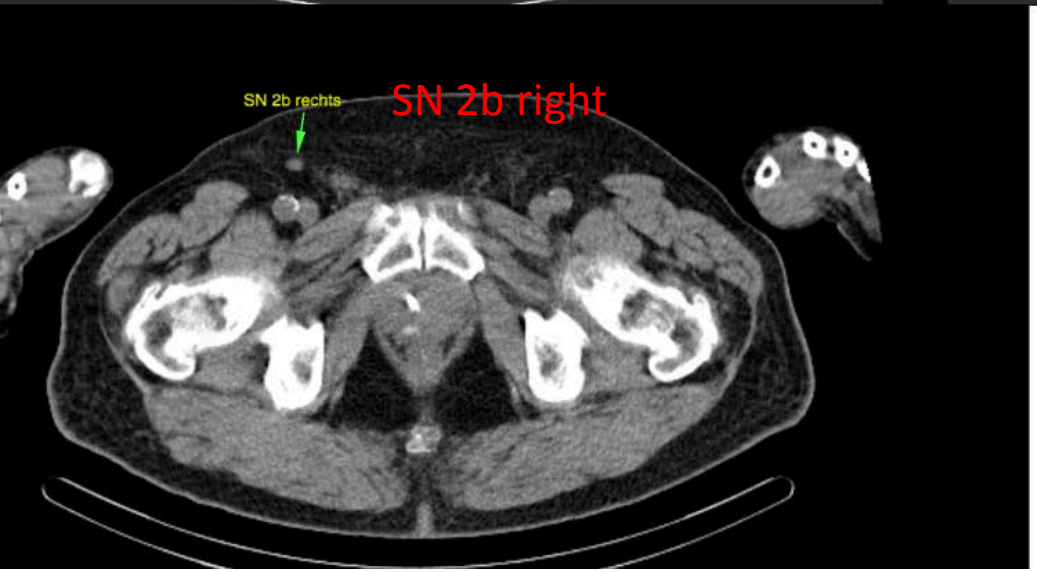


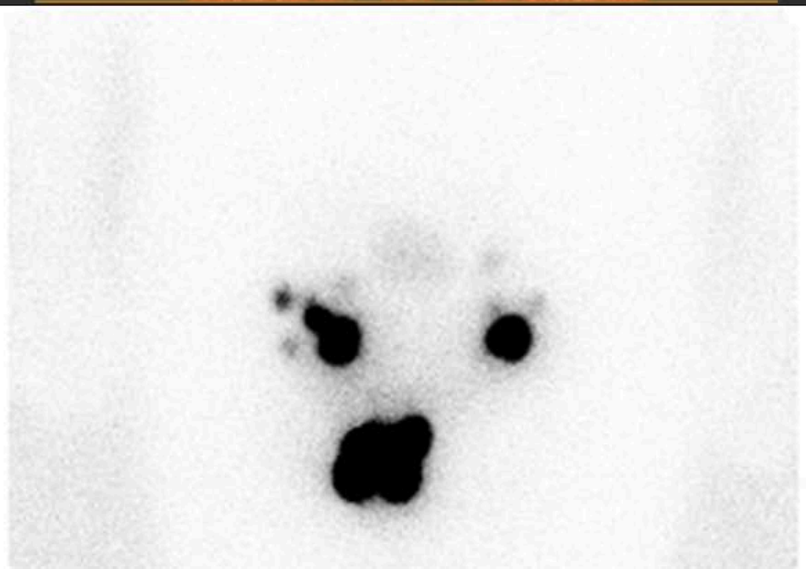




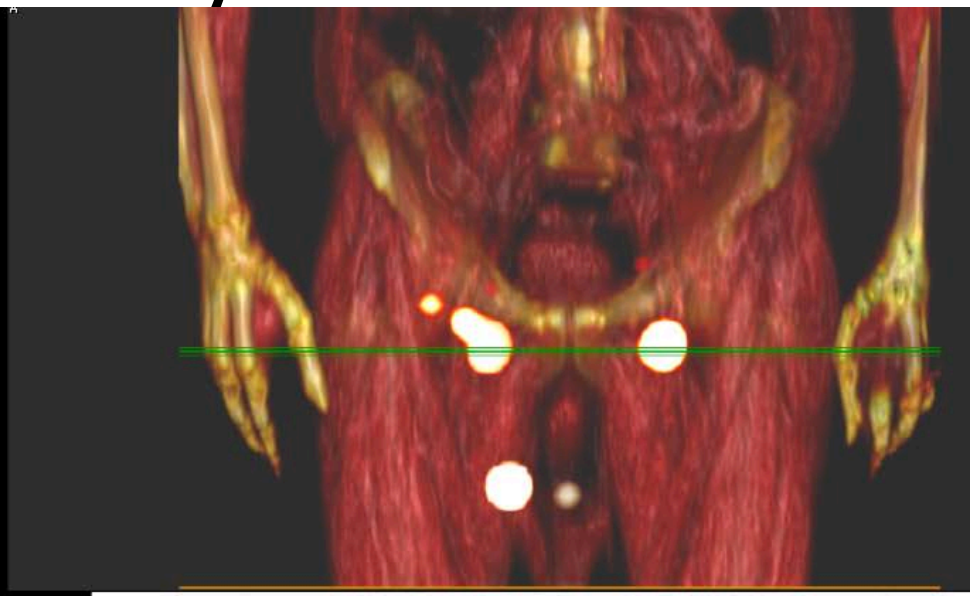
SPECT/CT images to illustrate complexity

