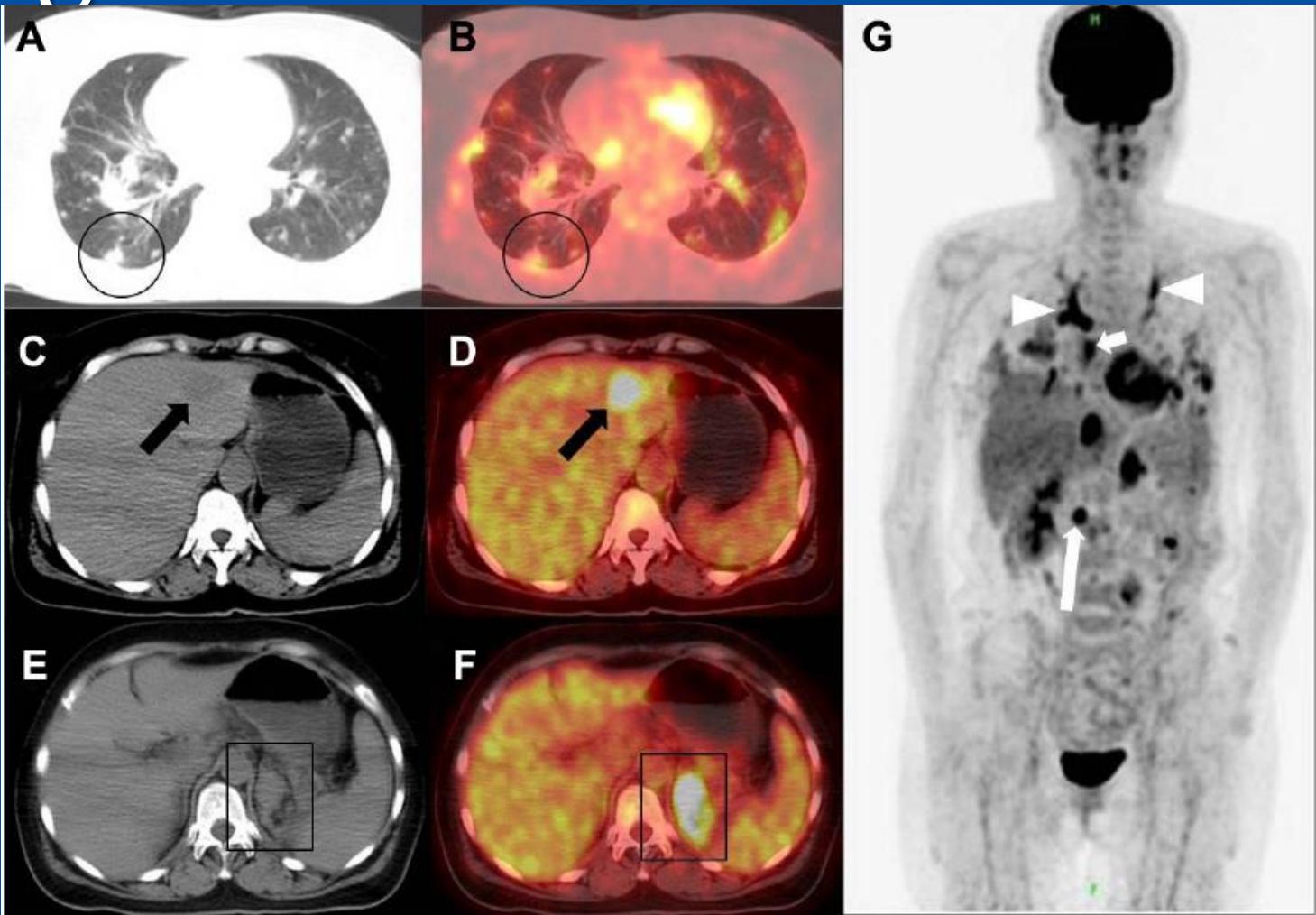


Har PET-CT en plats i diagnostiken av endokradit?





Vad är skillnaden/likheten

PET

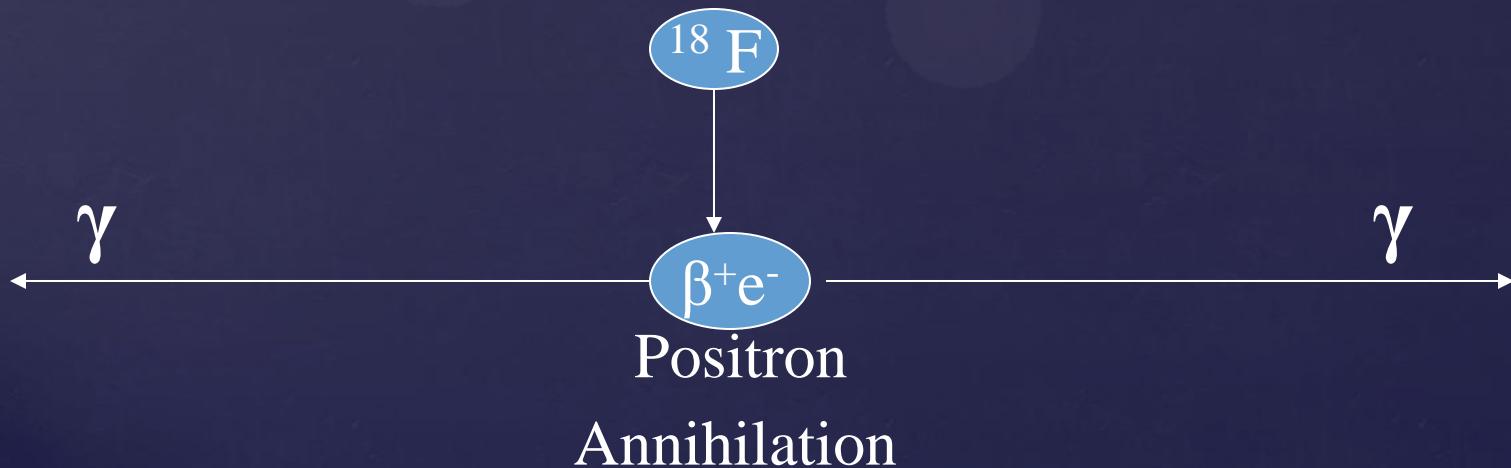
- Två photoner 180 grader
- Högre energi ex 511 keV
- Tjockare kristall
- 128 slice CT
- Funktion och anatomi
- Upplösning 5-6 mm
- Onkologi, inflammation.
- Högt pris
- Stråldos 6-8 mSv
- Anatomi med funktion

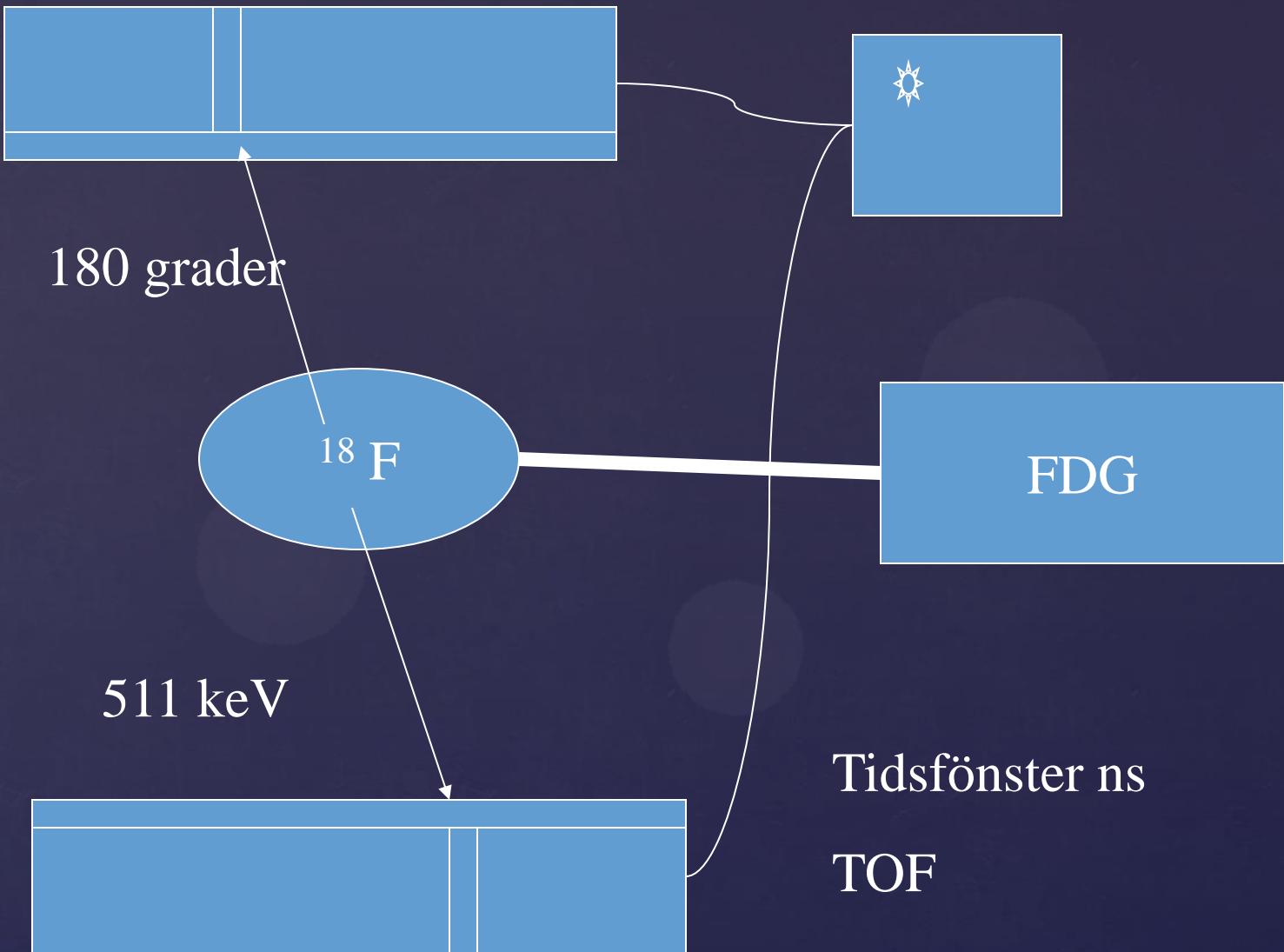
SPECT/gammakamera

- En photon
- Lägre energi ex 140 keV
- Tunnare kristall
- 16 slice CT
- Funktion ex njurscint
- Upplösning 10-20 mm
- Skelett, lunga, njurar
- Lägre pris
- Stråldos 2-4 mSv
- Dynamik med anatomi

