

# Nuclear Medicine Imaging

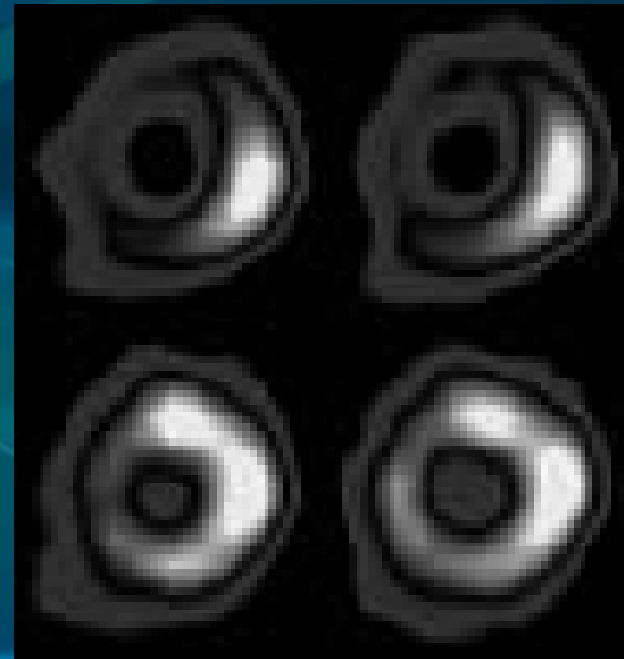
- Hot Spot Images ; Areas of increased flow and metabolism
- Ex... Met static disease, Inflammatory processes
- Cold Spot Images ; Areas of diminished flow or metabolism
- Ex... Cardiac Perfusion Infarct

# Clinical Indications

- Hot Spot Bone



Cold Spot Thallium

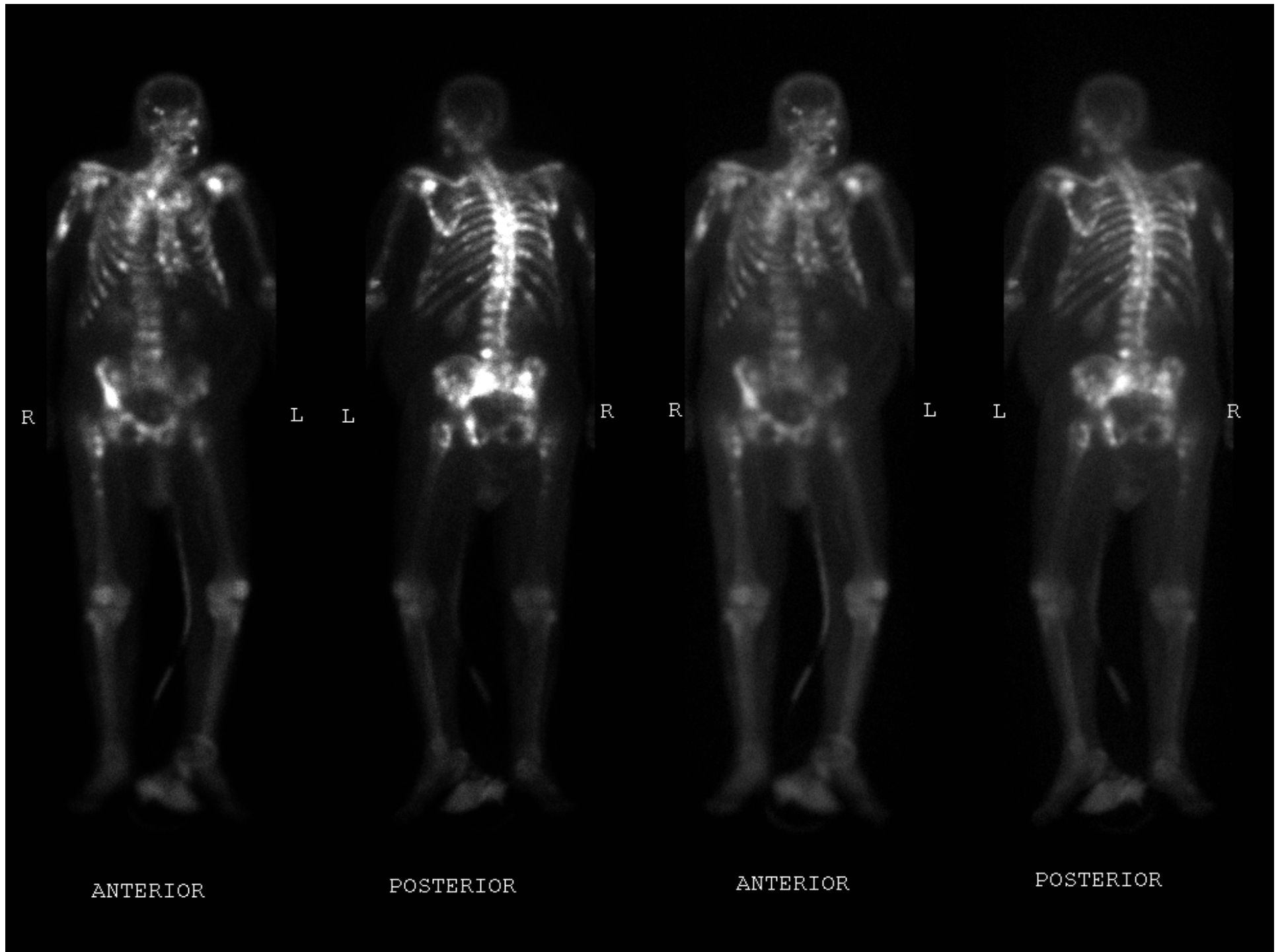


# Frequently Performed Examinations

- Bone scans
  - Reasons to have a bone scan:
    - Fractures
    - Bone metastases
    - To investigate unexplained bone or back pain
    - Follow up lesion seen on plain x-ray
    - A vascular necrosis

# Frequently Performed Examinations

- Reasons to have a bone scan:
  - Investigate possible child abuse
  - To establish viability of bone graph
  - Reflex sympathetic dystrophy (RSD)



