

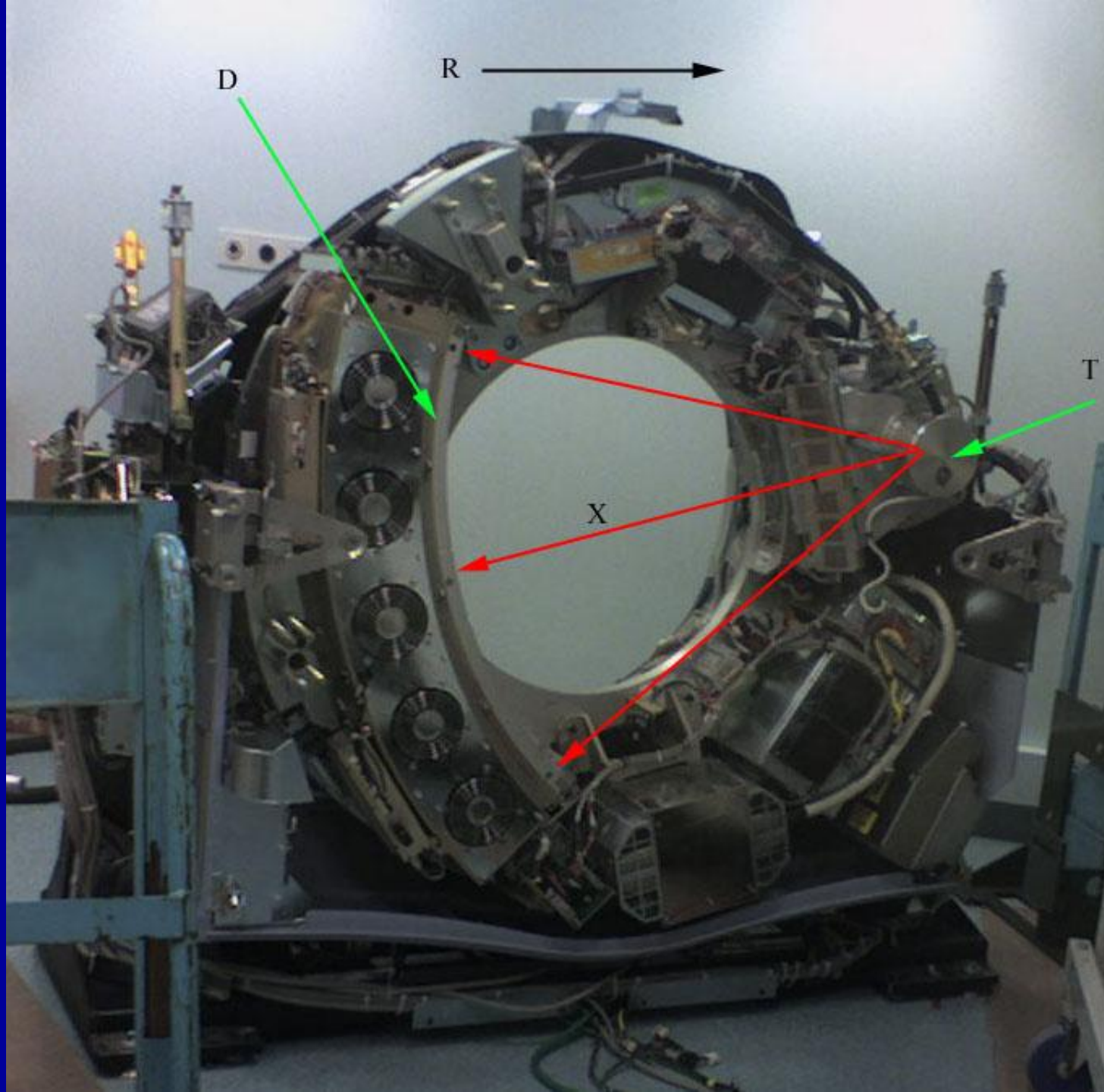
# CT: Gastrointestinal Applications

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Hammersmith Hospital

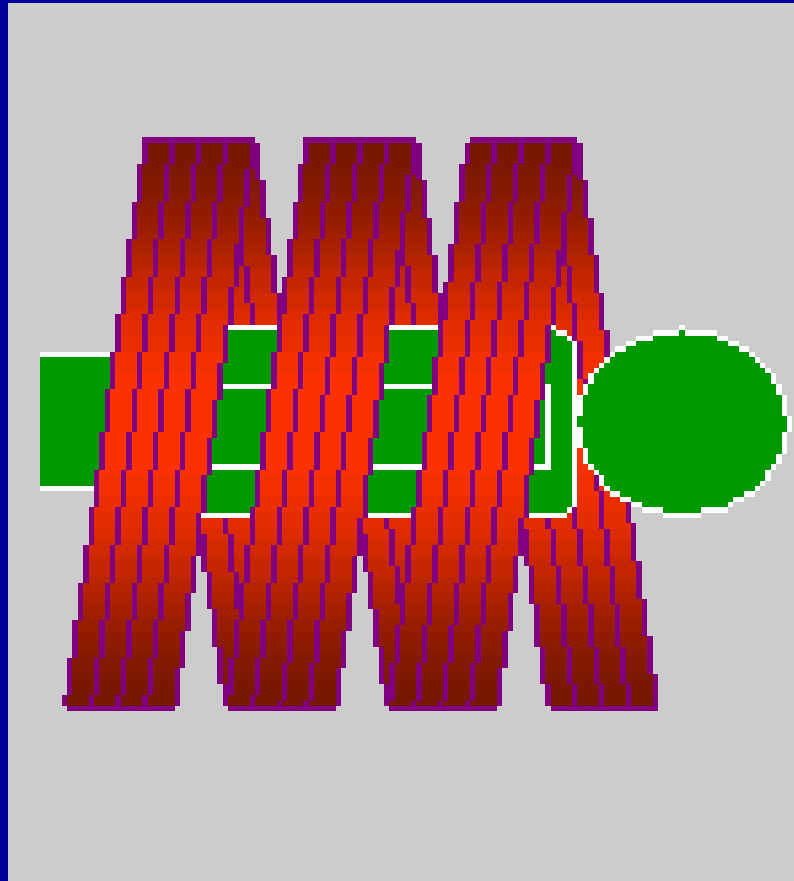


# CT





# Spiral CT and multislice

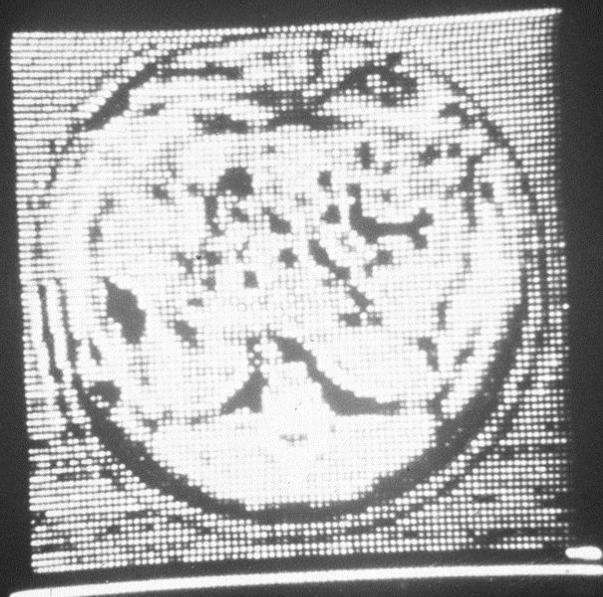


# CT Technology

- Multidetector CT- now up to 320 rows
- subsecond revolution-cardiac CT
- Scan a volume of the body and manipulate it to produce:

Multiplanar reformats

3D reconstruction



# Hounsfield Unit (HU)

HU-Amount of x-ray absorption with  
reference to water

Water 0 HU

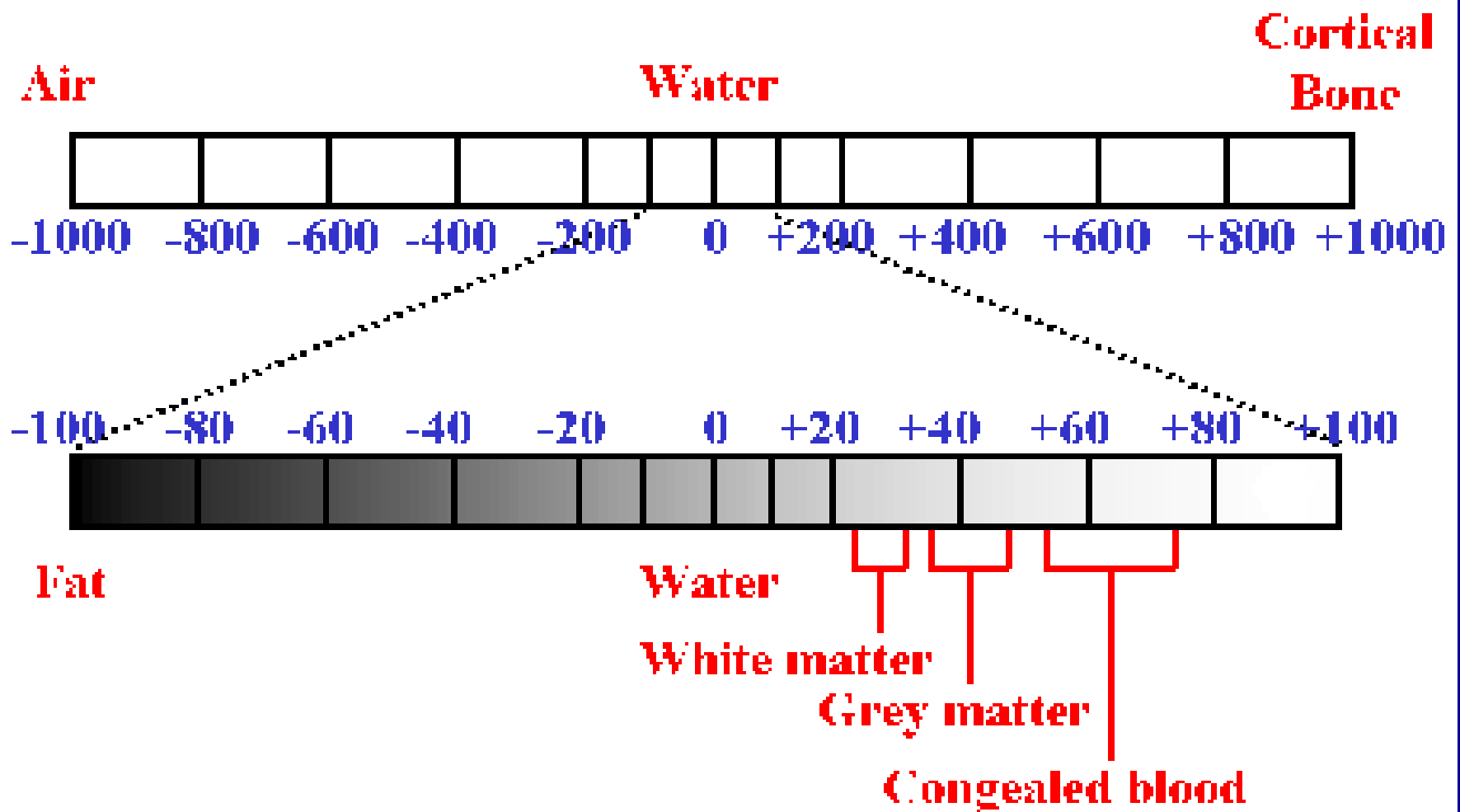
Air -1000 HU

Calcium + 1000 HU

Most solid organs approx + 30-60 HU

Fat -30 to -60 HU

# Hounsfield Scale

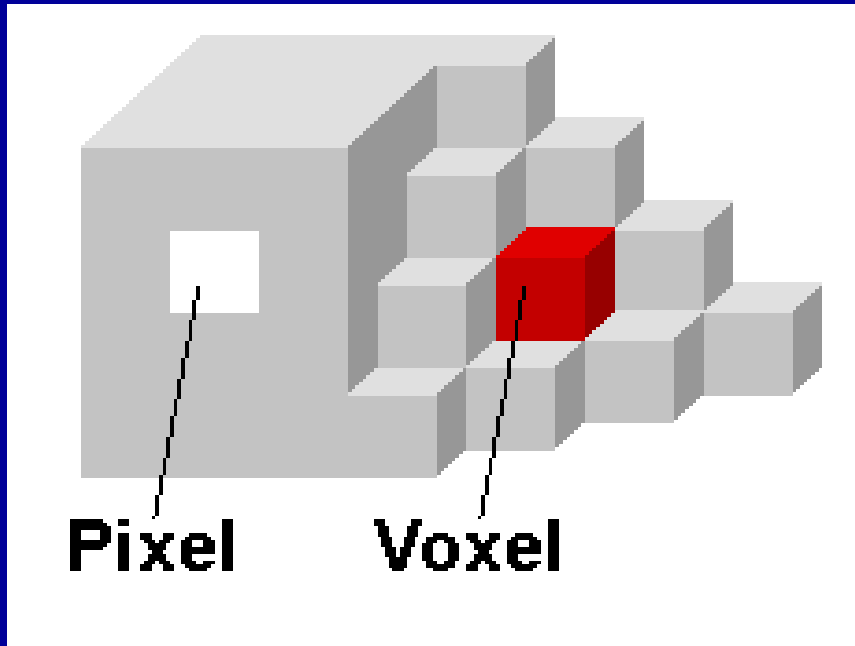




# Window level and width

- 2000 levels of “grey”
- Eye can only see about 10
- View on soft tissue, lung, bone & brain windows
- Lungs: Window level -600
- Soft tissue : Window level +40
- Bone : Window level +300
- Window width is the range of values chosen either side of this level to produce optimum contrast resolution

# Formation of a CT image

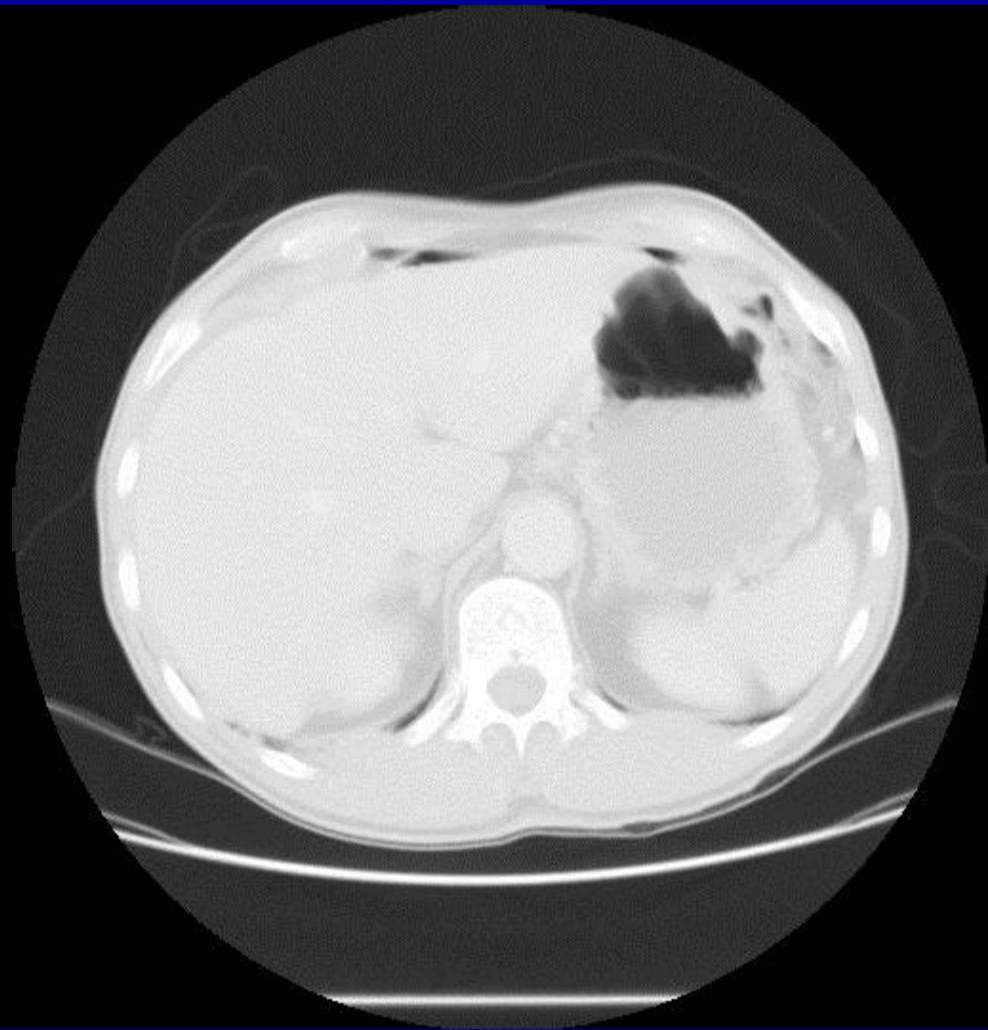
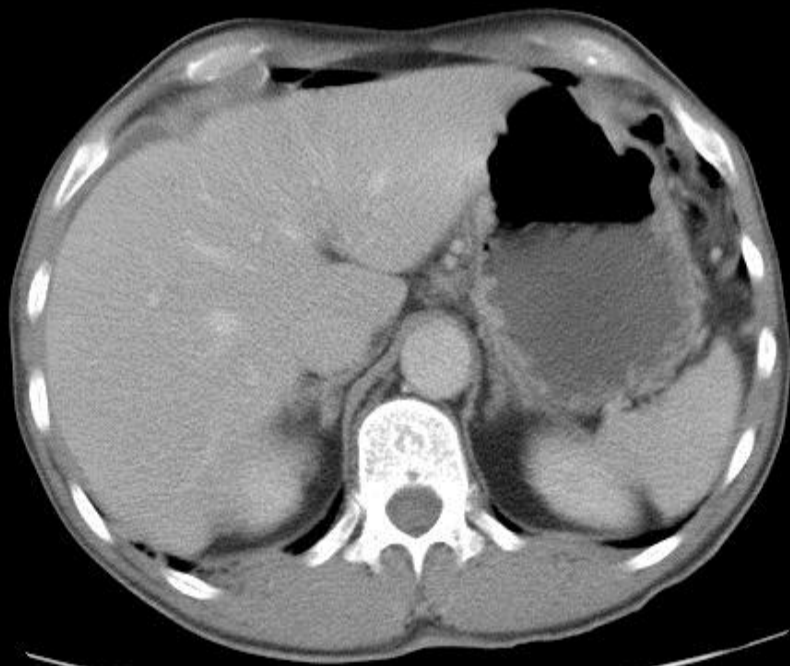