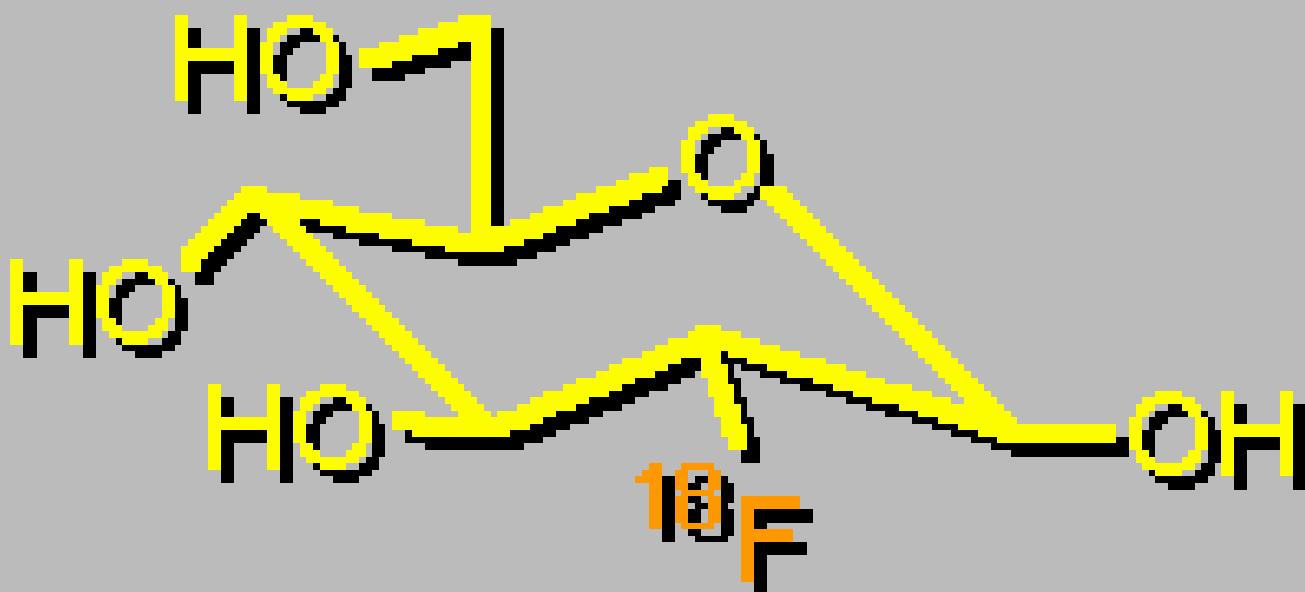
PET

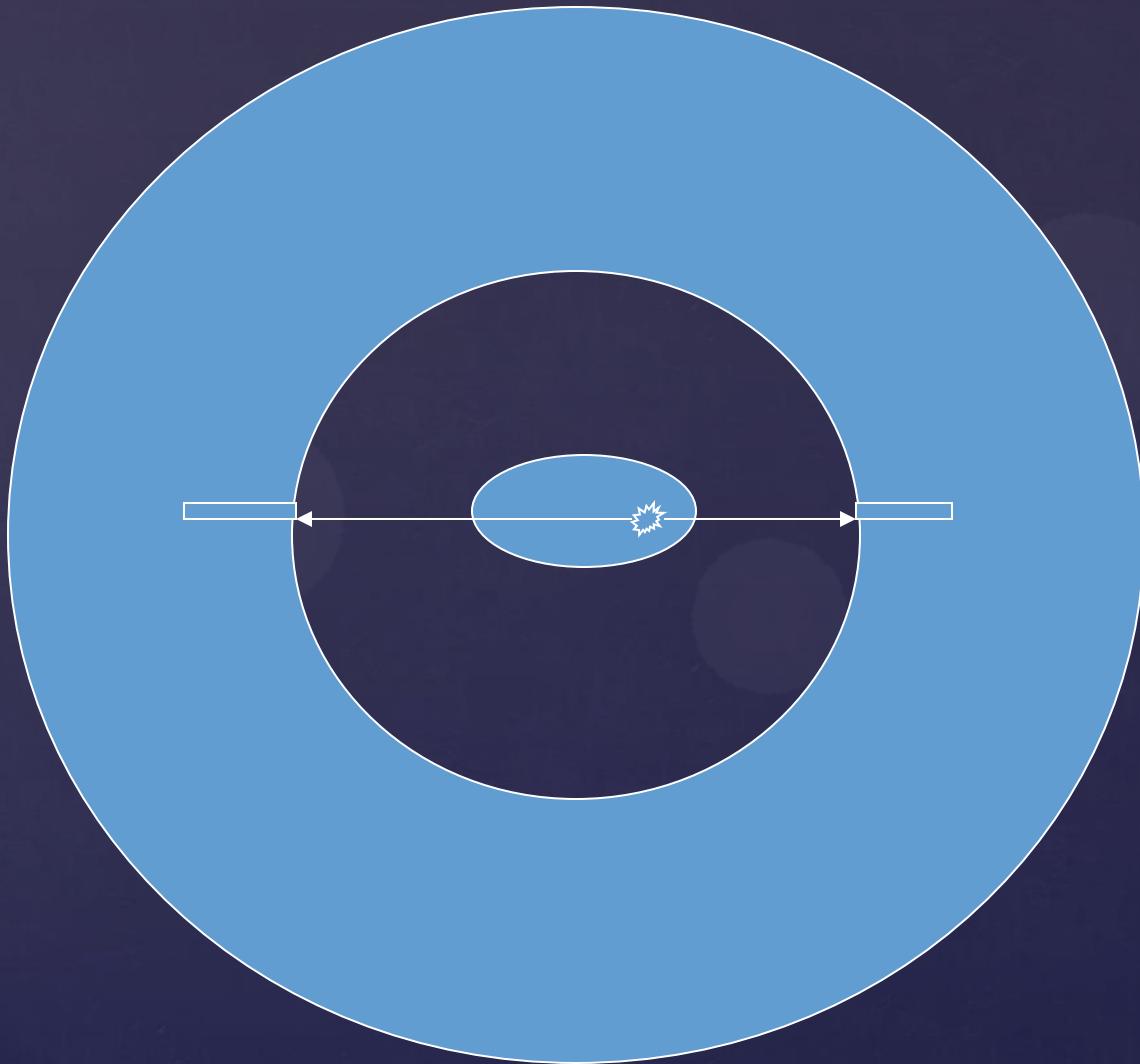
Positron Emission Tomography

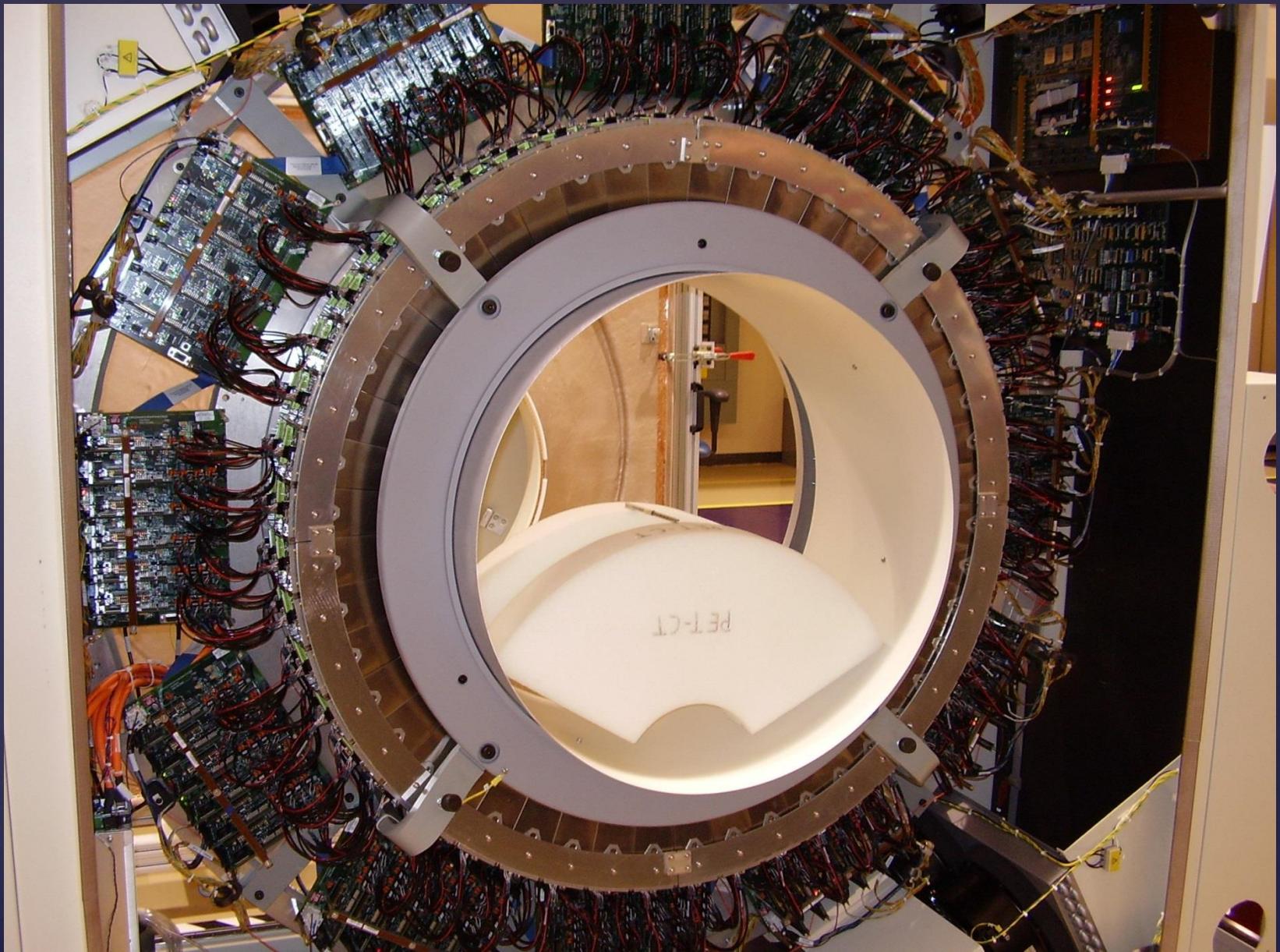


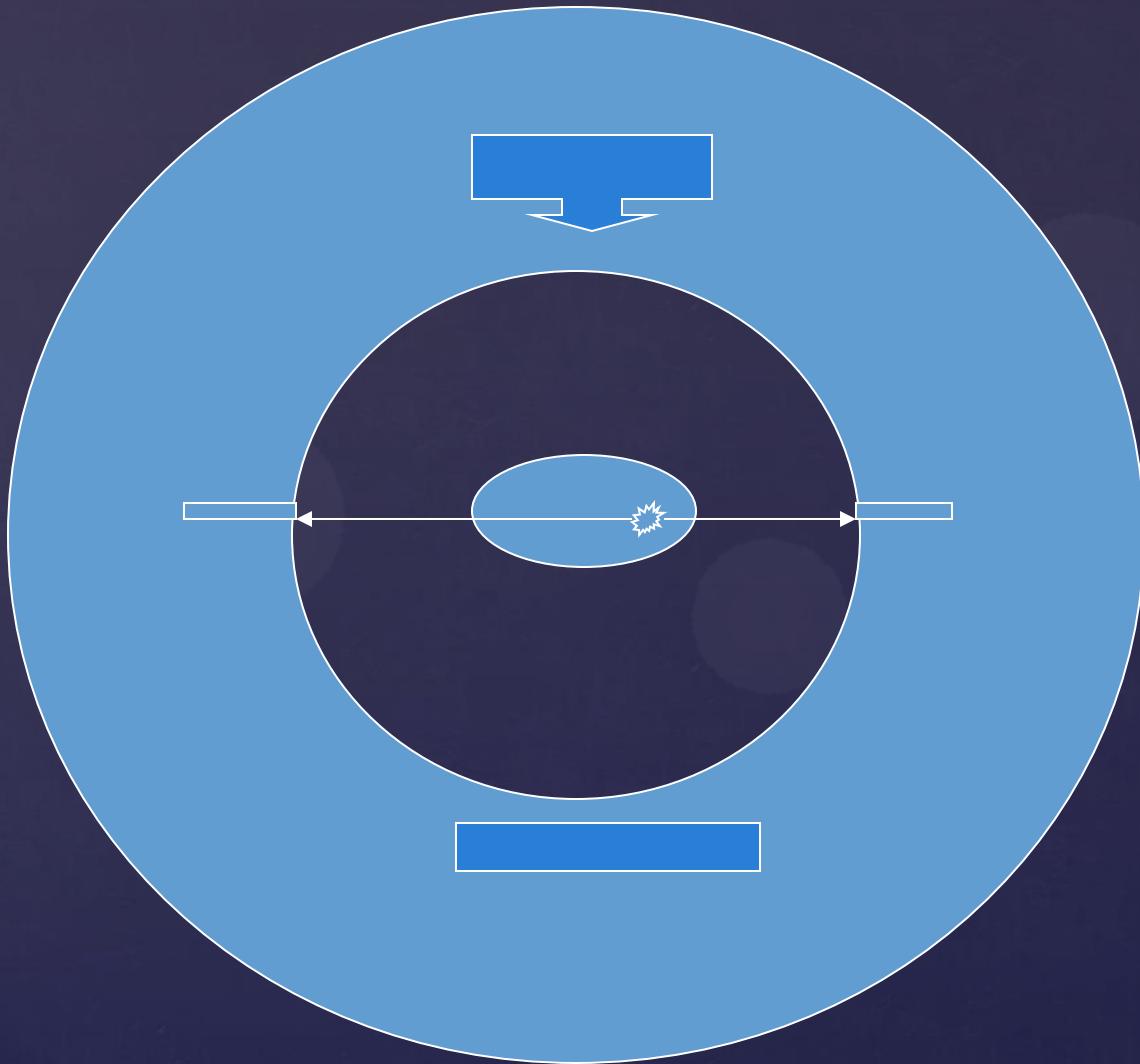


FDG: Fluor- Deoxy-Glucose









Siemens Flow Edge på Ryhov klinisk drift v 36 3 september

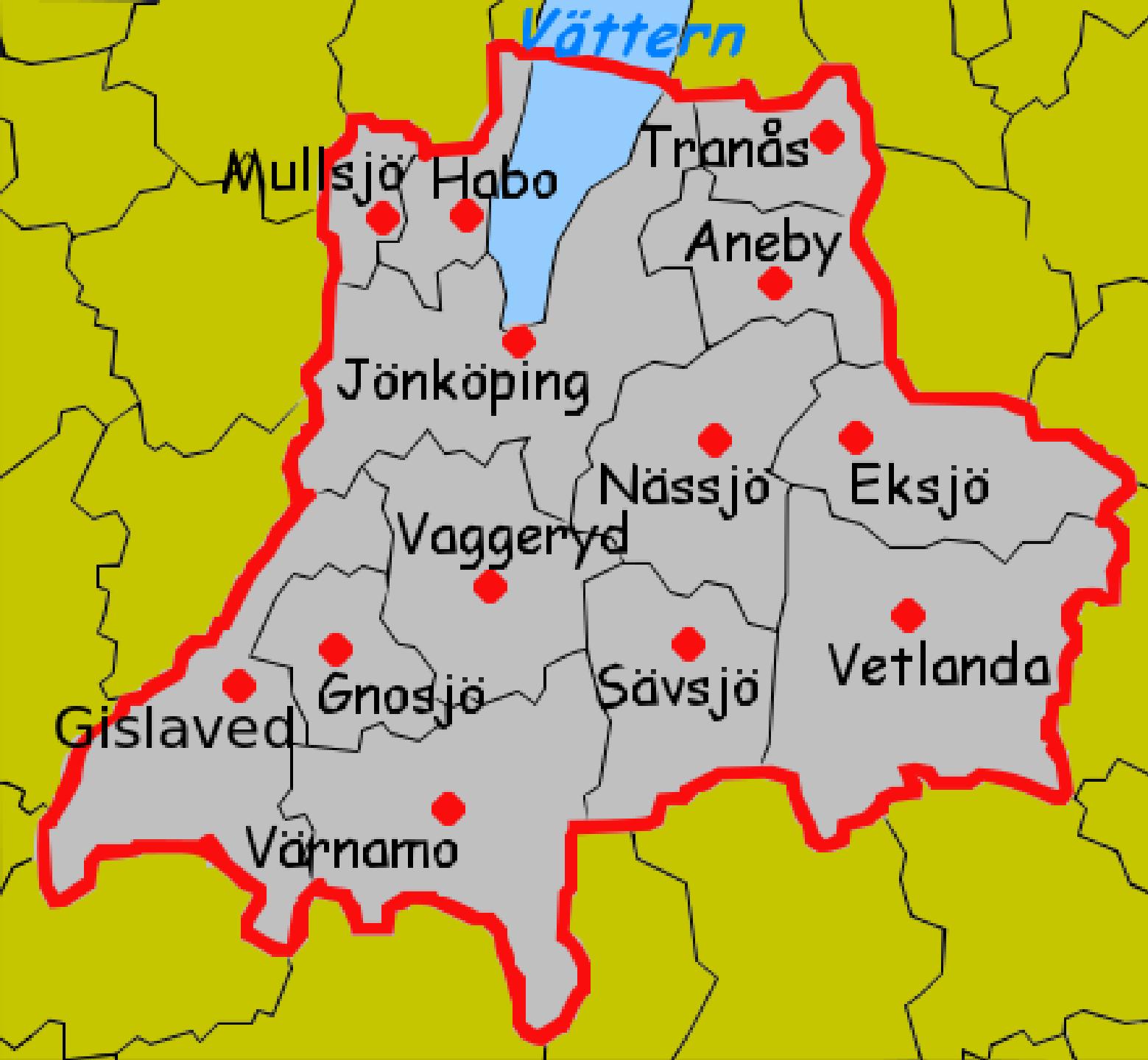


PET
Funktion

DT
anatomi

PET/CT både
funktion och anatomi







Vättern

Mullsjö

Habo

Tranås

Aneby

Jönköping

Nässjö

Eksjö

Vaggeryd

Gnosjö

Sävsjö

Vetlanda

Gislaved

Värnamo

CT HALS, THORAX OCH BUK MED IV KONTRAST INKL INSPIRATIONSSERIE ÖVER THORAX

Inga förstorade körtlar längs halsen, supraklav eller i axillerna.

Förtätningen basalt i mellanloben har ändrat utseende jmf 18-01-24. Den bestod tidare av flera tättliggande närmast nodulära förändringar. Nu ses en mer konsoliderad förtätning på 2 cm med något mindre utbredning än tidigare.

Som tidigare pleural nodulus på 0,5 cm i fissura minor och en ansamling av smånodulära förändringar apikalt i höger ovanlob, såväl pleuralt som i parenkymet.

Inga förstorade körtlar i mediastinum/hili, men flera små.

Inget metastassuspekt i bukens parenkymatösa organ. Gallblåsan är hopfallen runt gallstenar.

Inga skelettdestruktioner.