R

L L

R R

L L

R

ANTERIOR

POSTERIOR

ANTERIOR

POSTERIOR

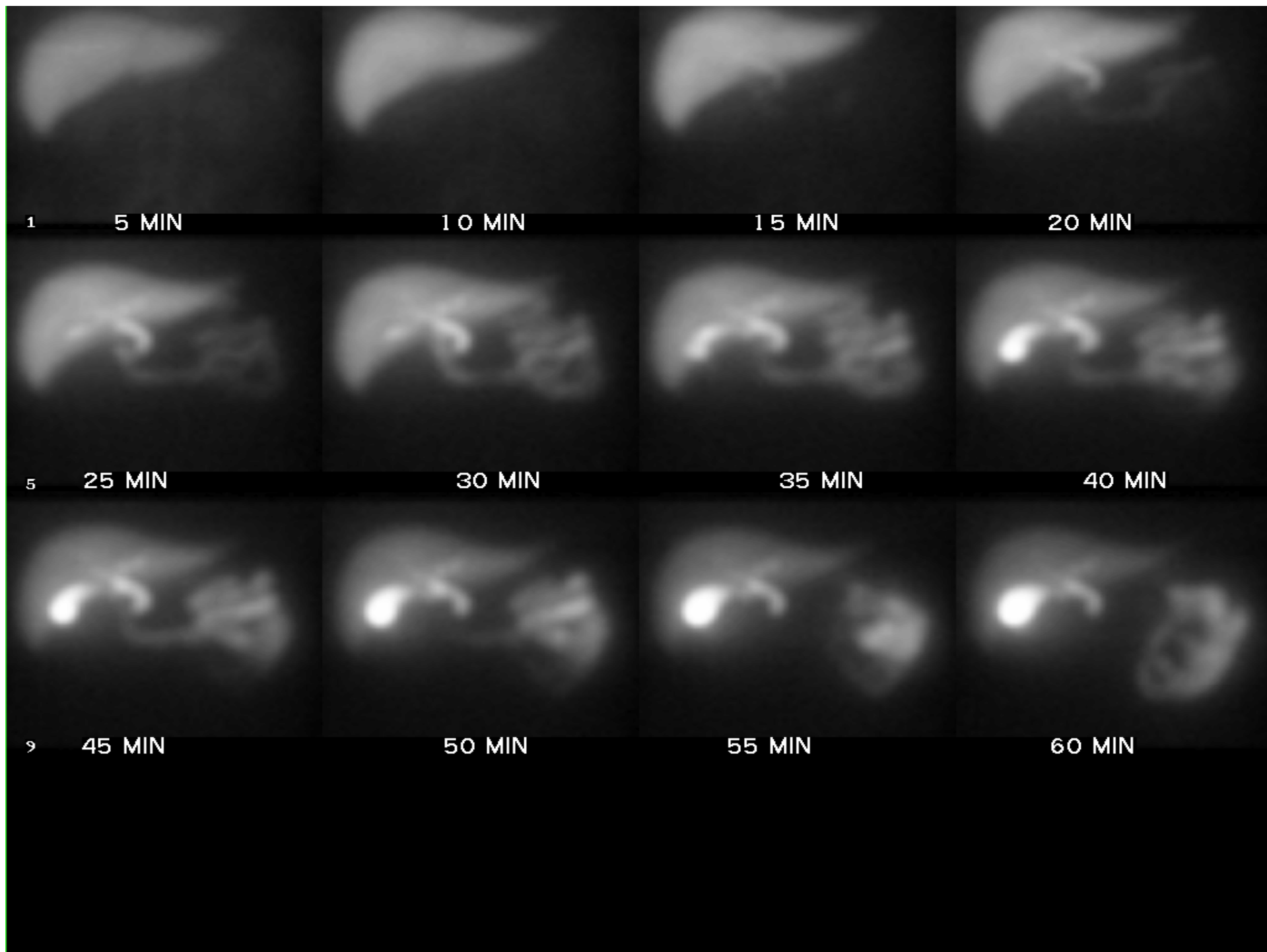


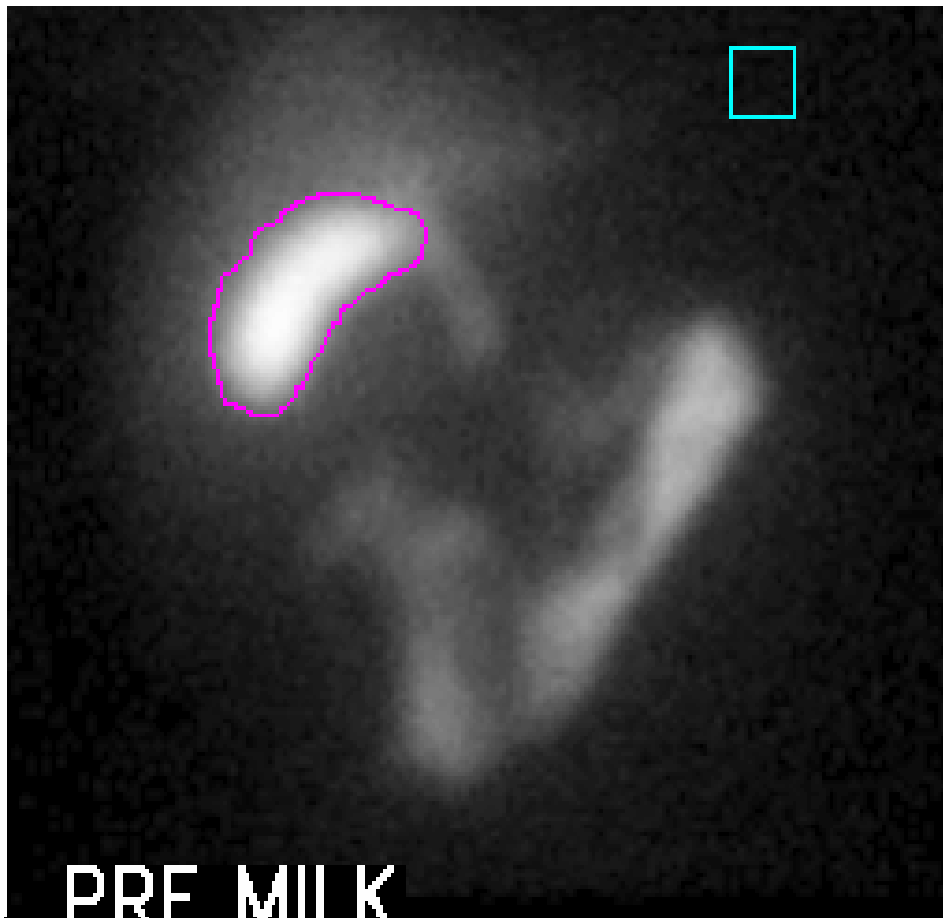


# Frequently Performed Examinations

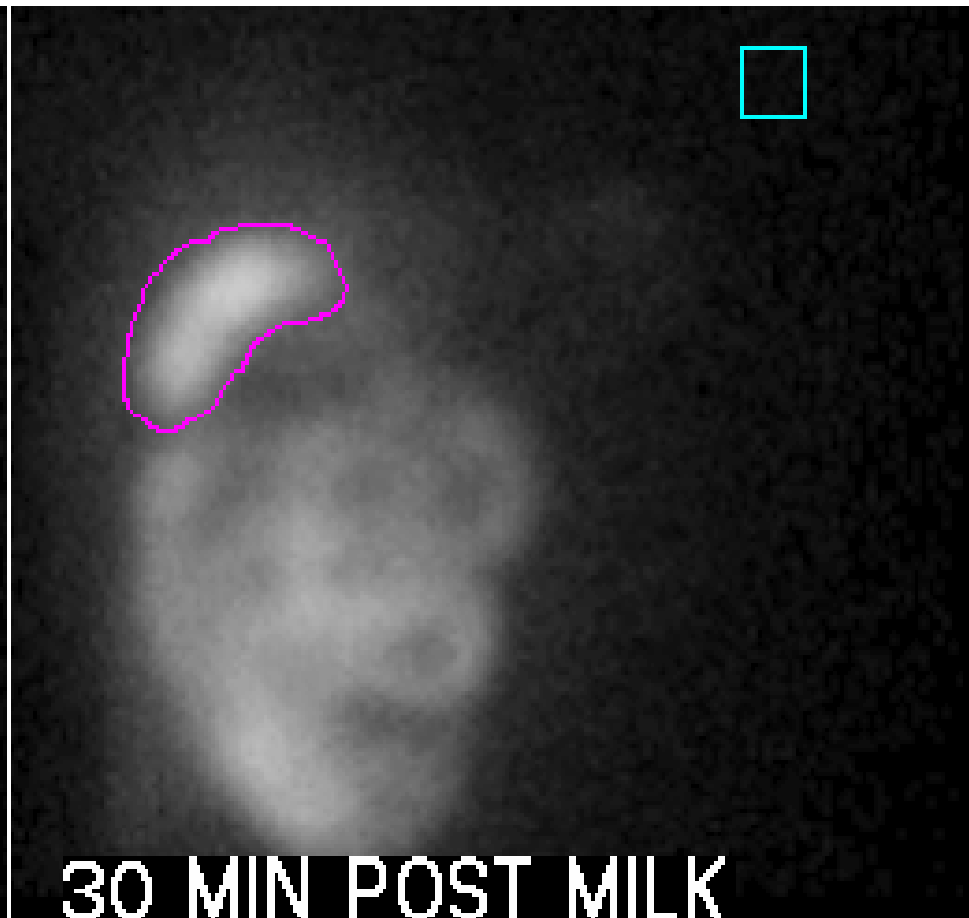
- Hepatobiliary scans
  - Reasons to have hepatobiliary scans:
    - To diagnose suspected acute cholecystitis
    - To investigate possible biliary obstruction
    - To detect biliary leak