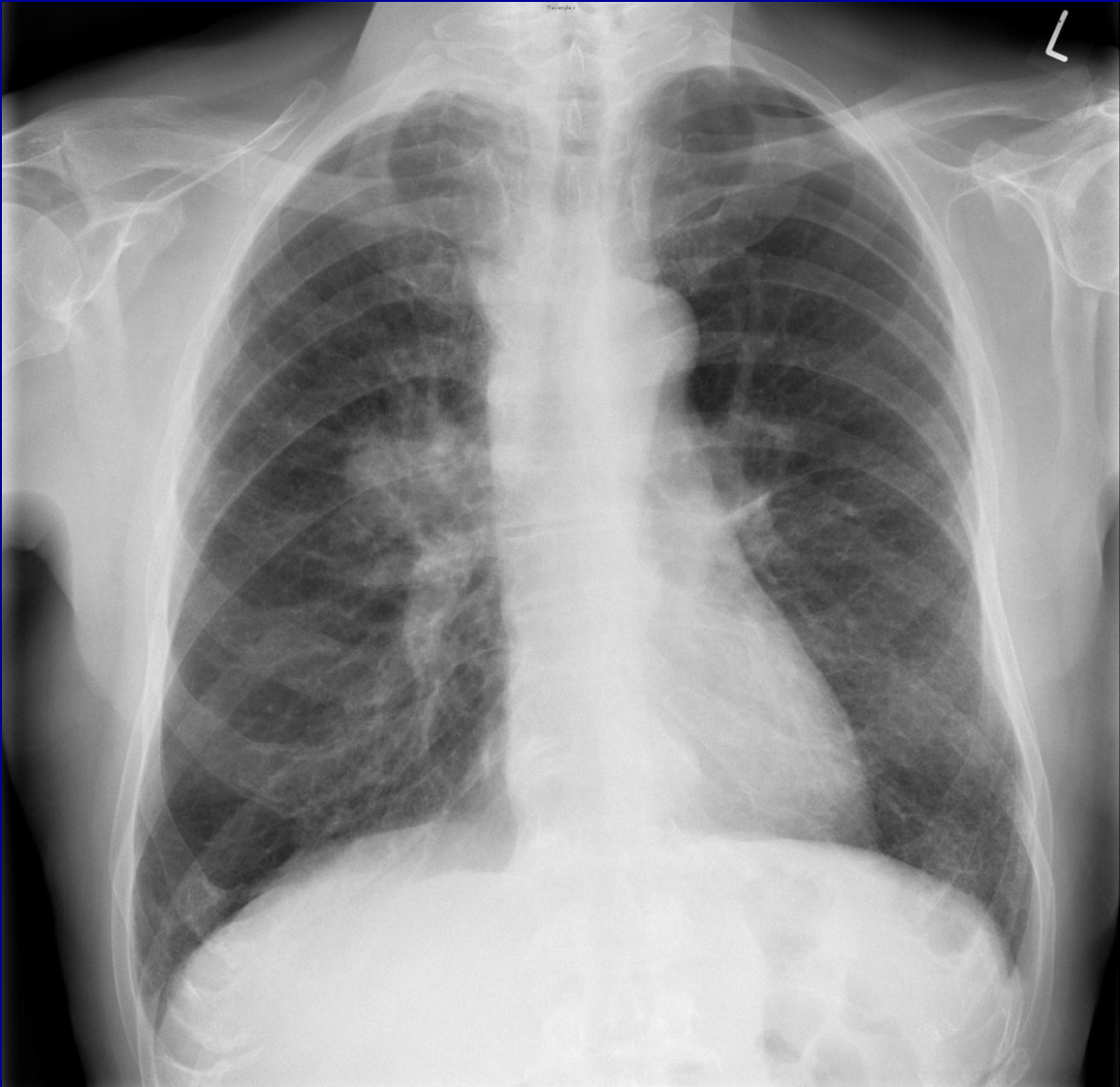
Pixel=2D concept. Each pixel has a HU number.

Each CT image made up of 250,000 pixels

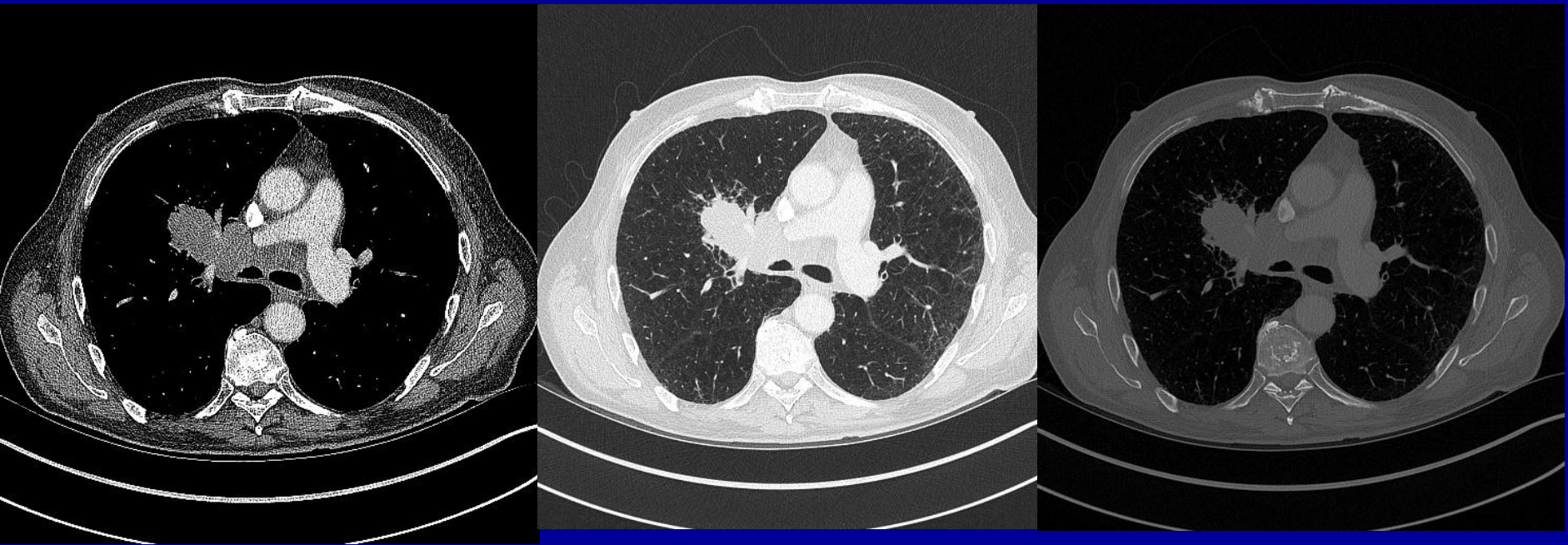
Voxel =3D of pixels giving a measure of slice thickness.