PET HALS, THORAX OCH BUK

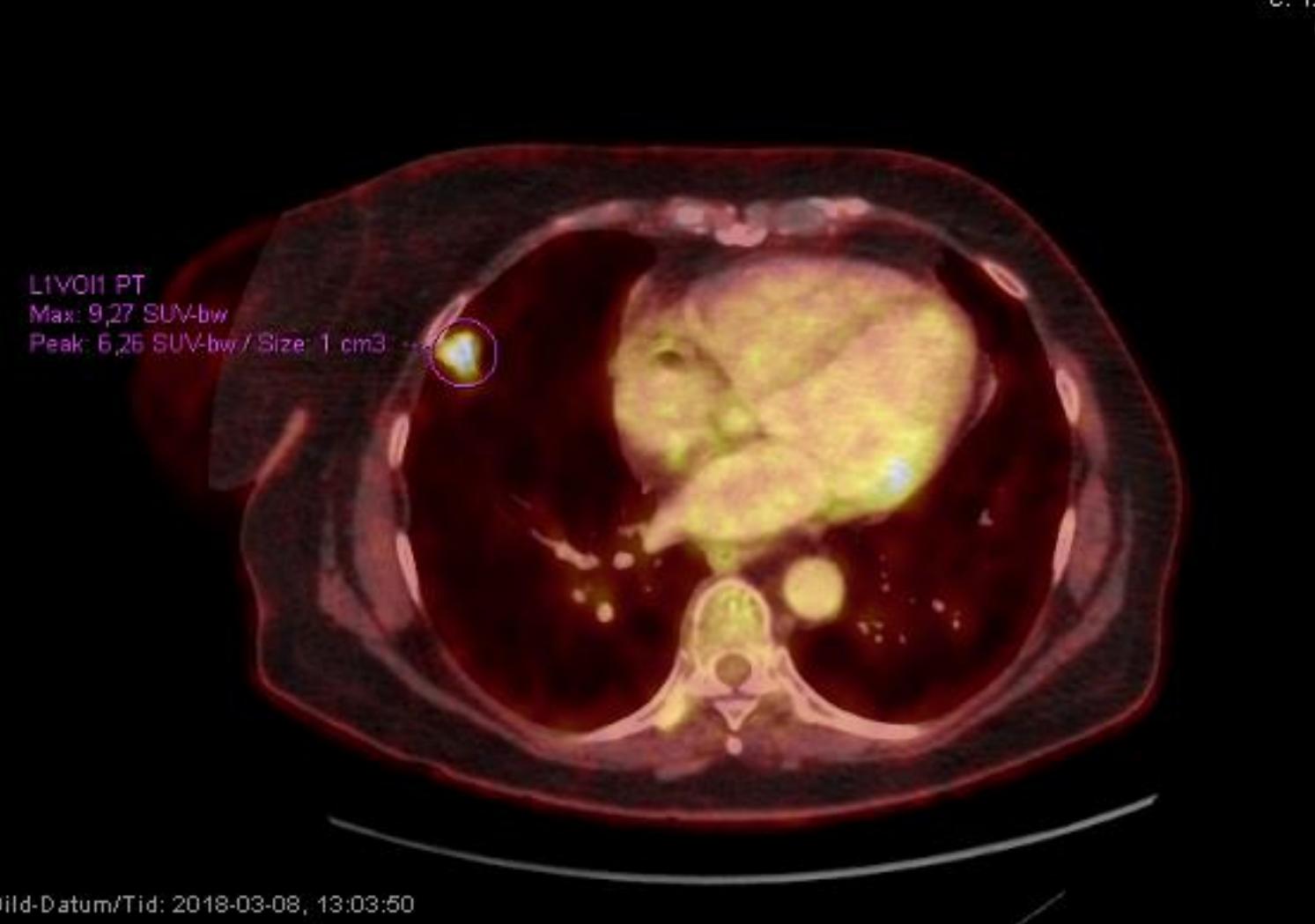
291 MBq FDG F-18 inj i höger arm. B-glu 5,0 mmol/l.

Mellanlobsförändringen mäter 9,3 max SUV.

Apikalt i höger lunga ses små pleurala upptag på upp mot 21,5 max SUV.

Det finns ett ökat upptag i terminala ileum, dock ingen påtaglig retning i området varför detta tolkas som fysiologiskt och inte inflammatoriskt.

- Således bild talande för malignitet såväl i lungparenkymet i mellanloben som pleuralt i övre delen av höger lunga. Recidiv av patientens bröstcancer? Lungcancer med pleural spridning?



5-6 mm



Malignite
t SUV
Infektion



Mellanlobsförändringen mäter 9,3 max SUV.