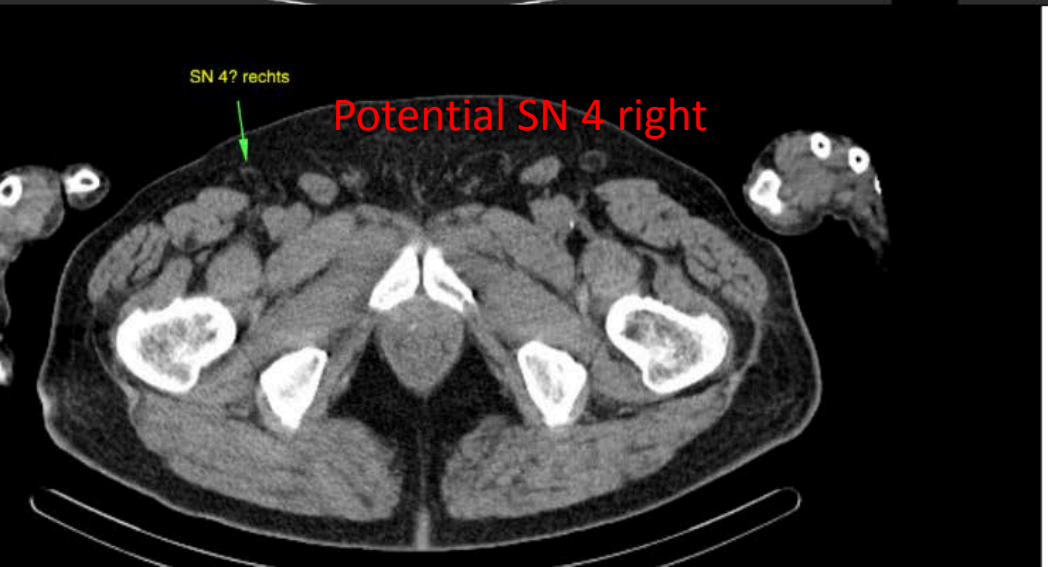


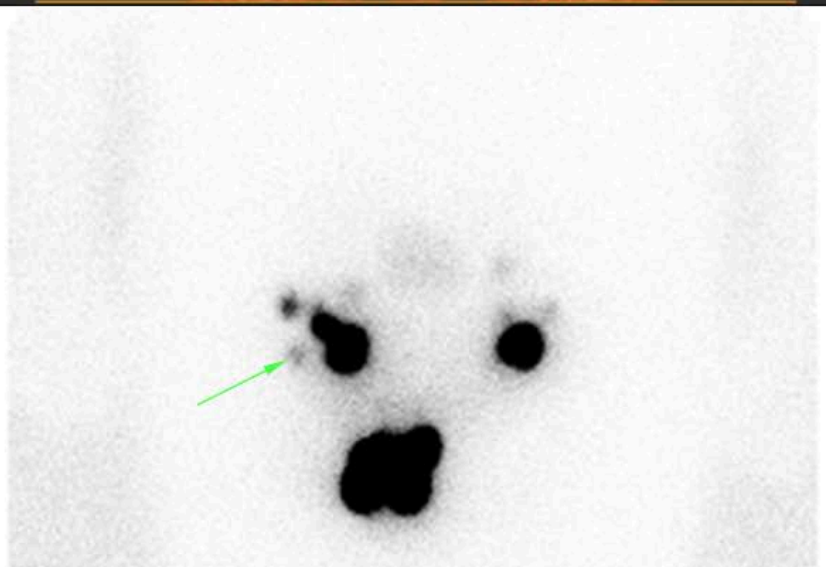




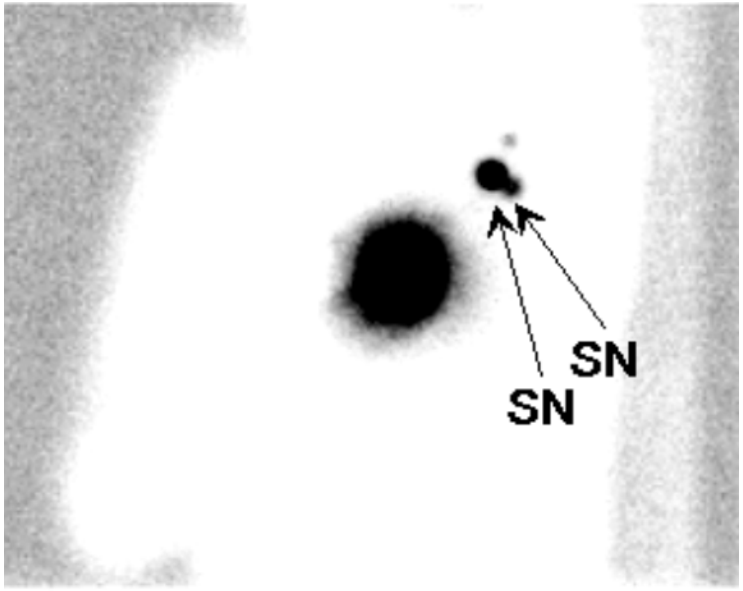
SPECT/CT images to illustrate complexity