PRE MILK  
205733 CTS

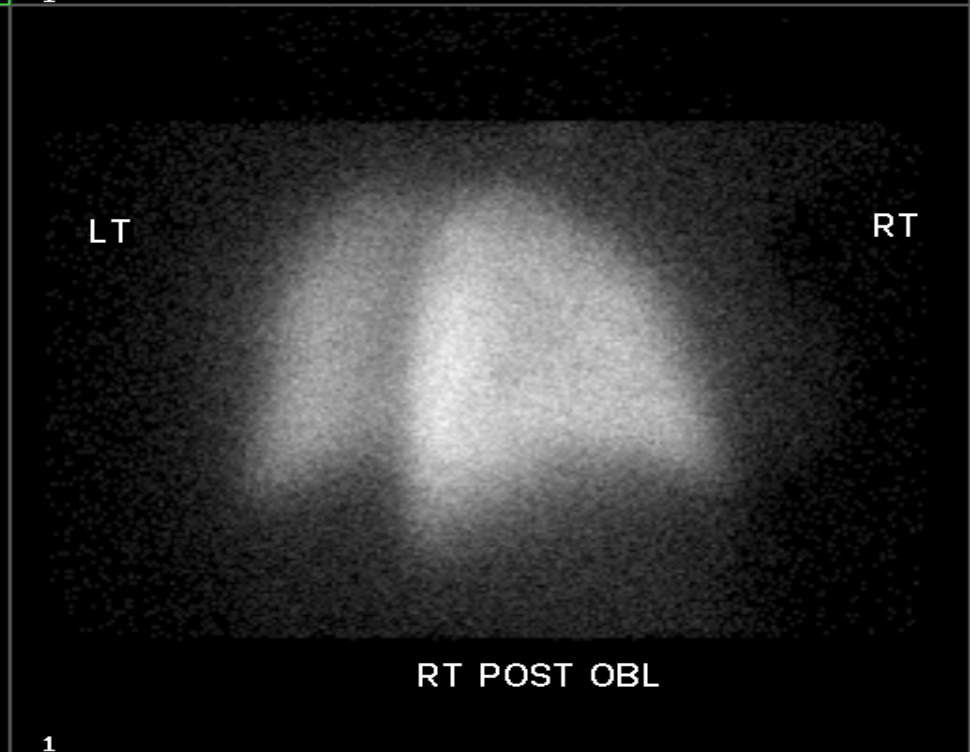
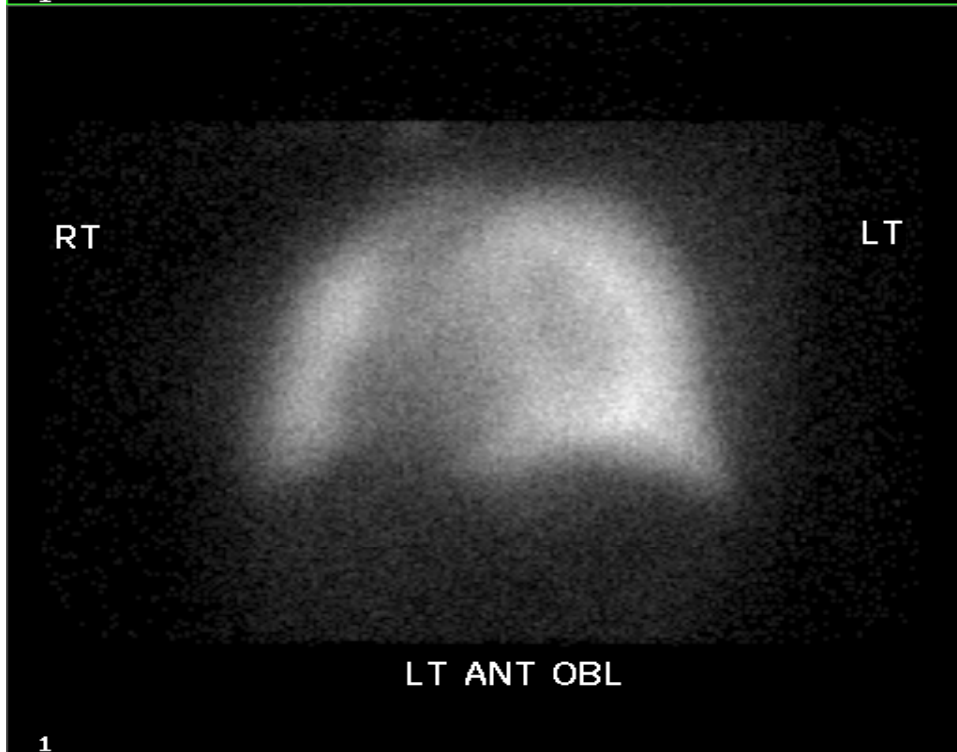
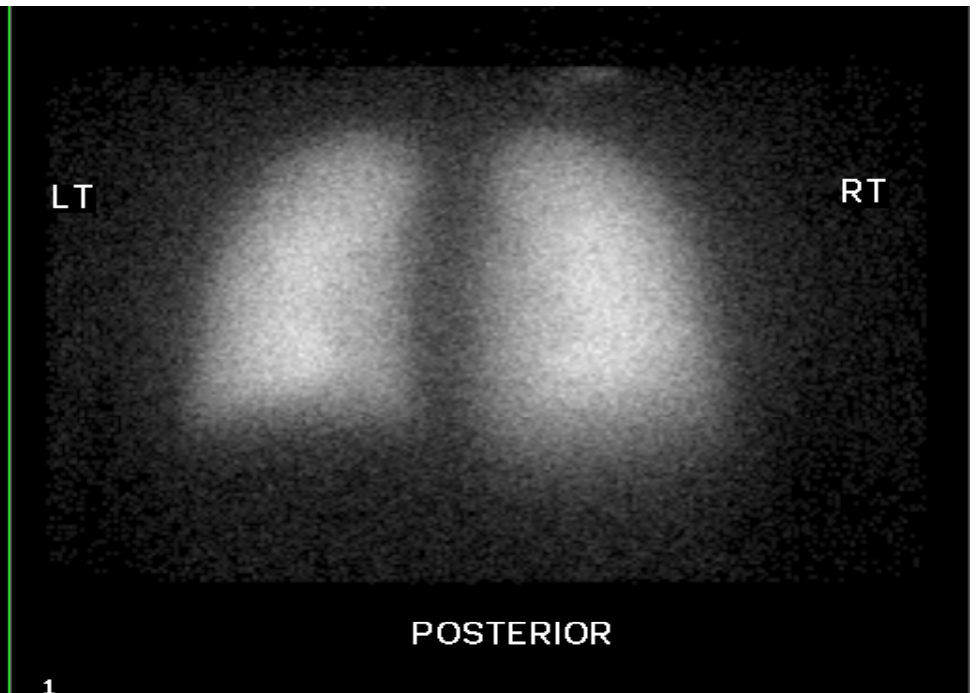
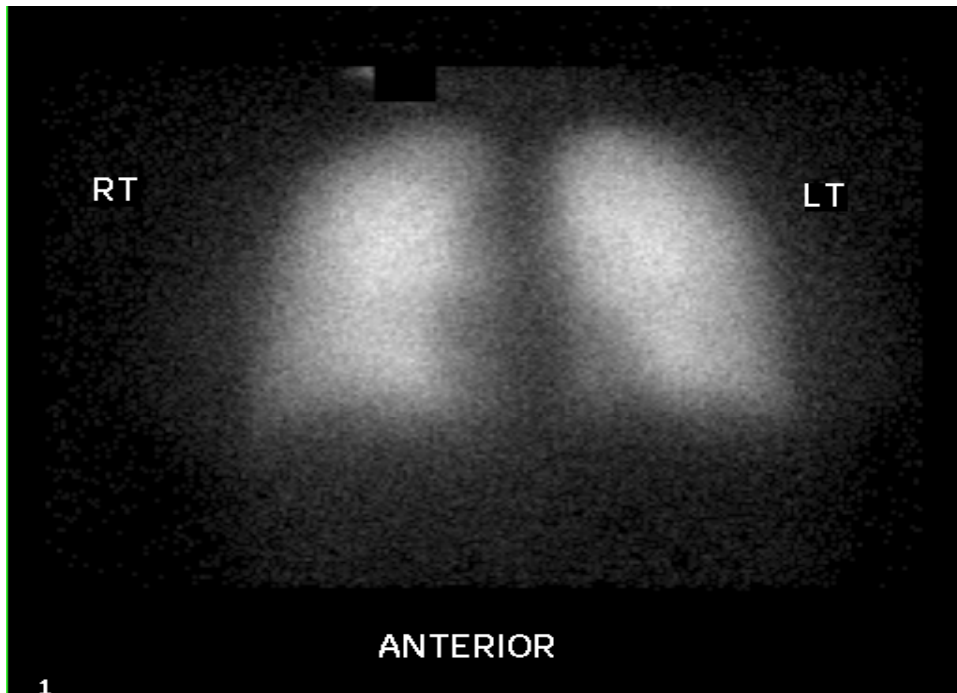