16

2,5

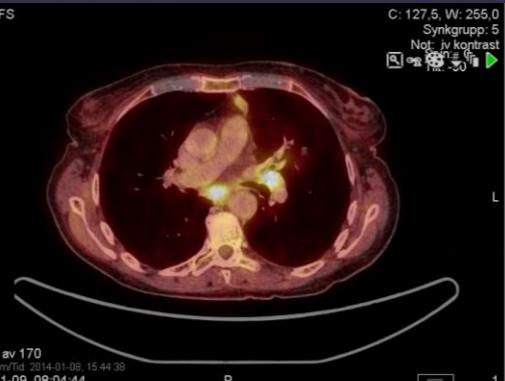
Standardised Uptake Value



Kontrast: IV Kontrast
Schnitt: 5,00 mm
Pos: HFS



C: 40,0, W: 300,0
Synkgrupp: 5
Not: iv kontrast
Bild 58 av 170



C: 127,5, W: 255,0
Synkgrupp: 5
Not: iv kontrast
Bild 58 av 170

C: 7224,0, W: -13134,0
Synkgrupp: 5

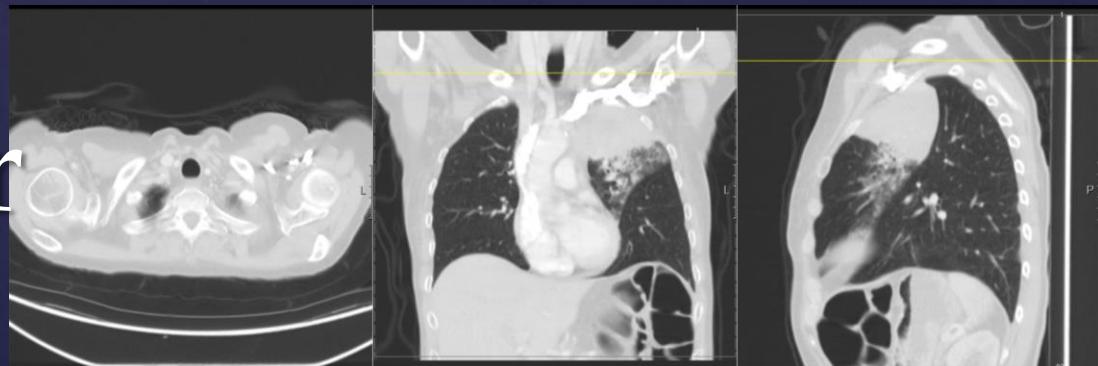


C: 7224,0, W: -13134,0

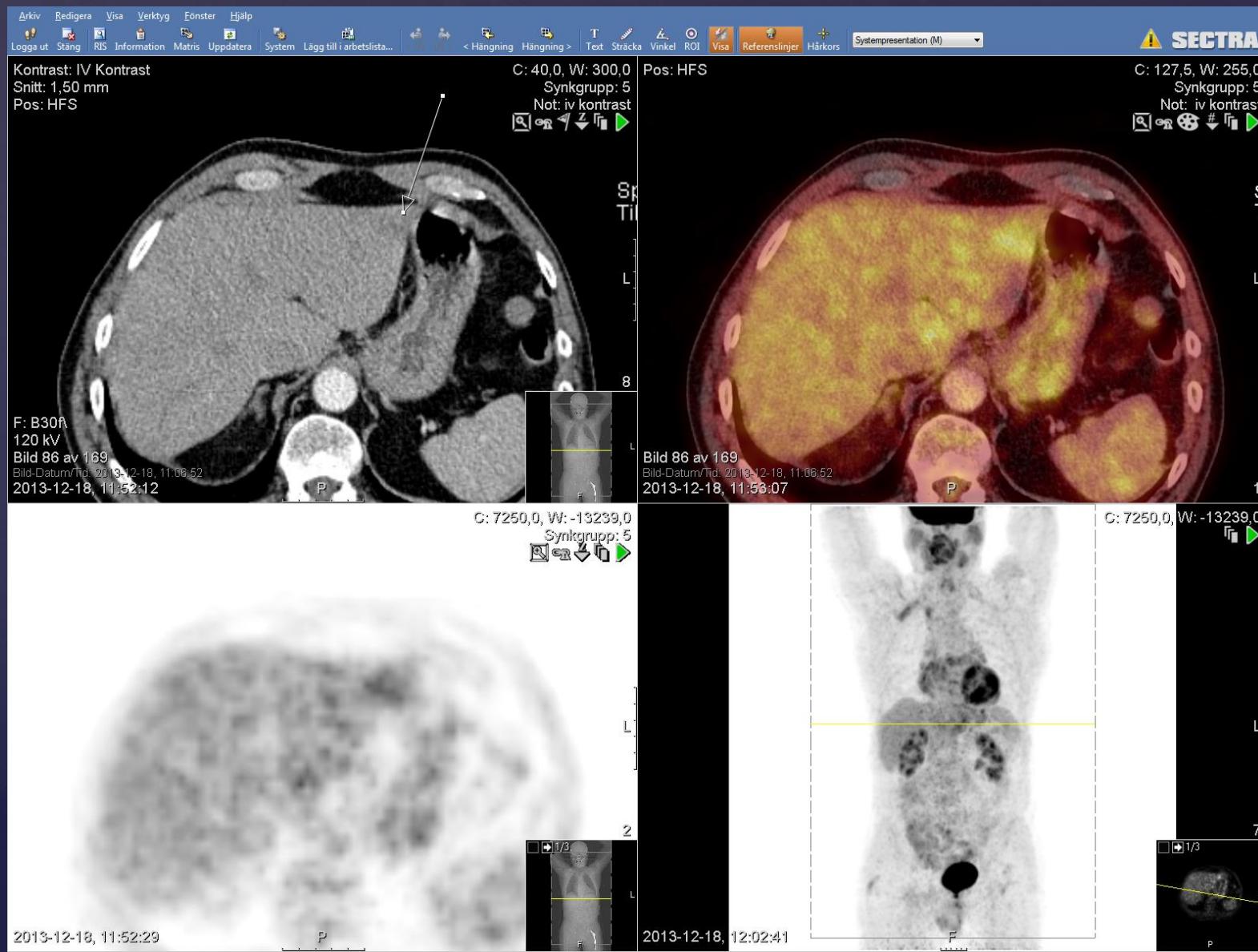


C: 35,0, W: 80,0

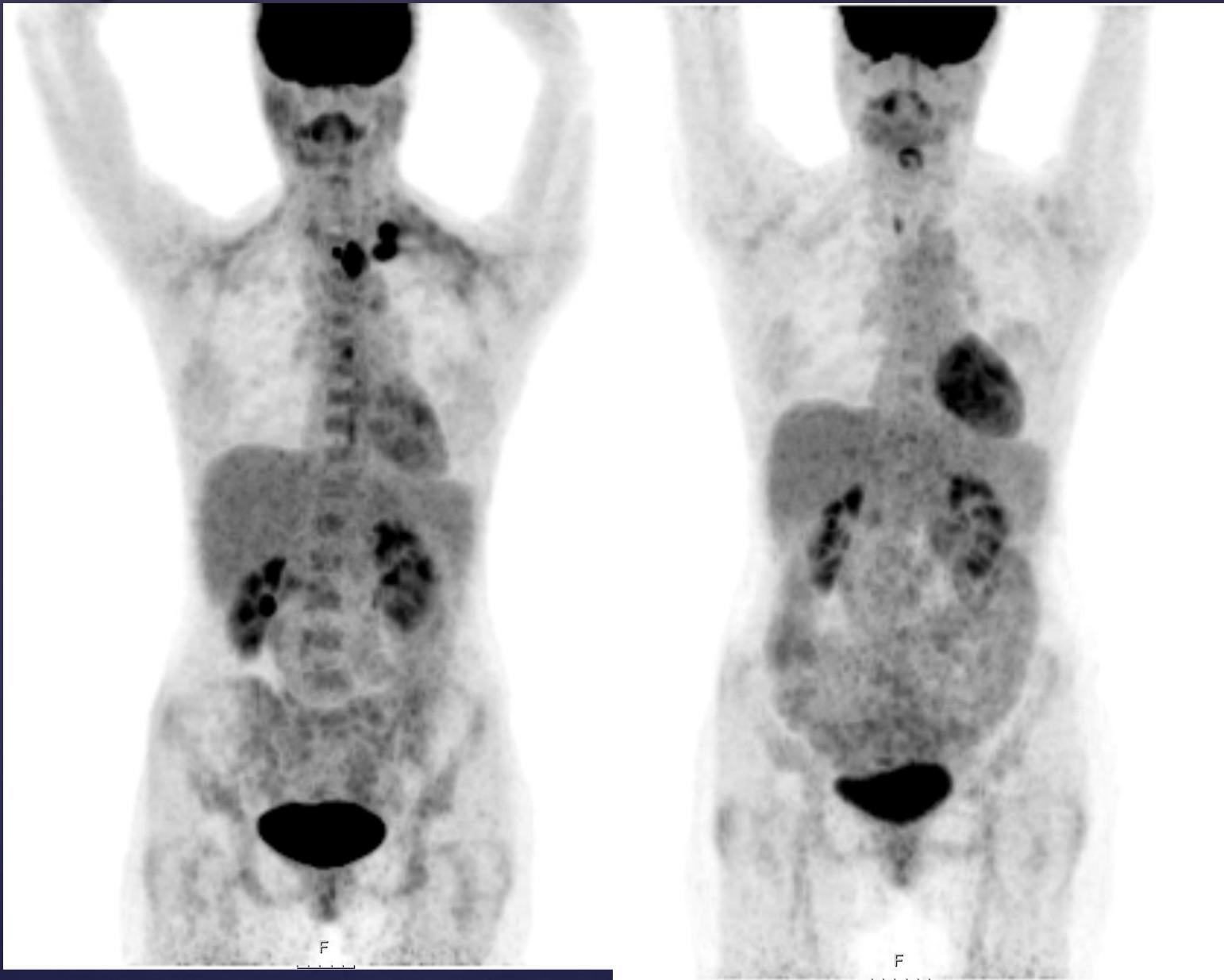
Lungcancer

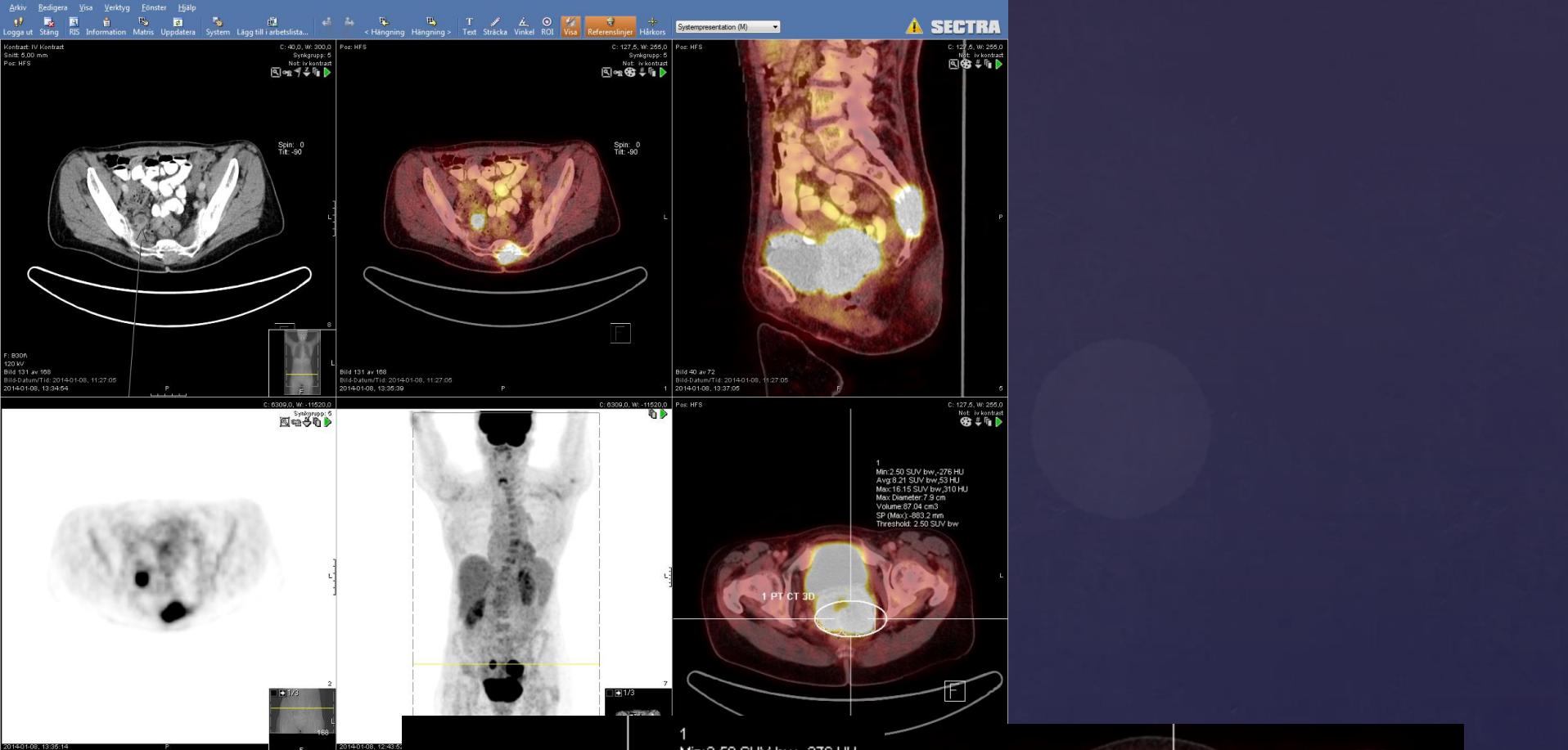


Gastrointestinal som kolon, oesophagus och ventrikelse

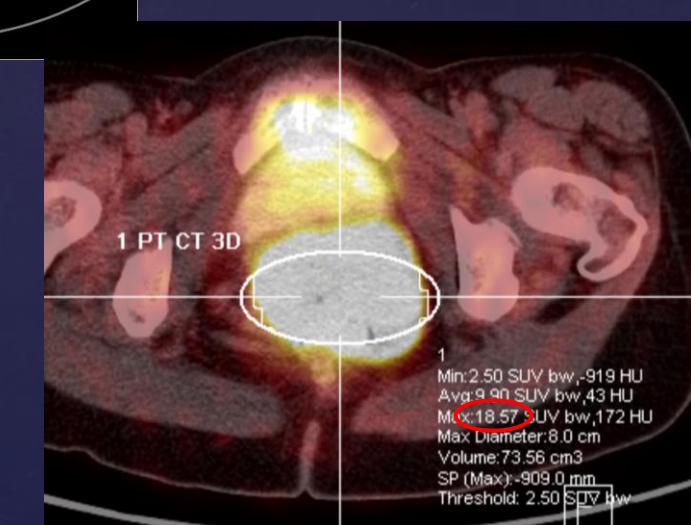
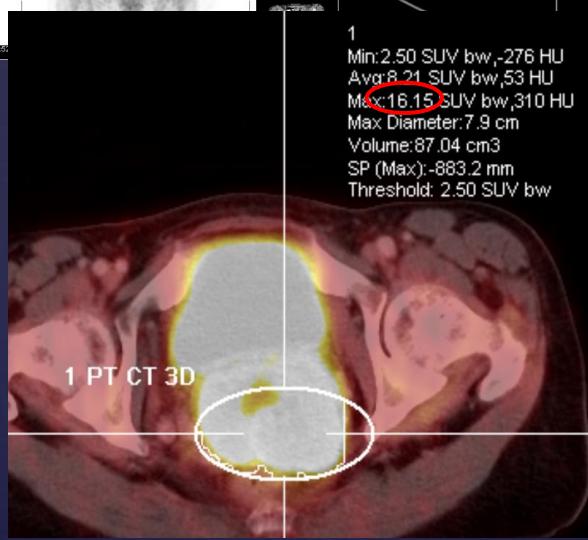