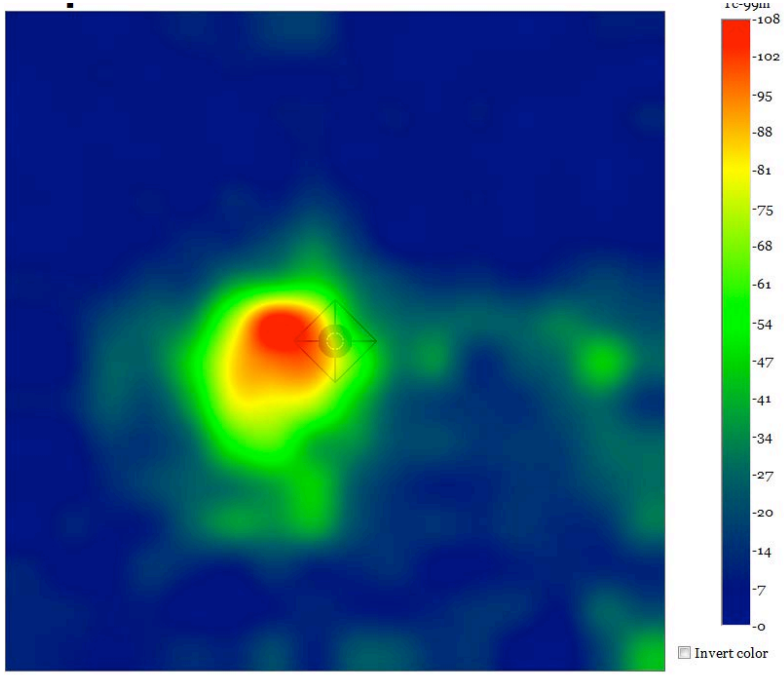




Difficult cases



Two SN visualized as one,
Longer countings or different angels might solve this problem