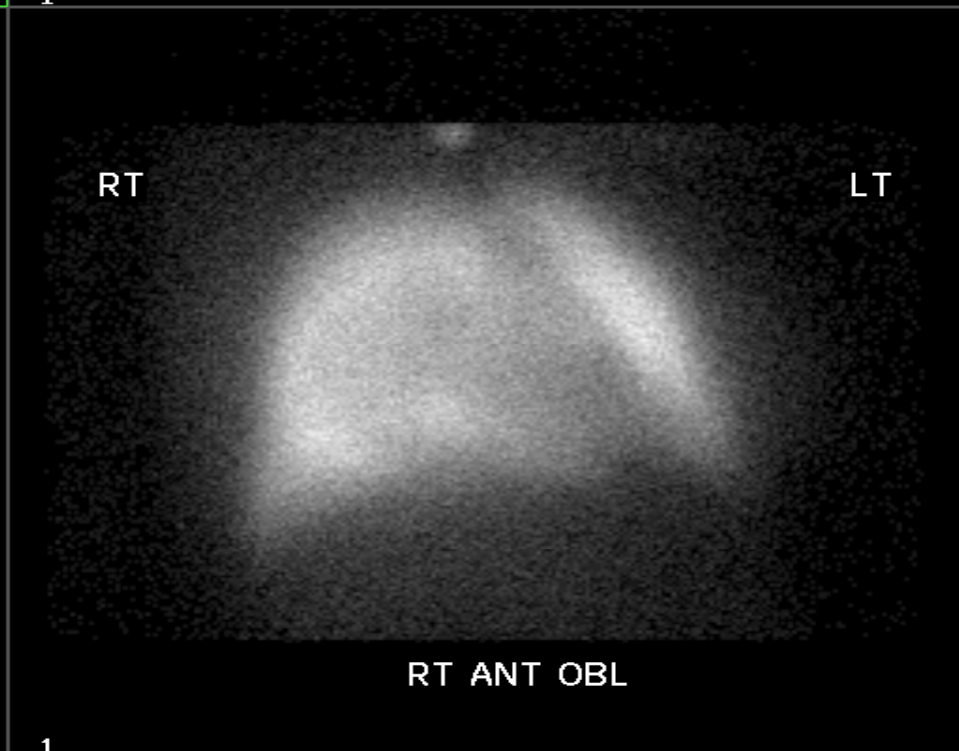
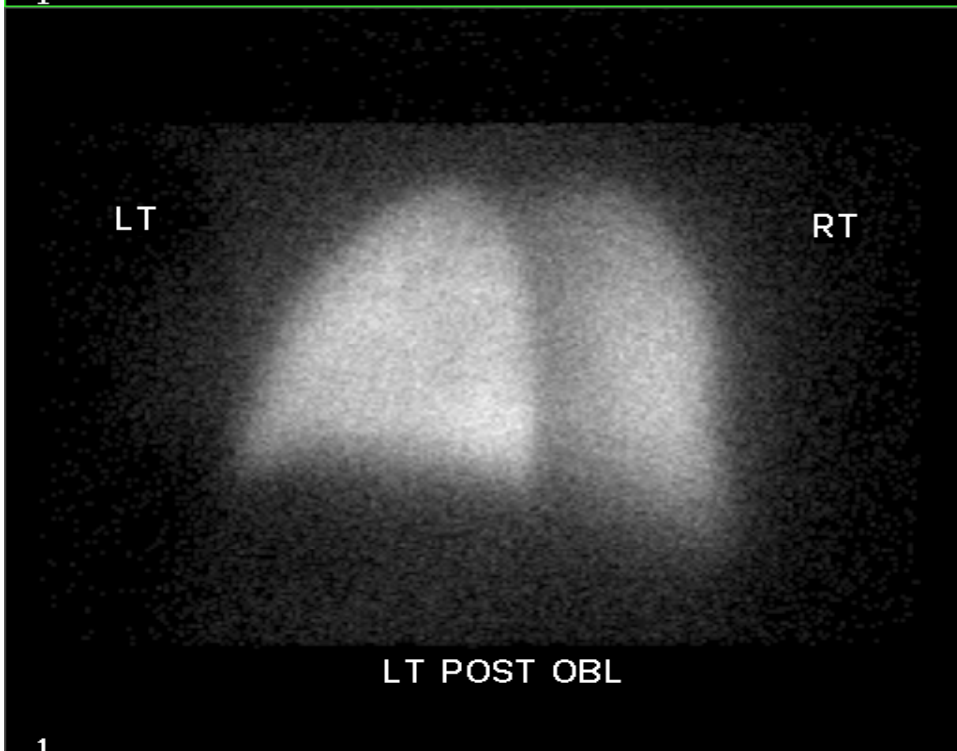
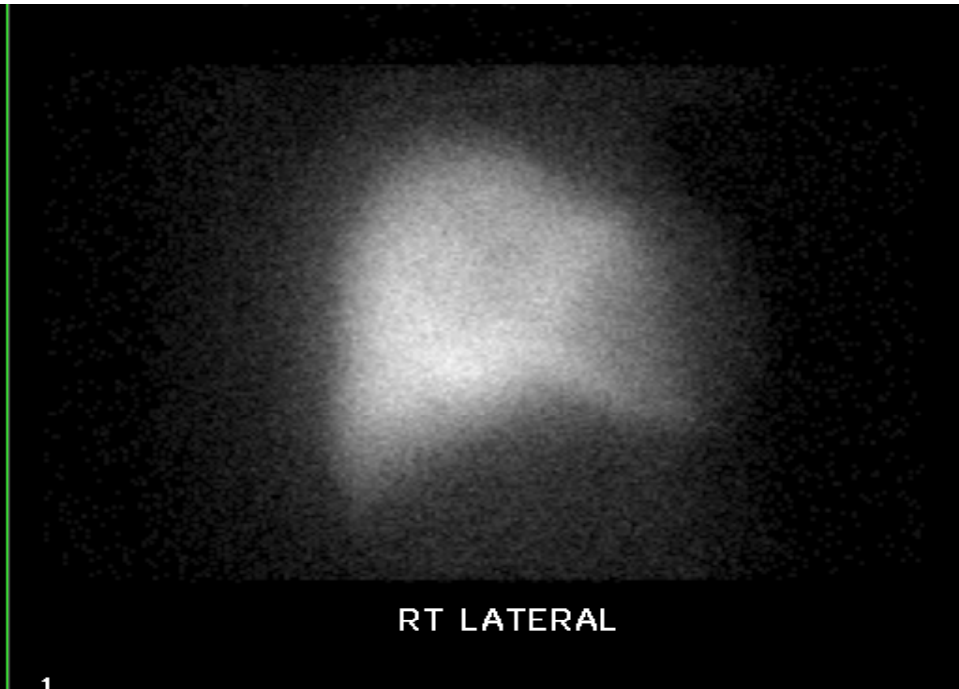
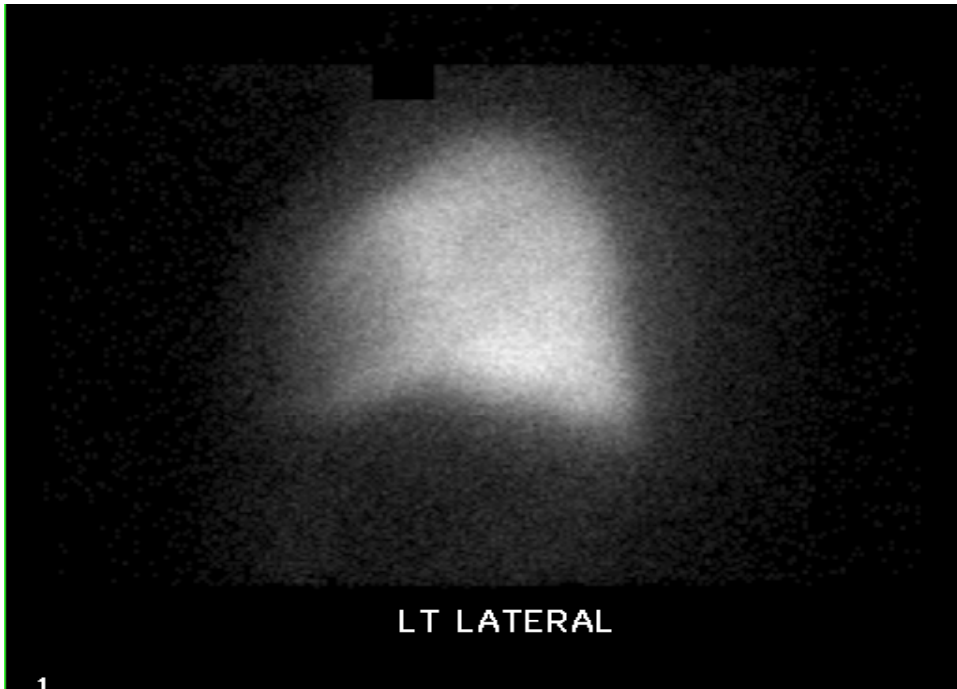
30 MIN POST MILK  
92501 CTS