# CT abdomen





# Lung Cancer



# CT

- Fast- whole body scanned in 15-25 seconds
- Allows different phases of contrast enhancement

Arterial

Portal venous

# Contrast agents

- Iodinated agents given IV

Renal excretion

Extremely safe

Minor side effects-flushing, taste

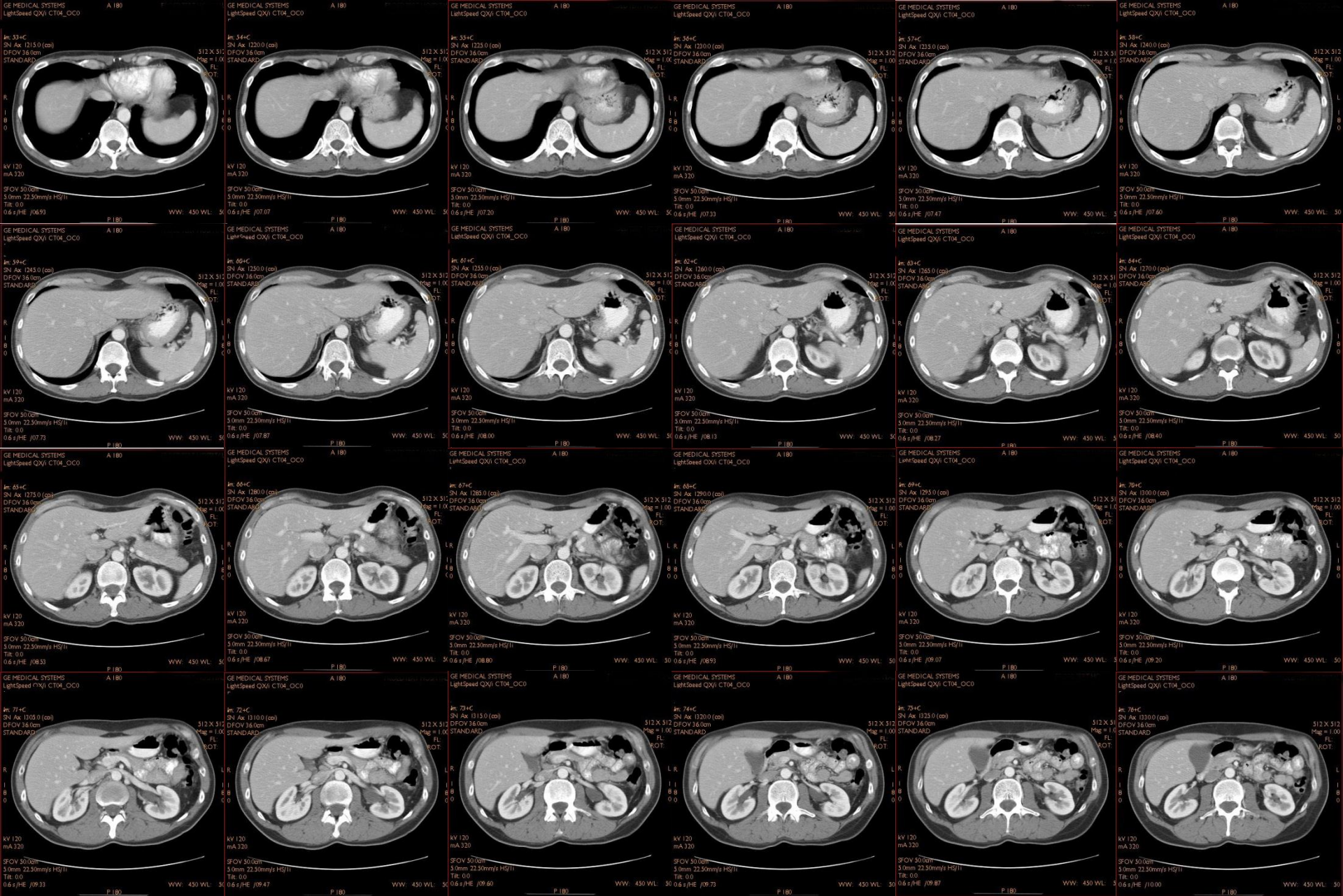
Major- bronchospasm, urticaria,  
anaphylaxis (1 in 50,000)

Caution-Nephrotoxicity (DM), Cardiac  
impairment, myeloma, sickle cell disease

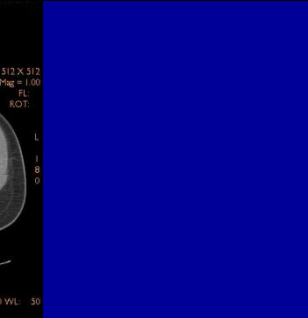
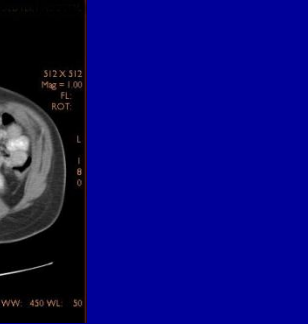
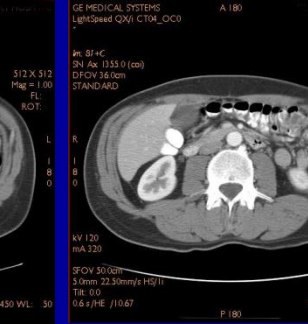
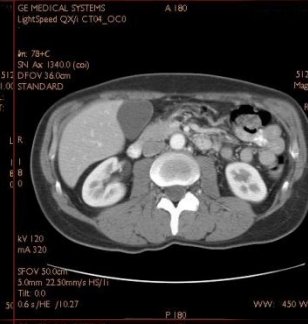
# Contrast agents

- Oral contrast agents (barium, gastrografin)  
30-40 mins prior to scan
- Opacify bowel to help distinguish from nodes etc.