Time: 2013 12.05 11:34:23
Nuclide: Tc-99m
Energy window: 126.5 - 154.6 keV
Exposure time: 5.0s
Camera: 20783
Collimator: LEHS
Calibration: calibration-2013-12-04-08-58-02

Freehand-SPECT

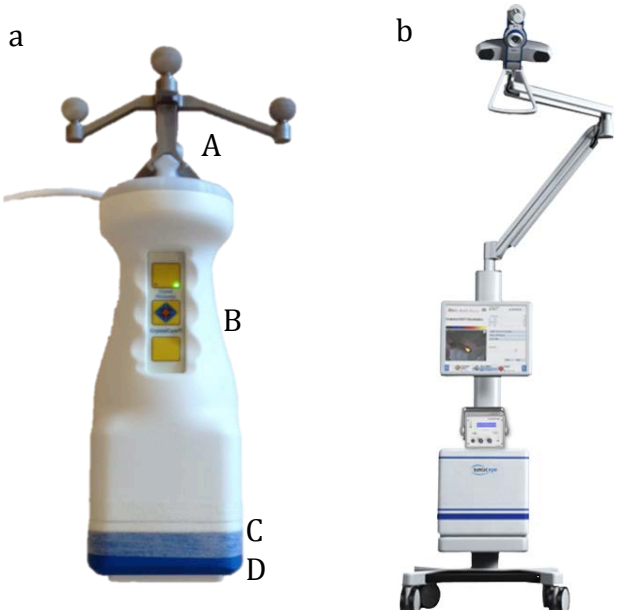
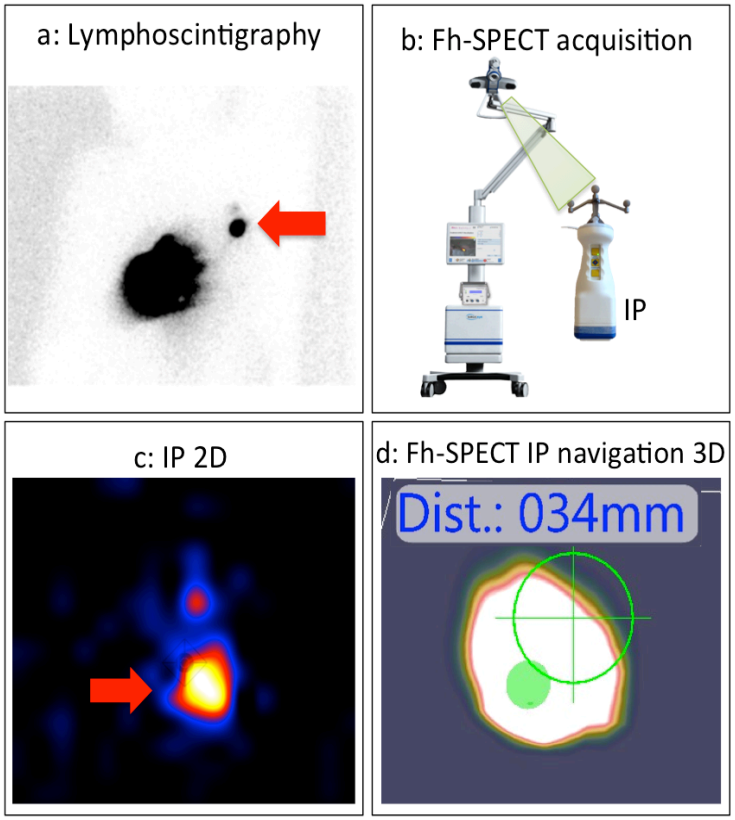


Figure 1: (a) Imaging probe. A: target tracker. B: control panel. C: detector. D: collimator. (b) DeclipseSPECT.



This combination is still under research and has potential benefits like high resolution three dimensional images.

Phantom experiments

- FWHM (resolution)
- Sensitivity
- Resolving power

Parameter	Gamma probe	Imaging probe
Full width half maximum at 36mm distance (3D)	18	10
Full width half maximum (According to product specifications in 1D/2D)	17mm at 10mm distance	9.2mm at 10mm distance
Resolving power at 36mm distance (SN: 1x1MBq, injection site: 4x25MBq)	>6cm	4cm
Sensitivity at 36mm distance	570cps/MBq	1080cps/MBq