Total Ejection Fraction --  
Ejection Fraction: 52.40 %  
Ejection Rate: 1.71 %/min

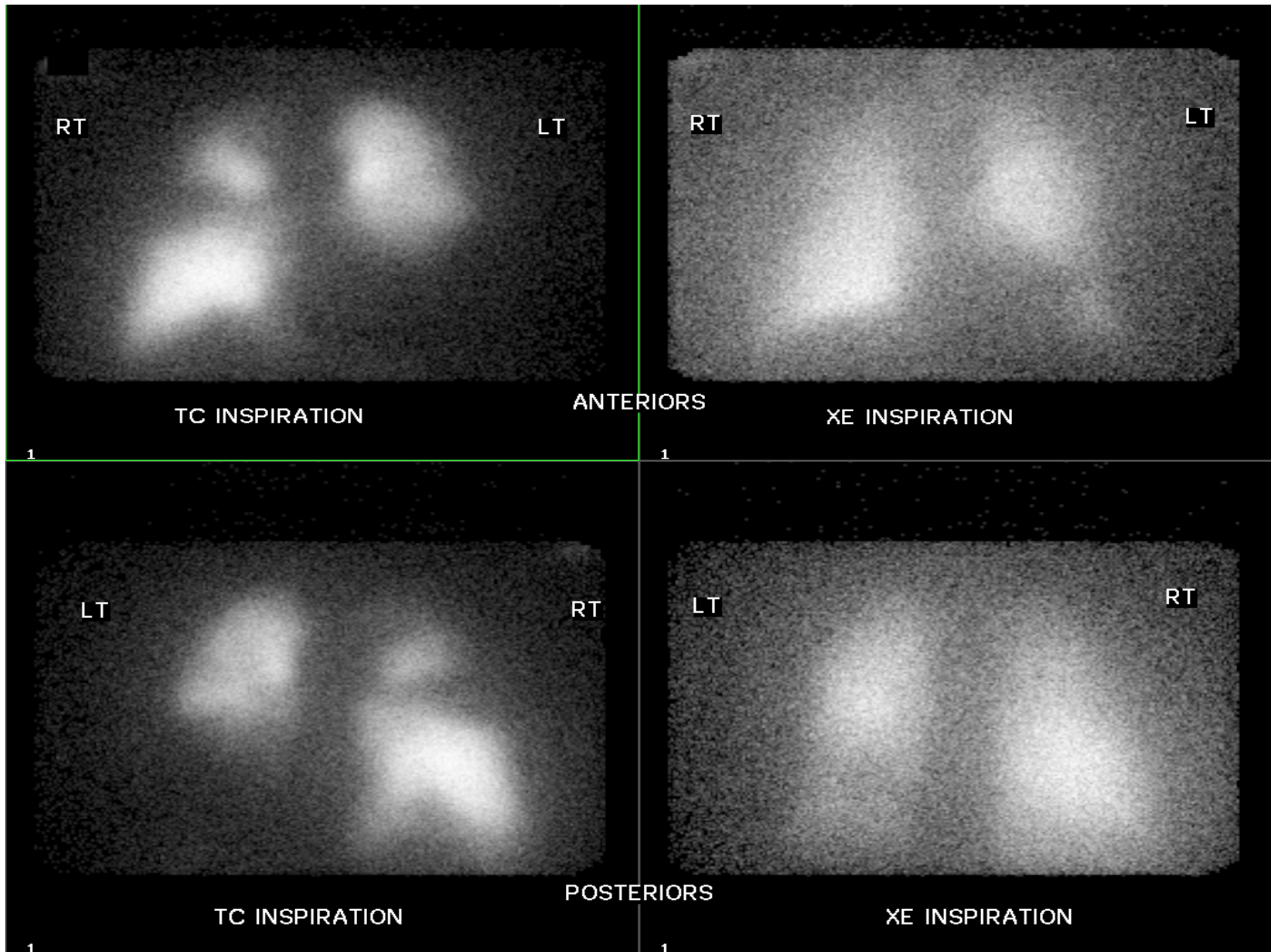
# Frequently Performed Examinations

- Lung Imaging
  - Reasons for lung imaging:
    - To diagnose pulmonary embolism
    - To diagnose recurrence of pulmonary embolism
    - To predict quantitative residual lung function after lung surgery









# Frequently Performed Examinations

- Myocardial perfusion imaging
  - Reasons for myocardial perfusion imaging:
    - To confirm known or suspected coronary artery disease
    - To differentiate between coronary and non-coronary chest pain
    - To assess cardiac risk for preoperative patients having surgery
    - Follow up patients after heart surgery