GE MEDICAL SYSTEMS  
LightSpeed QX/i CT10\_OC0



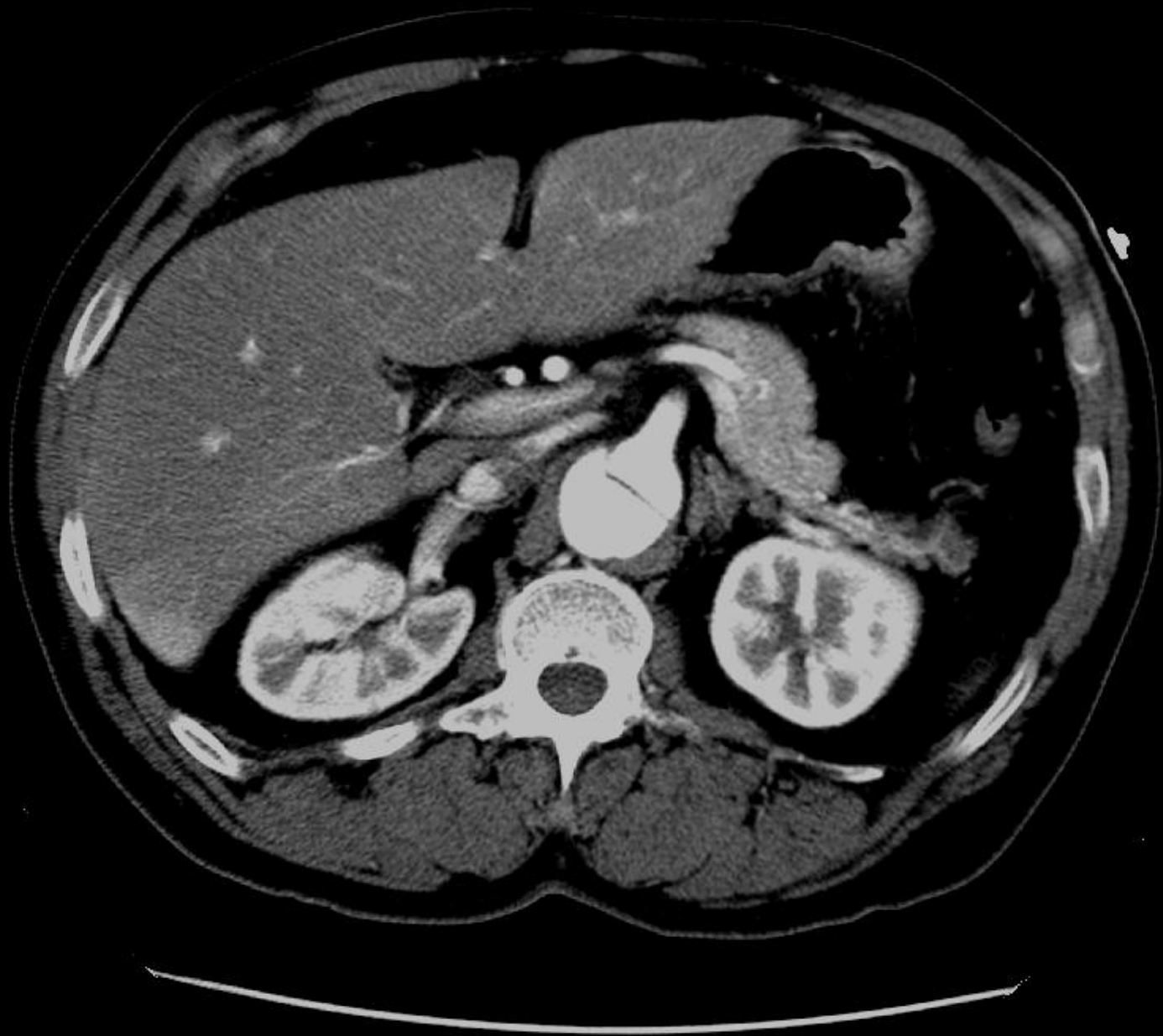
# Reformats

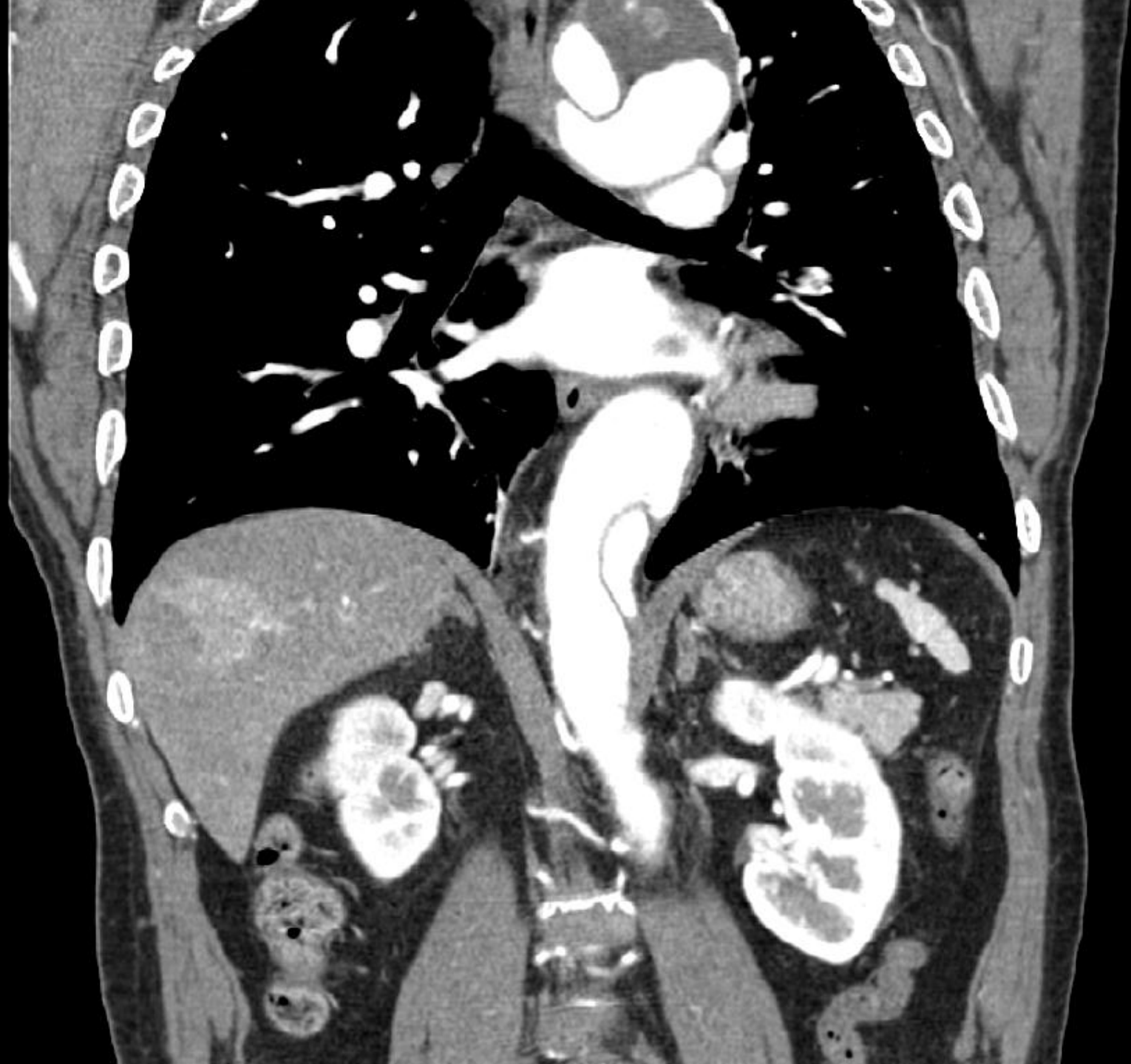
CT usually axial

Multilevel CT

Multiplanar reformats

3D Reconstruction









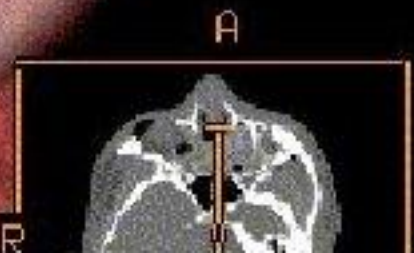
Volume Rendering No cut

DFOV 13.0 cm  
STANDARD