Lymfom

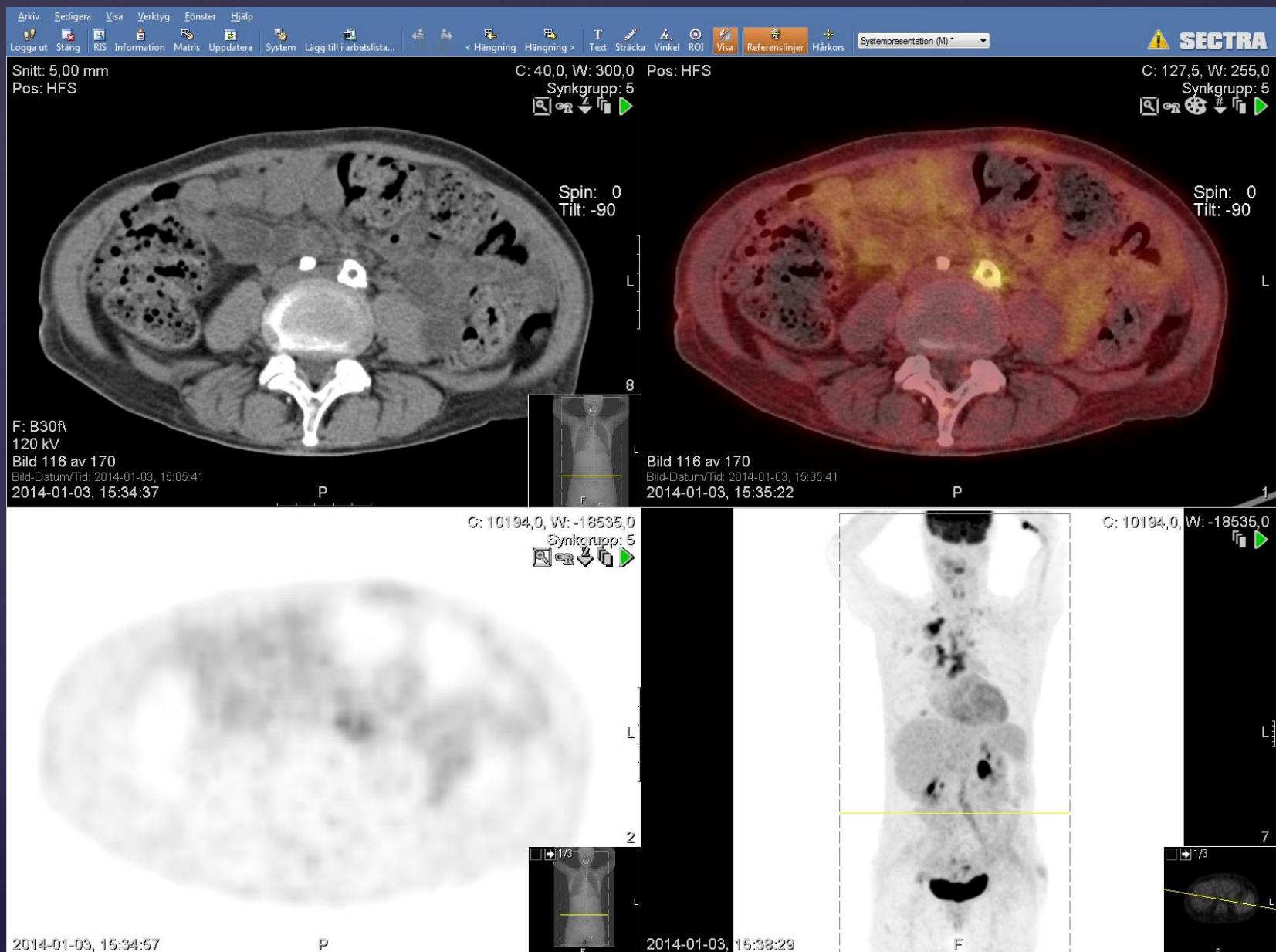


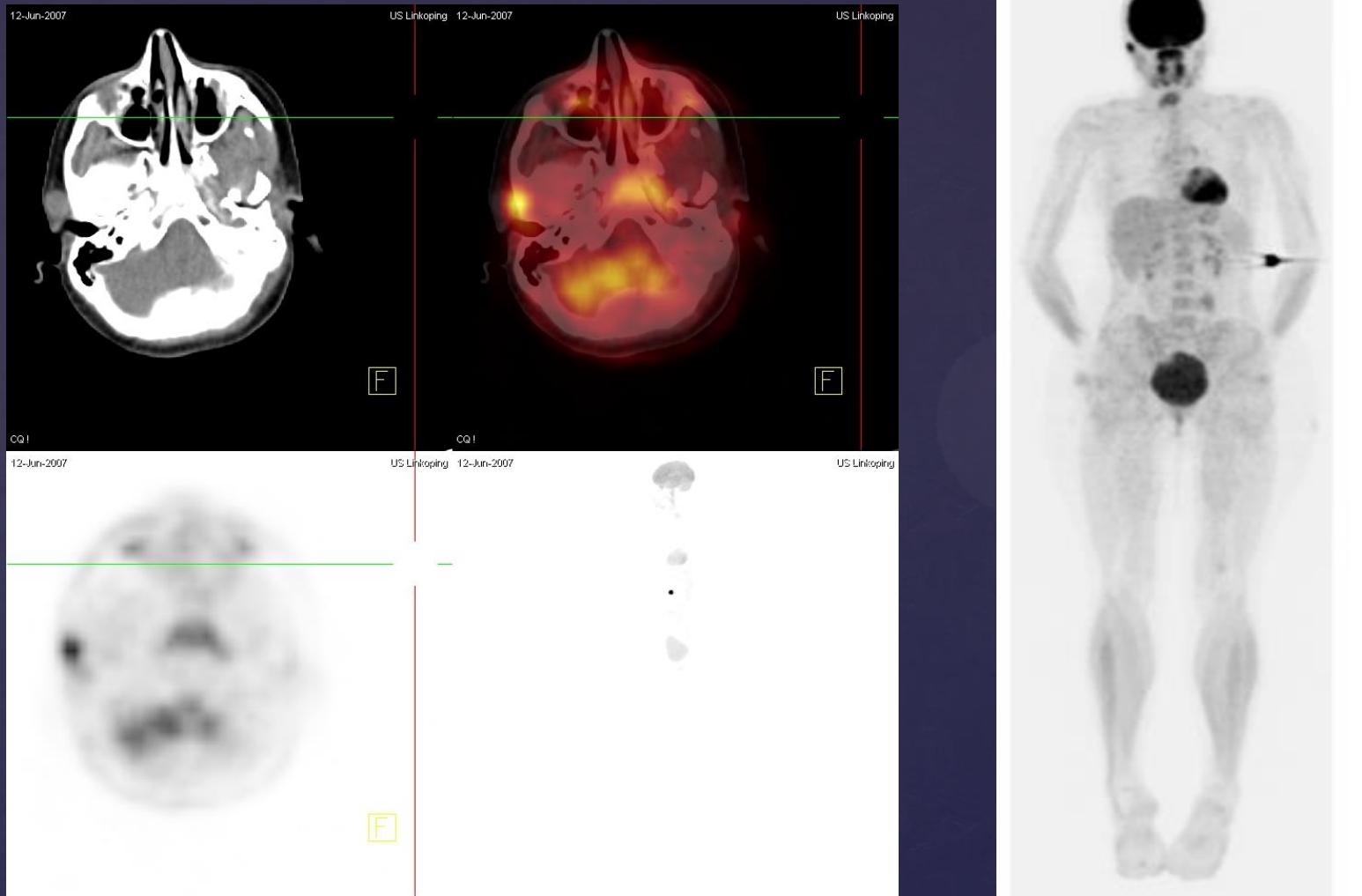


Gyn

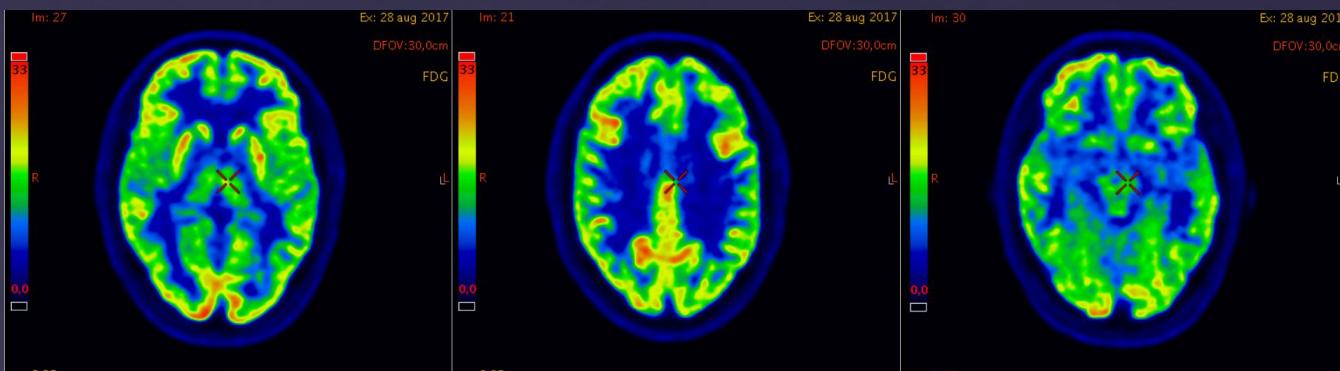


Infektion

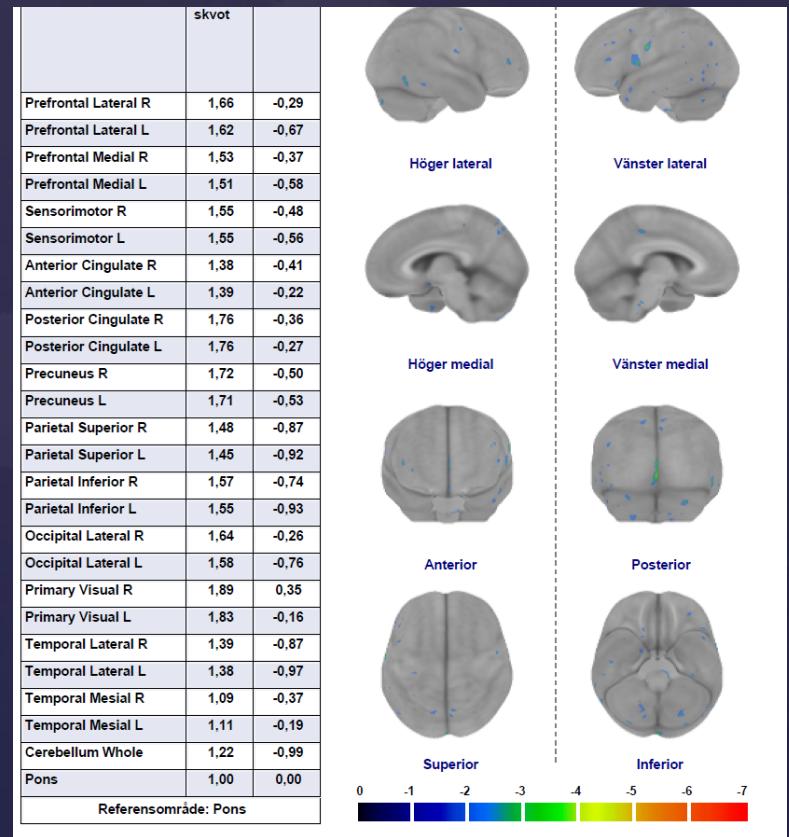




Malignant melanoma



Regionalt cerebralt blodflöde

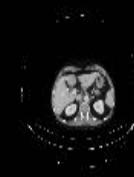
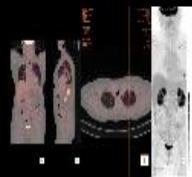
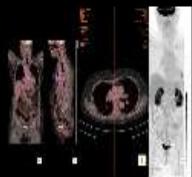
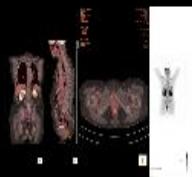
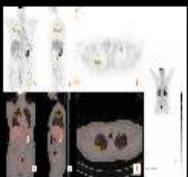
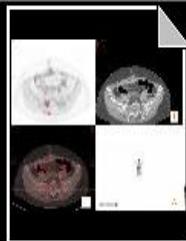