SHORT AXIS-S'R

SHORT AXIS-R'I

SHORT AXIS-S'R

SHORT AXIS-R'I

VERTICAL-S'R

VERTICAL-R'I

HORIZONTAL-S'R

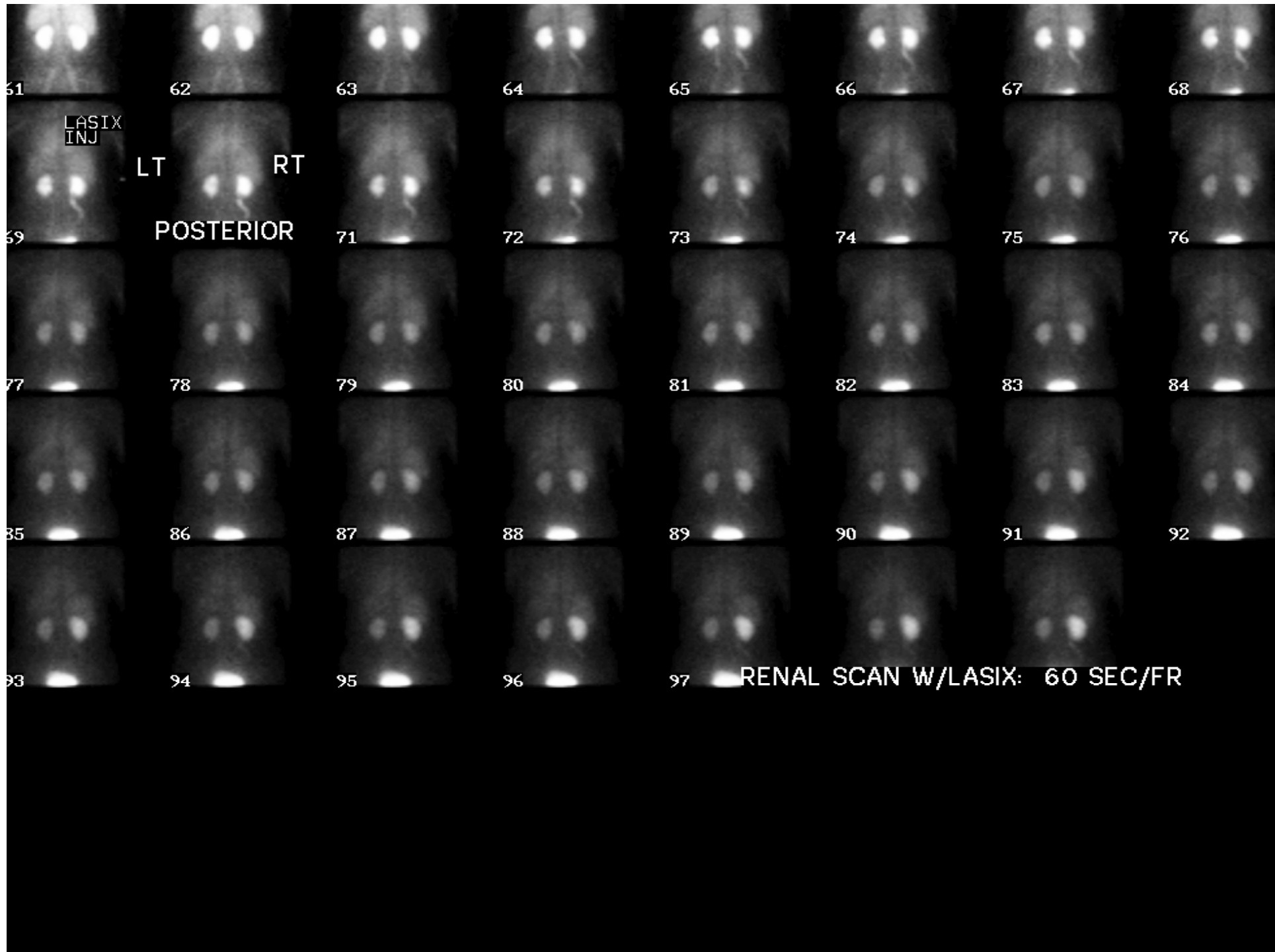
HORIZONTAL-R'I





# Frequently Performed Examinations

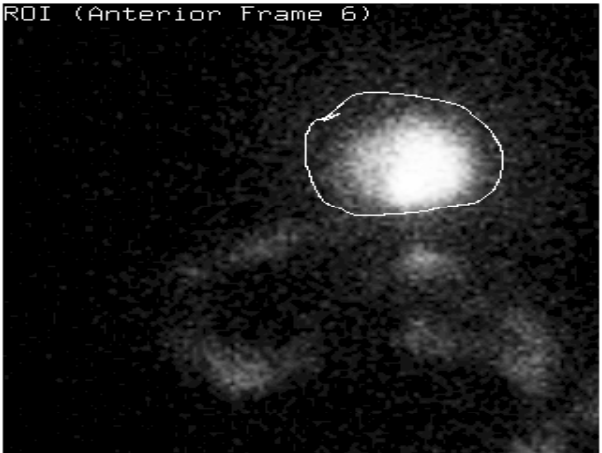
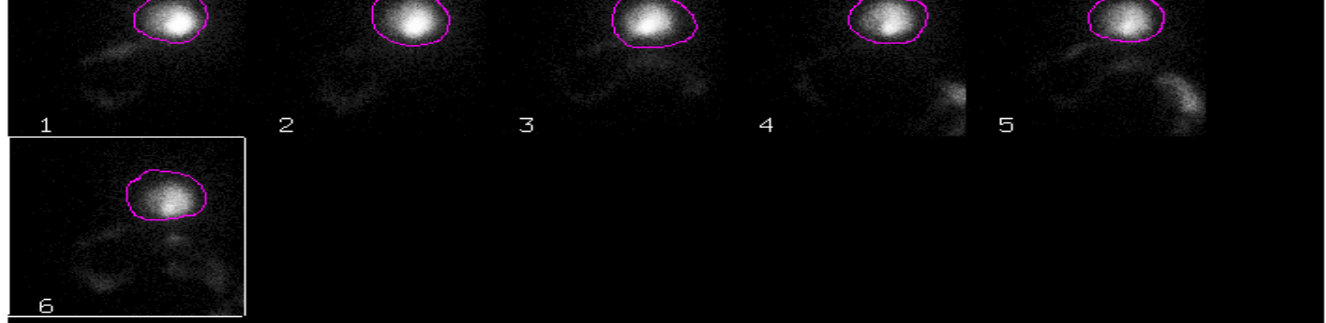
- Renal Imaging
  - Reasons for renal imaging :
    - To assess function of kidneys
    - To diagnose or exclude urinary tract obstruction