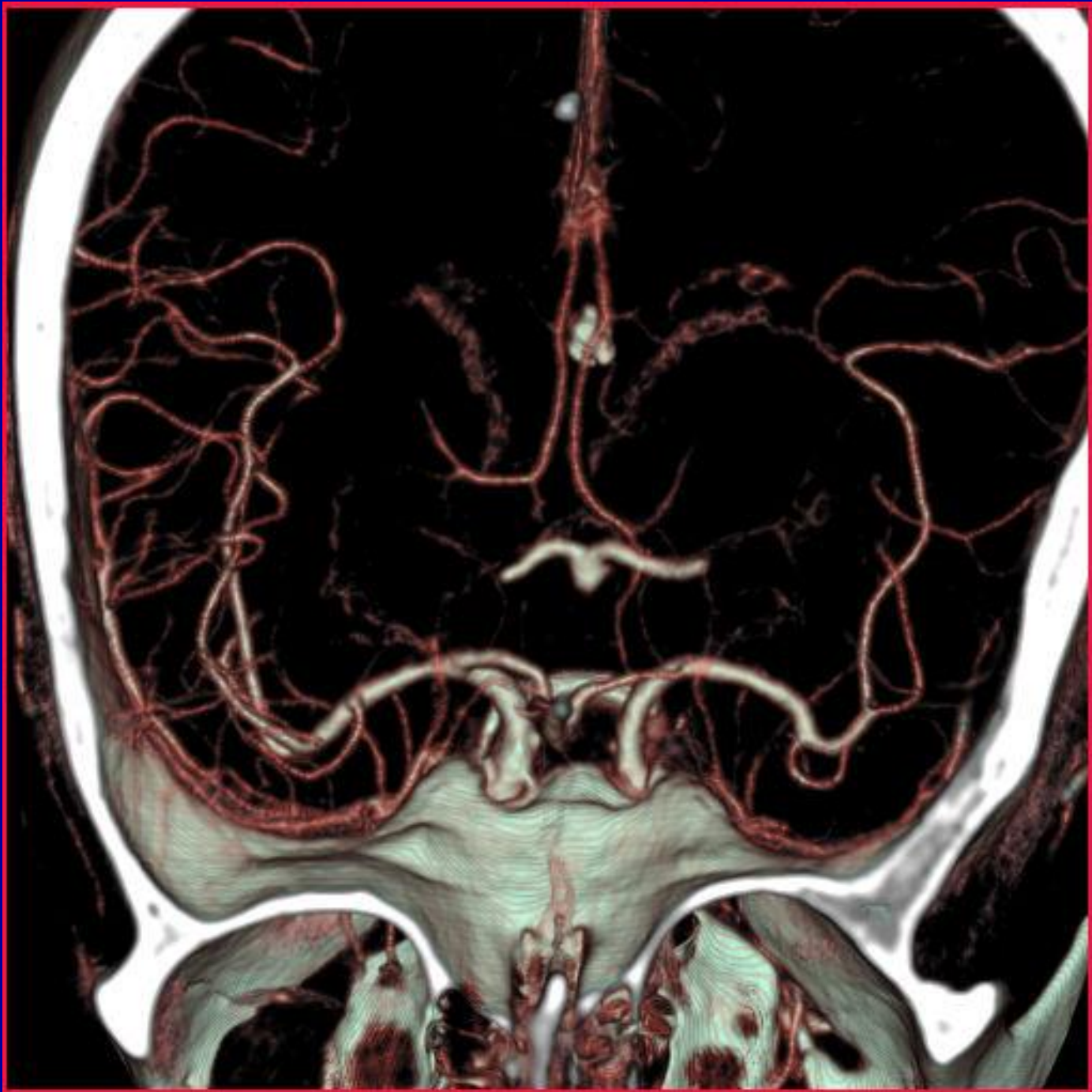
R  
7  
1

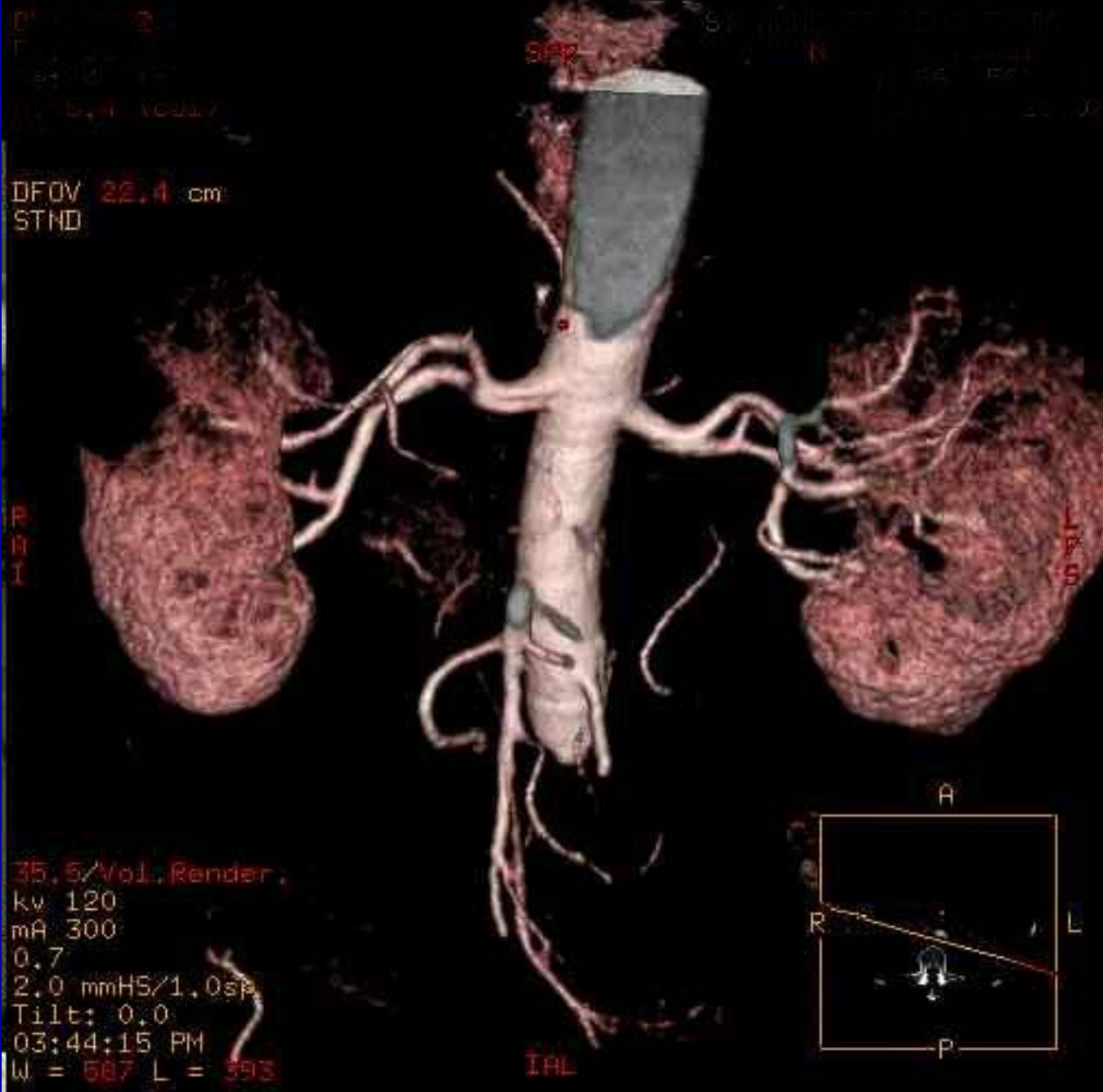
L  
0  
5

No shutter  
kv 120  
p0 250









DFOV 22.4 cm  
STND

DFOV 22.4 cm  
STND

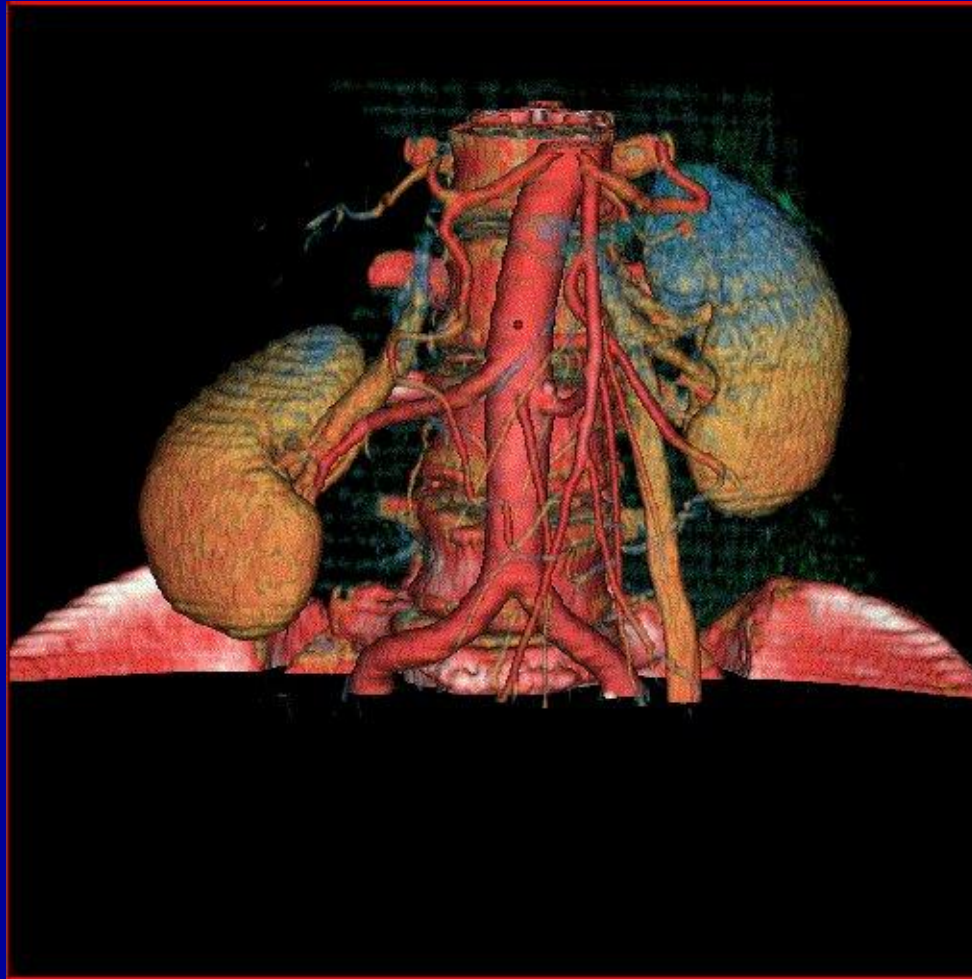
R  
L

R  
L

35.5/Vol. Render  
kv 120  
mA 300  
0.7  
2.0 mmHS/1.0sp  
Tilt: 0.0  
03:44:15 PM  
W = 587 L = 393