Vad har hänt och händer

- Samlad nuklear med SPECT/CT och PET/CT
- Klinfys (SPECT/CT) tillsammans med röntgen (PET/CT)
- Start kliniska undersökningar 3 september 2018
- Öl Robert Cimerin röntgen Ryhov medicinskt ansvarig
- Undersökningar både Ryhov och Linköping men remissen på PET/CT i ROS till röntgen Ryhov!
- Remiss till klin fys på övrig nuklear som tidigare i PAF



Nuklear, en del av röntgen och klinfys



1 :1 : PRINT -
2019-05-02T14:32:...

2 :1 : PRINT -
2019-05-02T13:56:...

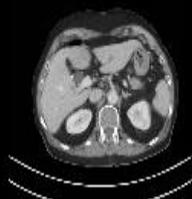
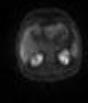
3 :1 : PRINT -
2019-05-02T14:30:...

4 :1 : PRINT -
2019-05-02T13:47:...

5 :1 : PRINT -
2019-05-02T13:49:...

6 :401 : AC CT
Standard 3.0 HD_F...

7 :401 : PET WB 400



CT Thorax	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28



8 :1336 : CT Standard
1.0 I36f A3

9 :395 : PET WB
Uncorrected

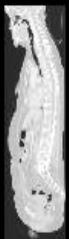
10 :401 : CT Standard
3.0 I36f A3

11 :164 : Thorax uk
3.0 I41f A3

12 :164 : Thorax uk
3.0 I70f A3

13 :2 : PET Dose
Report

14 :547 : Thorax uk
1.0 I70f A3



Thorax	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28

15 :134 : CT Standard
3.0 A3 cor

16 :240 : CT Standard
3.0 A3 sag

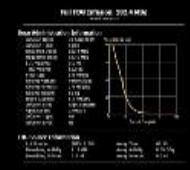
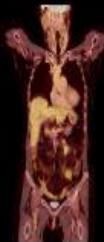
17 :132 : Thorax uk
3.0 A3 cor

18 :132 : Thorax uk
3.0 A3 cor

19 :83 : Lunga uk
10.0 MIP A3 cor

20 :94 : Lunga uk
10.0 MIP A3 cor

21 :1 : Patient Protocol



22 :401 : Range-AC CT
Standard 3.0 HD_Fo...

23 :166 : Fused cor

24 :310 : Fused sag

25 :32 : Mip

26 :1 : MEDRAD
Intego Images

27 :1 : MEDRAD
Intego Images



The additional role of 18F-FDG PET/CT in prosthetic valve endocarditis

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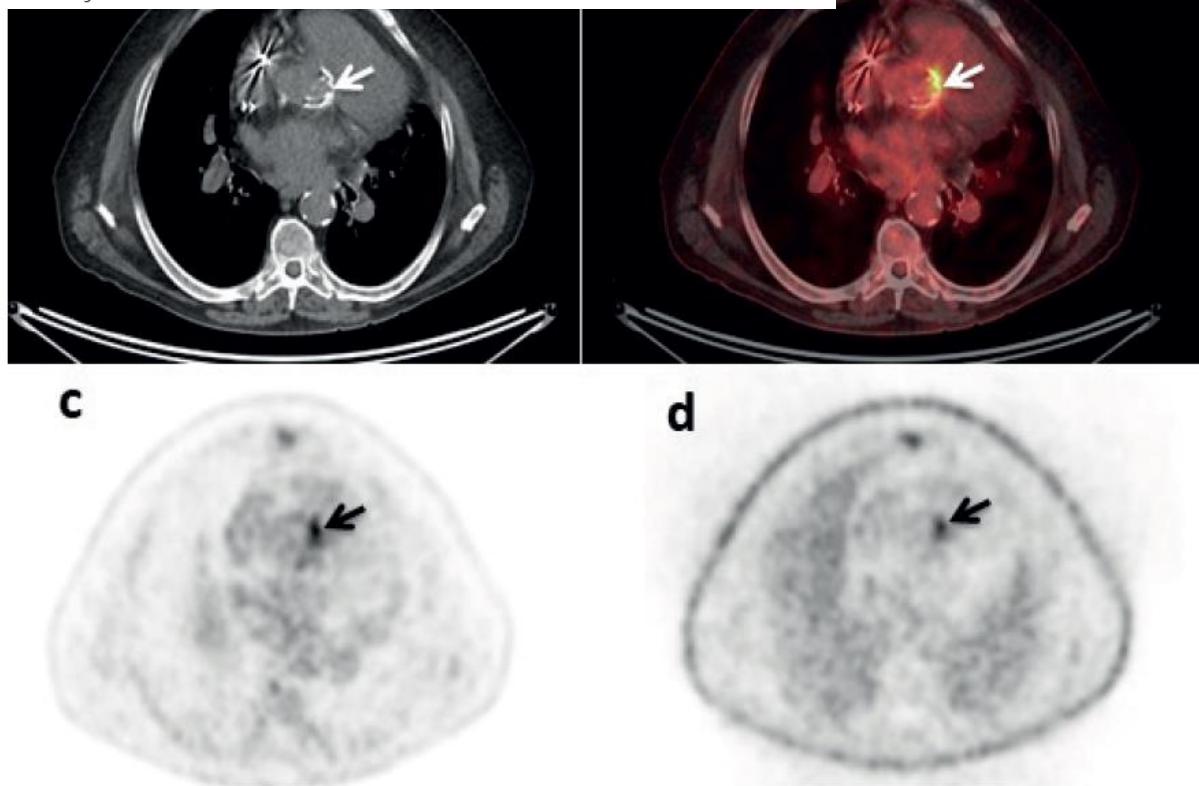
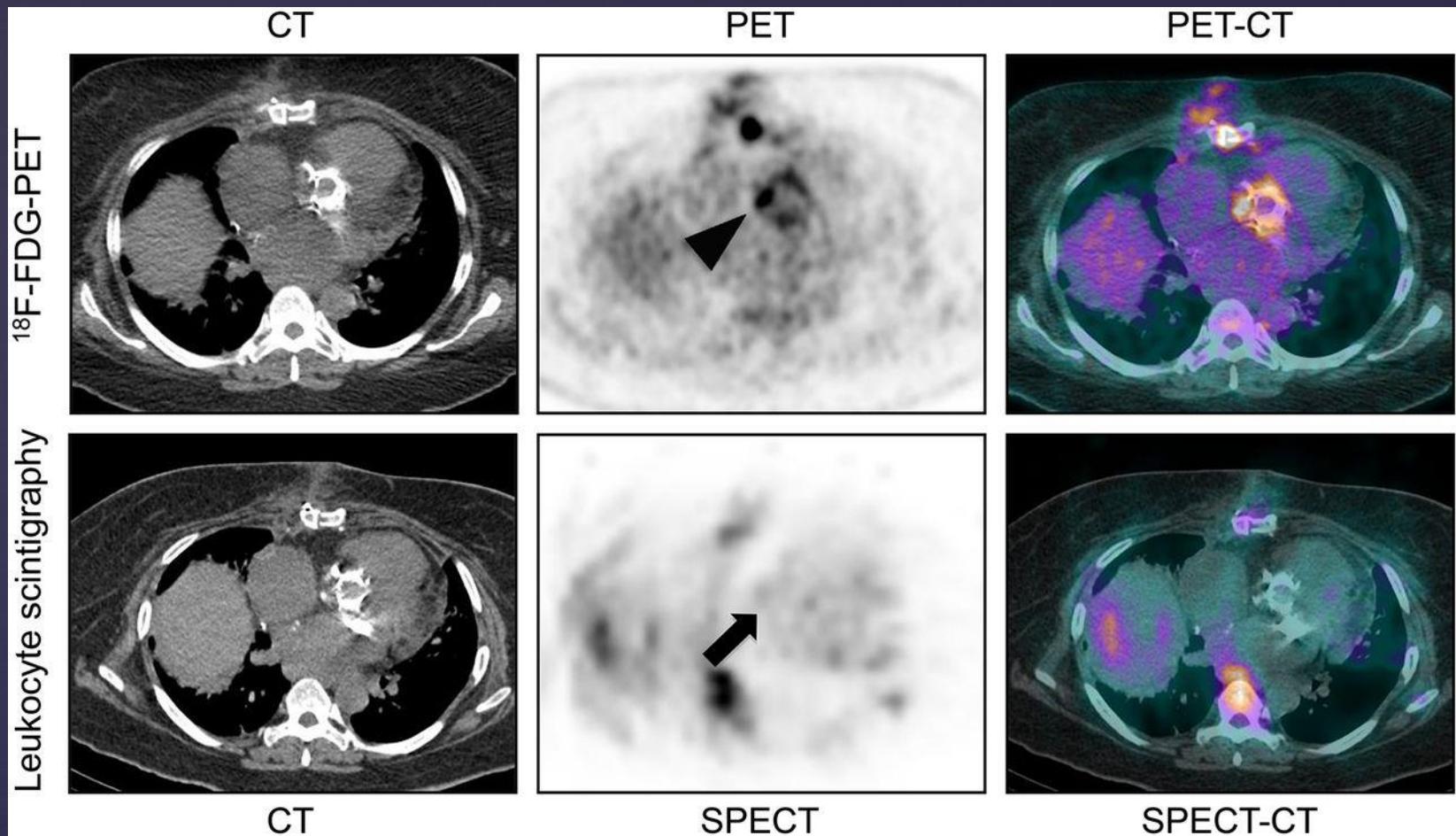
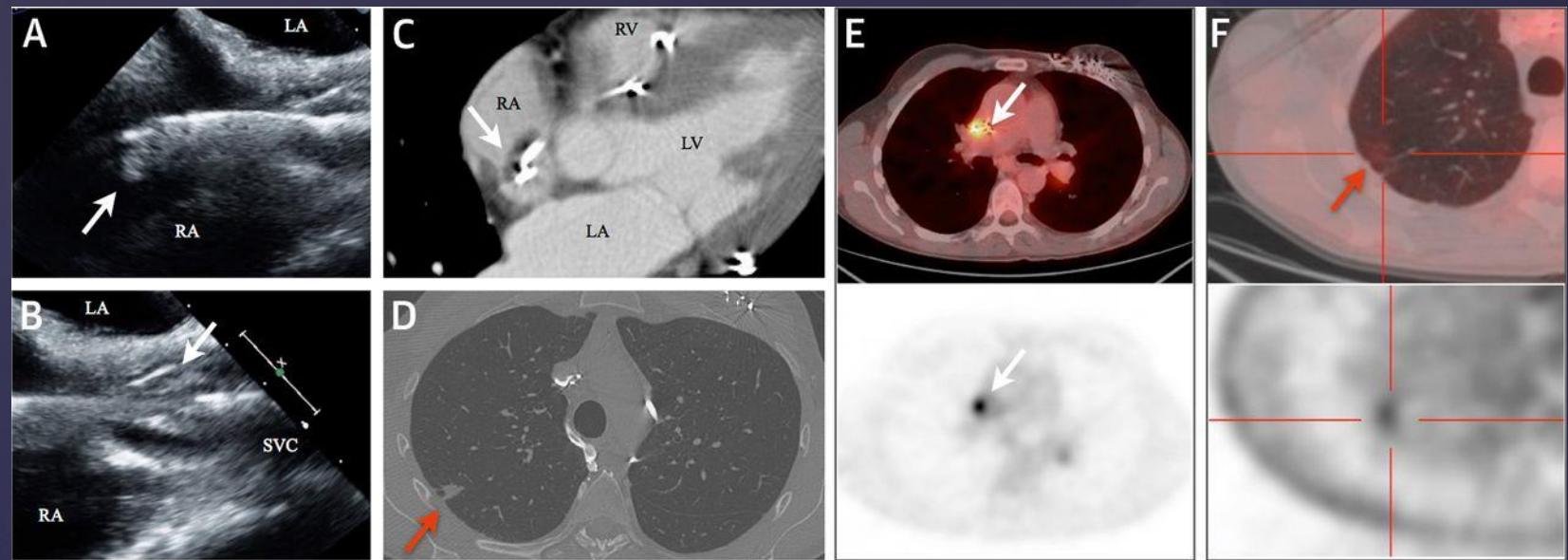