# Frequently Performed Examinations

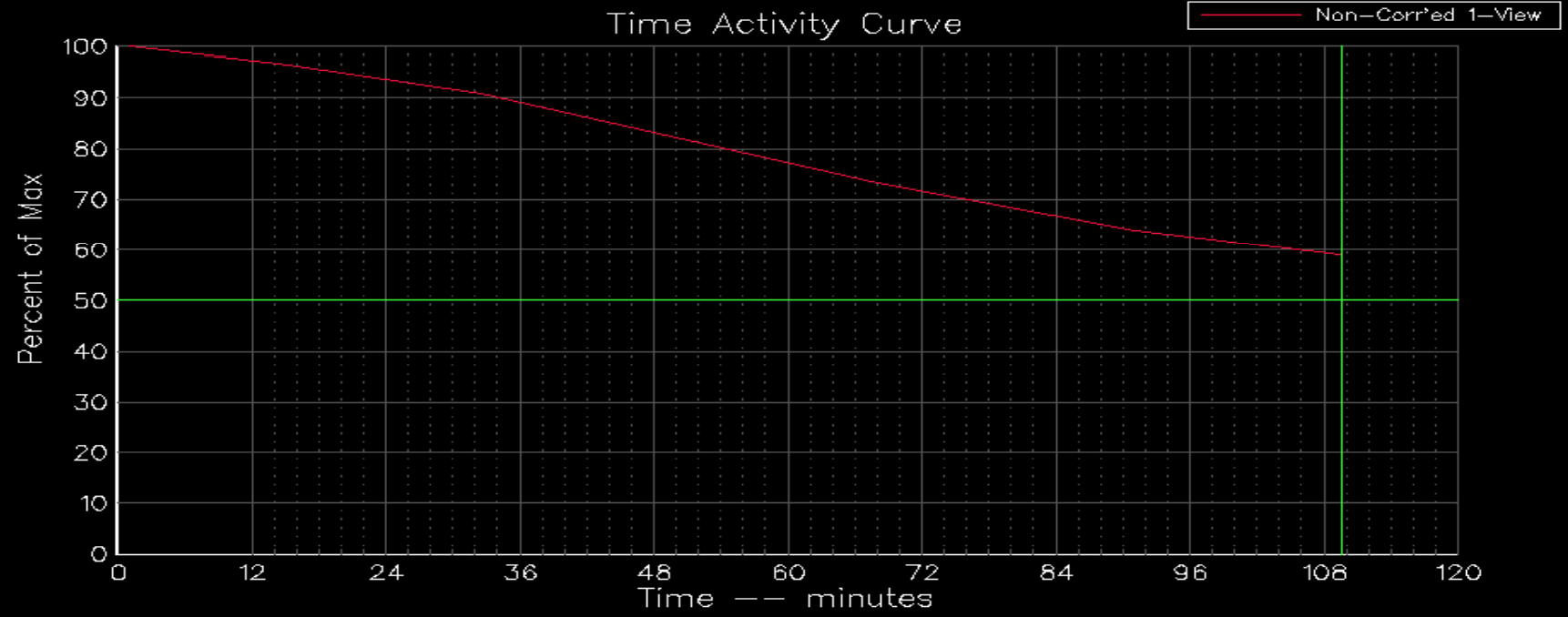
- Gastric Empty Study
  - Reasons for gastric empty study:
    - To determine emptying rate of stomach

KING, JOHN W  
0697632 - GASTRIC EMPTYIN  
08-Mar-2005 11:54



Max ROI Counts = 38954  
Actual: T 1/2 = N/A  
Est 1: T 1/2 = 120.94 min  
Est 2: T 1/2 = 169.17 min

Time Activity Curve

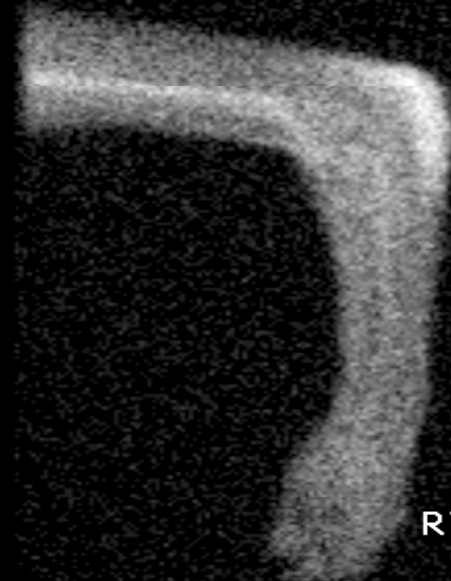


# Frequently Performed Examinations

- Infectious Imaging
  - Reasons for infectious imaging:
    - To localize site of infection