IAL





Volume Rendering No cut

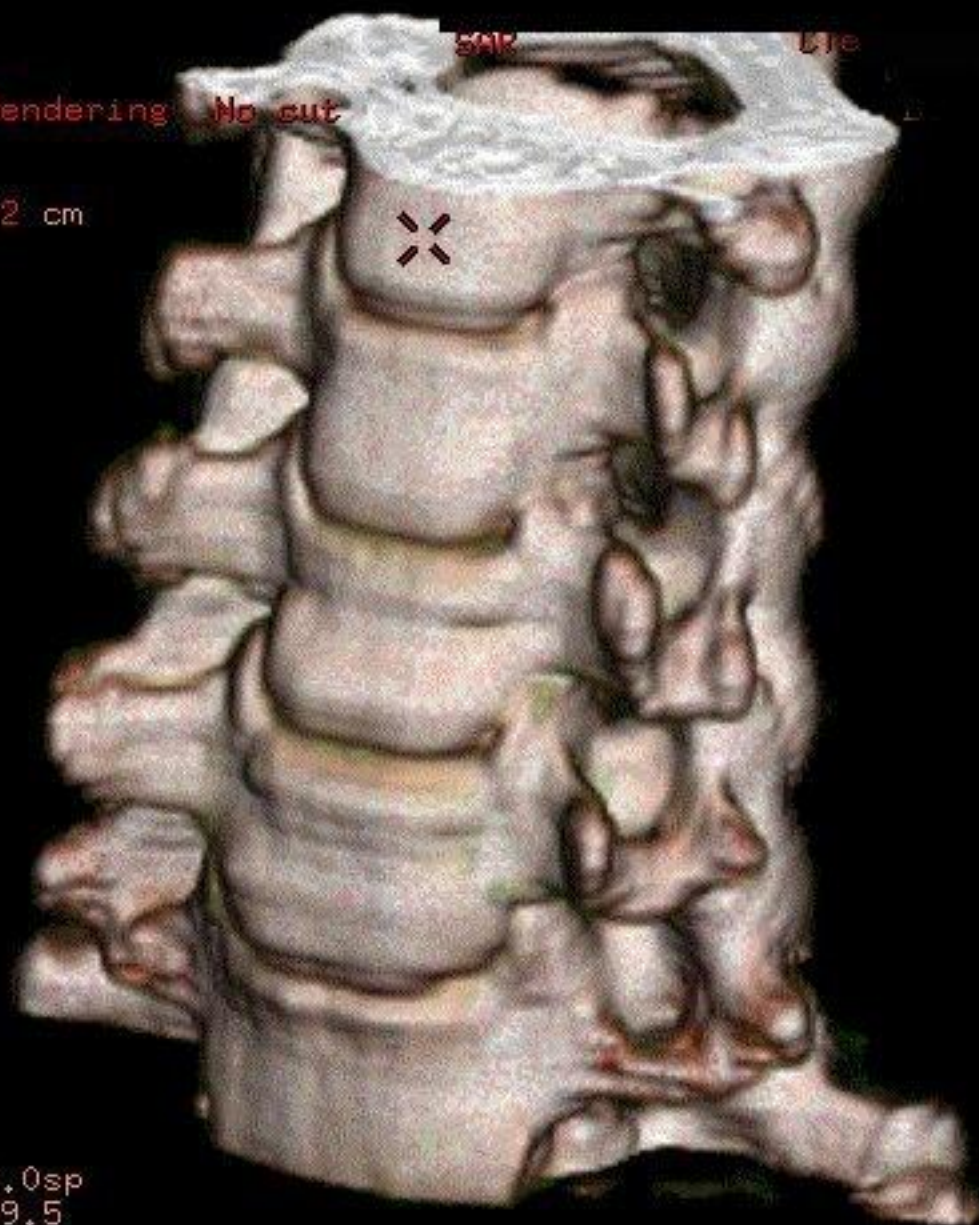
DFOV 10.2 cm  
STD+

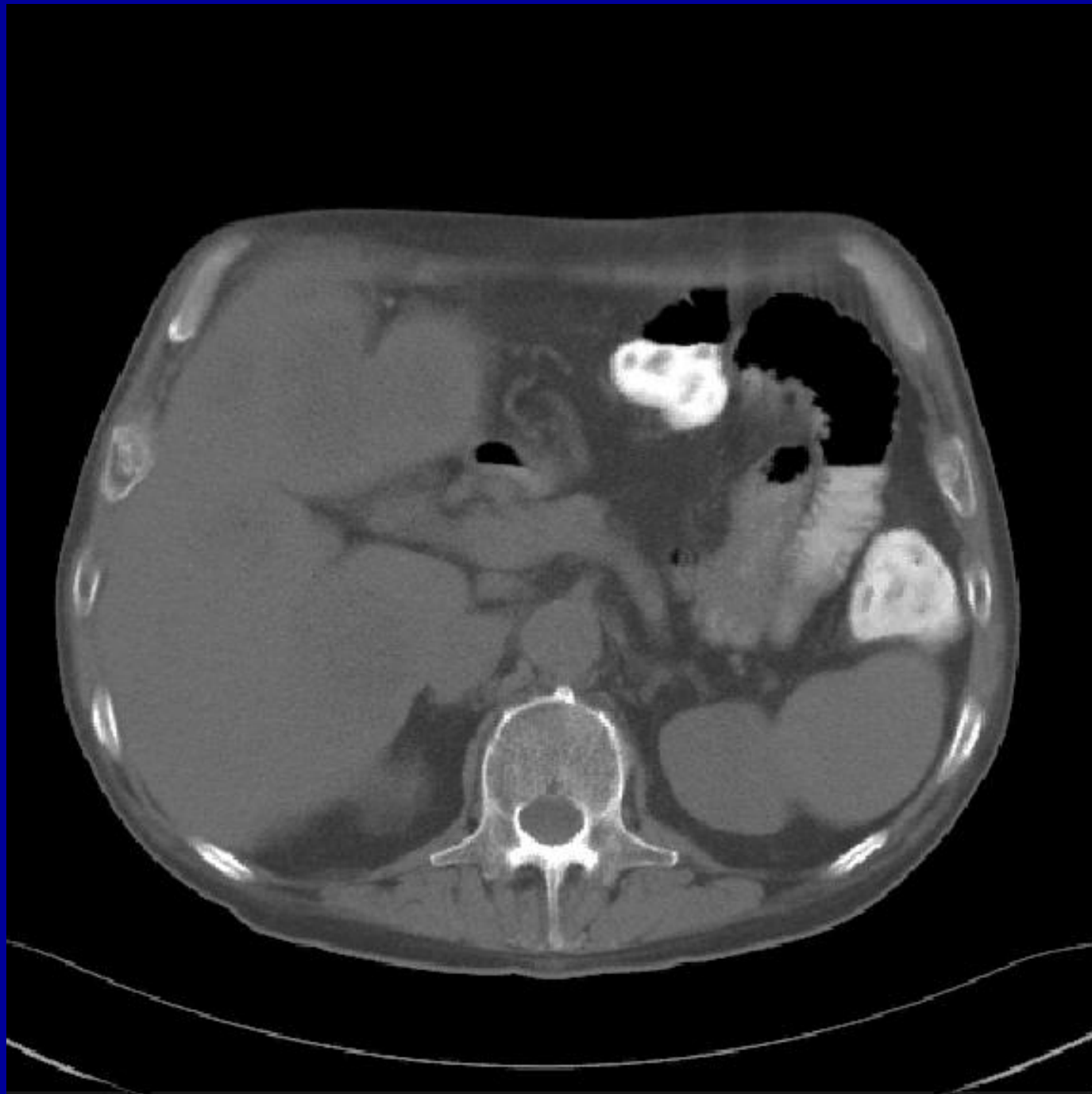
R  
A  
I

L  
P  
S

kv 120  
mA N/A  
2.0  
2.0 mm/2.0sp  
Tilt: -19.5  
03:43:40 PM  
W = 5251 L = 931

IPL





# Normal Anatomy

Am: 53+C  
SN Ax 1215.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

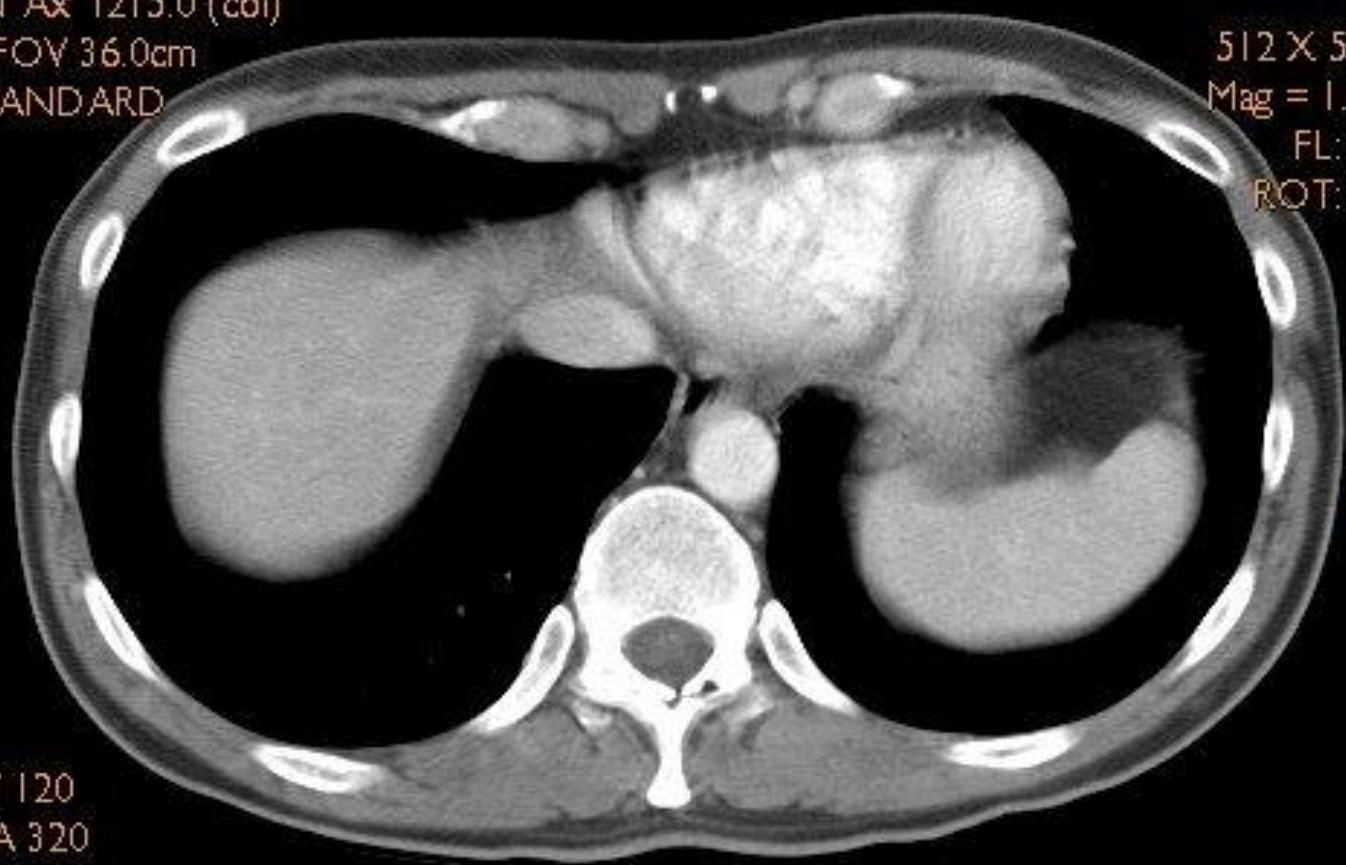
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/11  
Tilt: 0.0  
0.6 s /HE /06.93