Figure 1. 18F-FDG PET/CT in a 76-year-old man with a biological aortic prosthetic valve implanted 1 year before referred for suspected IE. The valve is evident (arrow) in the CT transaxial image (a) of PET/CT scan. PET/CT fusion transaxial image (b) shows a linear increased uptake in the left lateral region of the valve (arrow). This pathological uptake is evident in the PET images both with attenuation correction (c) and without (d) attenuation correction and it is easily differentiated from the surrounding tissue.



Representative example of patient with false-positive 18F-FDG PET findings and true-negative leukocyte scintigraphy findings. François Rouzet et al. J Nucl Med 2014;55:1980-1985



Thomas J. Cahill et al. JACC 2017;69:325-344

Imaging

Cardiac imaging in infectious endocarditis

Niels Eske Bruun^{1*}, Gilbert Habib^{2*}, Franck Thuny², and Peter Sogaard¹

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¹Department of Cardiology, Gentofte University Hospital, Niels Andersens Vej 65, Hellerup 2900, Denmark; and ²Cardiology Department, Hôpital La Timone, Boulevard Jean Moulin, Marseille 13005, France

Received 21 April 2013; revised 29 May 2013; accepted 25 June 2013; online publish-ahead-of-print 30 July 2013

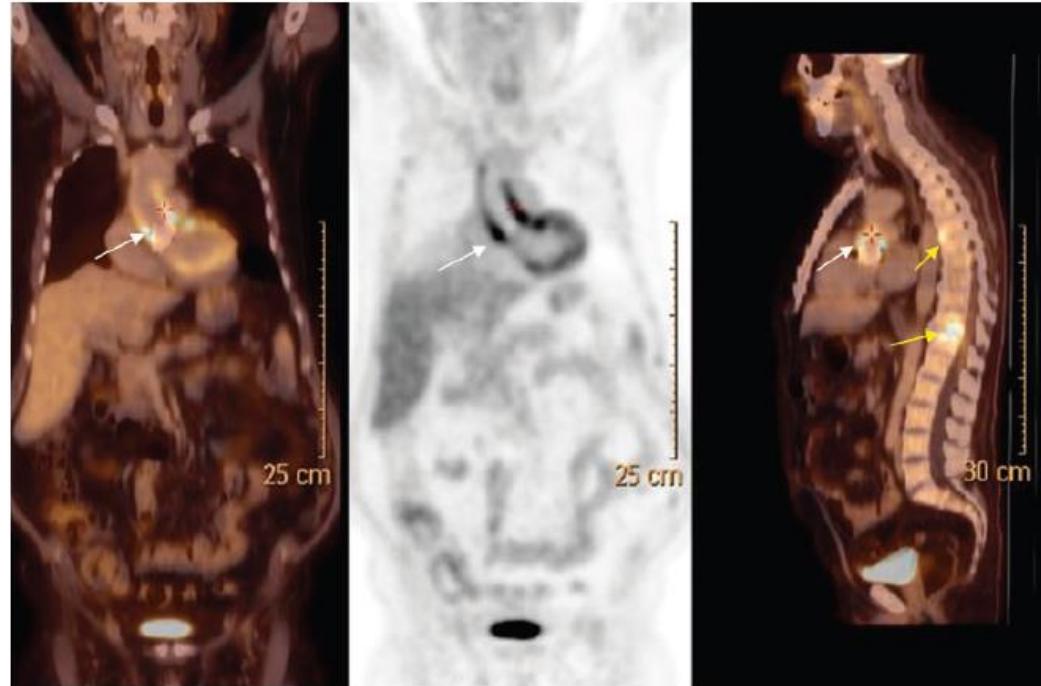


Figure 10 PET-CT of infected composite aorta graft (white arrows) inserted 16 years previously. Note the two foci in the thoracal column (yellow arrows).

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N.E. Bruun et al.

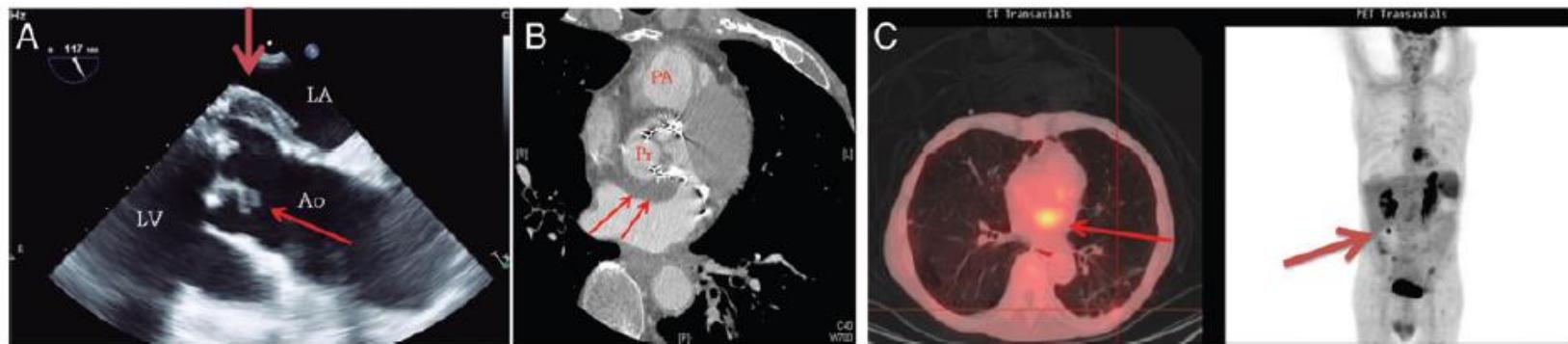


Figure 9 Multimodality imaging of a bioprosthetic aortic valve endocarditis. (A) Transoesophageal echocardiography: vegetation on a bioprosthetic leaflet (thin arrow) and posterior aortic root abscess (thick arrow). (B) Posterior aortic root abscess visualized by CT-scan (arrows). (C) PET-CT showing increased 18F-Fluorodeoxyglucose uptake on both the aortic prosthesis (left panel, arrow) and on a colonic tumour (right panel, arrow). LA, left atrium; LV, left ventricle; Ao, aorta; PA, pulmonary artery; Pr, prosthesis.

Meta-analysis of 18F-FDG PET/CT in the diagnosis of infective endocarditis

- ¶ 13 studier med 537 patienter.
- ¶ Sensitivitet för FDG-PET 77 % för infektiös endokardit.
- ¶ Specificitet för FDG-PET 78 % för infektiös endokardit.
- ¶ Extracardiella foci hittade man hos 17 %
- ¶ Conclusion: PET/CT is a useful adjunctive diagnostic tool in the evaluation of diagnostically challenging cases of IE, particularly in prosthetic valve endocarditis. It also has the potential to detect clinically relevant extracardiac foci of infection, malignancy, and other sources of inflammation leading to more appropriate treatment regimens and surgical intervention.

Mahmood, M., Kendi, A. T., Ajmal, S., Farid, S., O'Horo, J. C., Chareonthaitawee, P., ... Rizwan Sohail, M. (Accepted/In press). Meta-analysis of 18F-FDG PET/CT in the diagnosis of infective endocarditis. *Journal of Nuclear Cardiology*, 1-14. <https://doi.org/10.1007/s12350-017-1092-8>