45 MIN POST INJ



RT LATERAL

50 MIN POST INJ



LT LATERAL

1

1 HR POST INJ

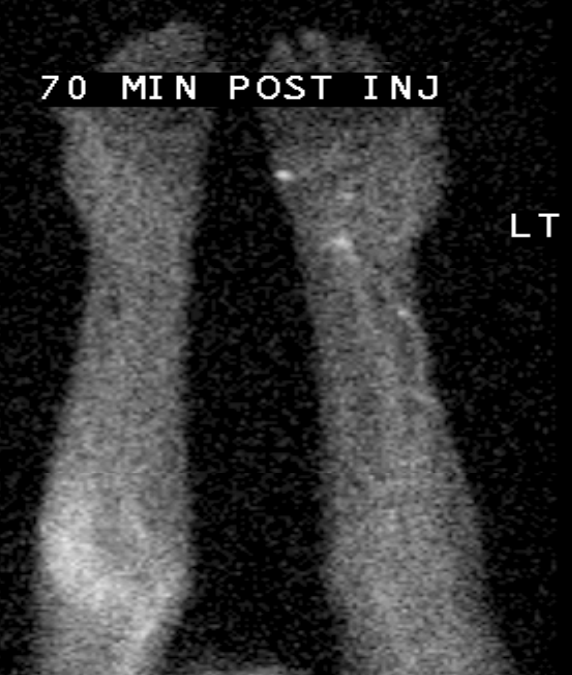
RT



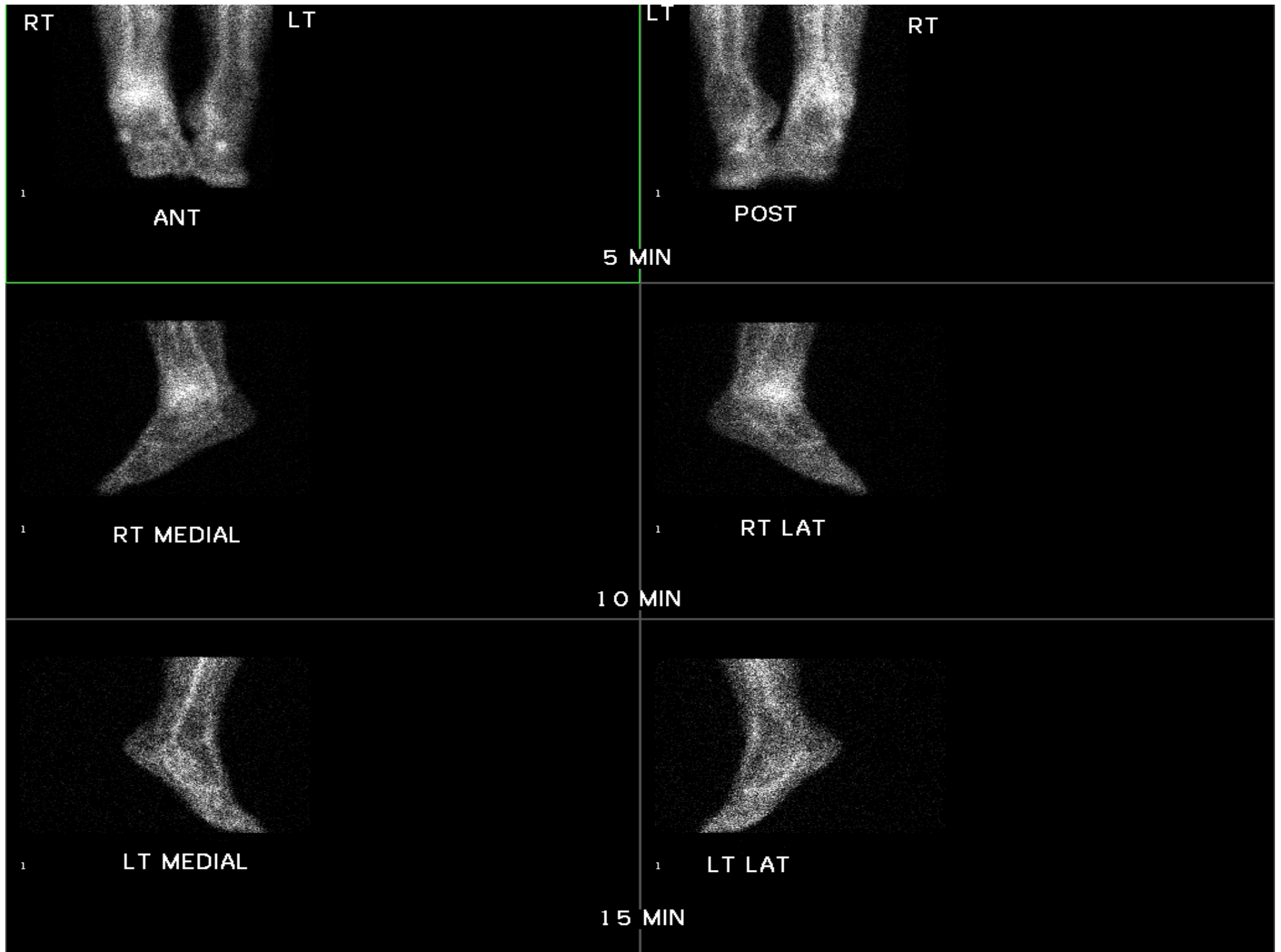
LT

70 MIN POST INJ

RT



LT



# Frequently Performed Examinations

- Positron Emission Tomography PET
  - Reasons to have pet imaging:
    - Detect diagnose, stage, and restage cancer
    - Monitor cancer therapy
    - Myocardial viability
    - Evaluate patients for dementia

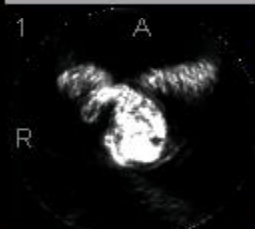
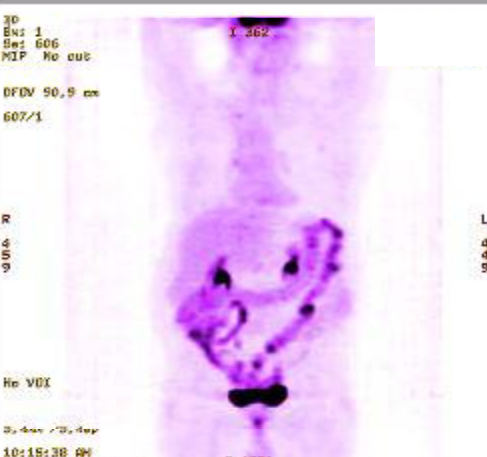

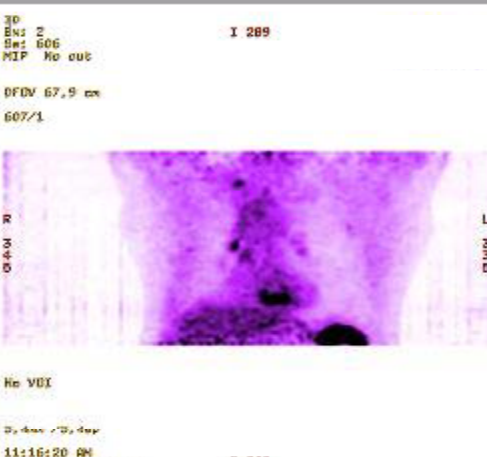


### Patient History Timeline



Most Recent: 09/26/2005

Least Recent

<p>8 Jun Acc# 279346</p>  <p>Thorax w/ 10680/5346 PET WB Series #5263 Images</p>	<p>8 Jun, 2005 10:15:38 Acc# 279346</p>  <p>Thorax^1WBPETCT w/l: 0/0 Screen save Series #607 50 Images</p>	<p>8 Jun, 2005 11:14:38 Acc# 279346</p>  <p>Thorax^1WBPETCT CT SCAN 5.0 B30s w/l: 500/50 Screen save Series #2 113 Images</p>	<p>8 Jun, 2005 11:16:20 Acc# 279346</p>  <p>Thorax^1WBPETCT w/l: 0/0 Screen save Series #607 50 Images</p>
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3D  
Ex: 1  
Se: 606  
MIP No cut

DFOV 90,9 cm

607/1

R

4  
5  
9

No VDI

3,4mm /3,4sp

09:34:06 AM  
m=0,0 M=0,5  $\mu$ Ci/ml

I 1275

I 387

L

4  
4  
9

Coronal Fusion

Ex: 1  
Se: 606  
A: 203,1

I 384

DFOV 52,0 cm

607/2

50 % PET

R

2  
5  
4

10,0/Average

3,4mm /3,4sp

01:21:07 PM  
m=0,0 M=18,3 kBq/ml

I 904

Coronal Fusion

Ex: 1

Se: 606

A: 139.1

DFOV 78.5 cm

608/2

50 % PET

R

3

9

5

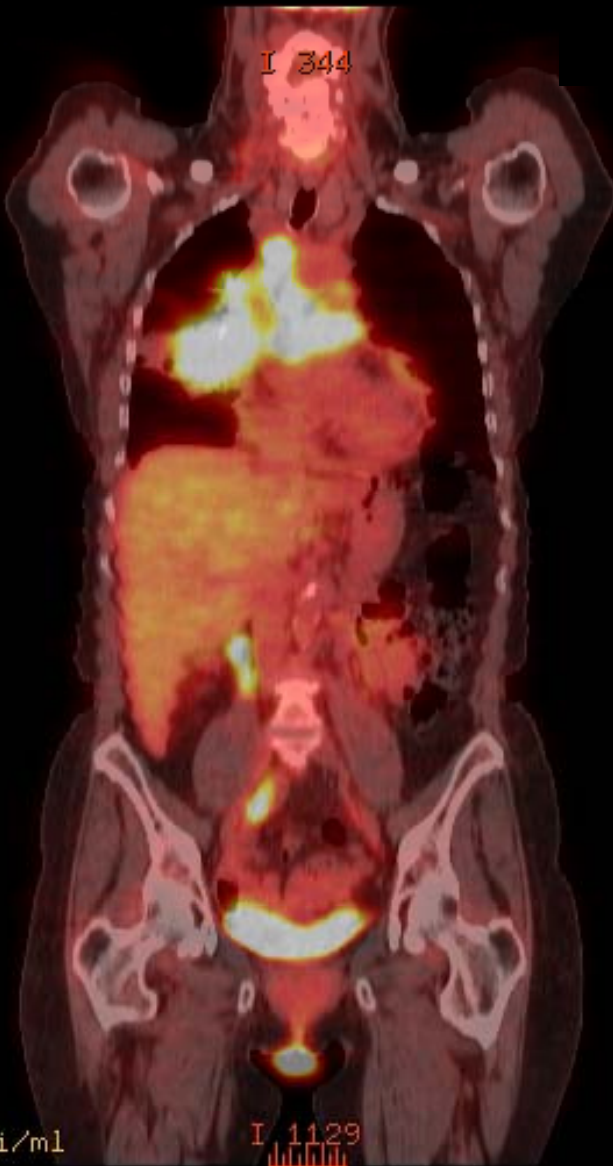
10.0/Average

3.4mm /3.4sp

02:40:59 PM

m=0.0 M=1.1  $\mu\text{Ci/ml}$

I 344



Coronal Fusion

Ex: 1

Se: 606

A: 101.9

DFOV 78.5 cm

608/3

50 % PET

R

3

9

5

10.0/Average

3.4mm /3.4sp

02:40:59 PM

m=0.0 M=1.1  $\mu\text{Ci/ml}$

I 344