WW: 450 WL: 50



Im: 54+C  
SN Ax 1220.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

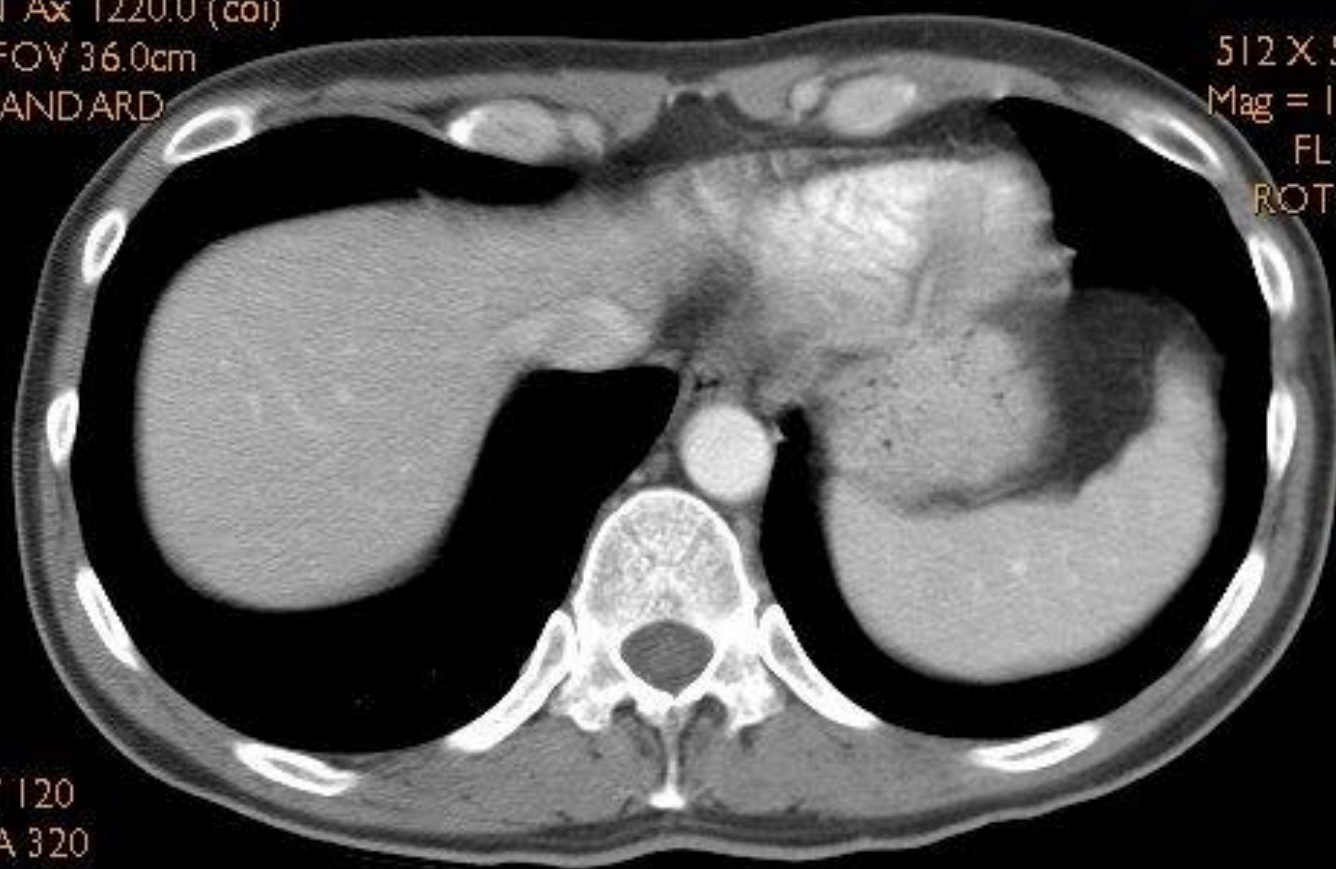
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/11  
Tilt: 0.0  
0.6 s/HE /07.07

WW: 450 WL: 50





Am: 55+C  
SN Ax 1225.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

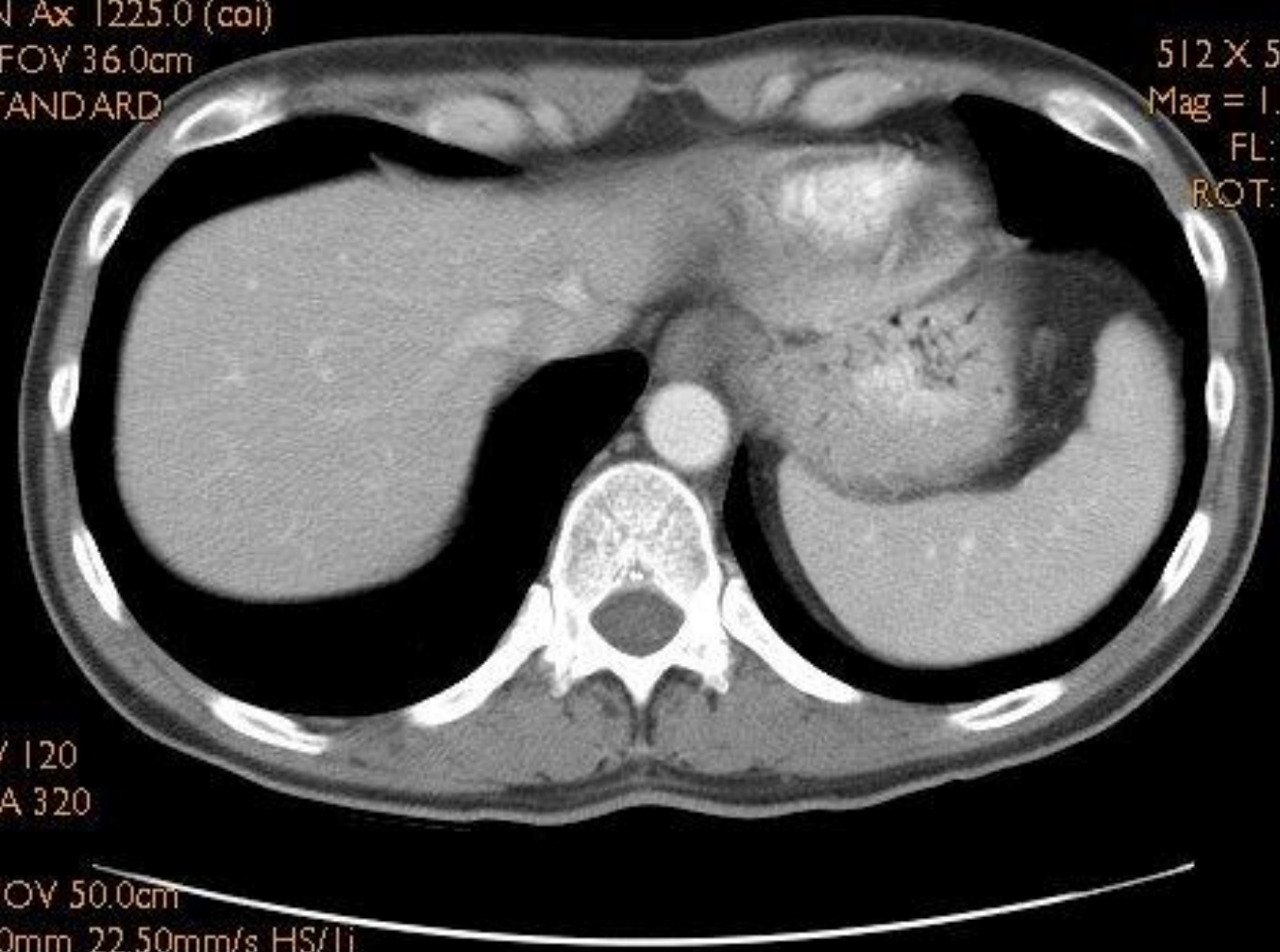
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/11  
Tilt: 0.0  
0.6 s /HE /07.20

WW: 450 WL: 50



Im: 56+C  
SN Ax: 1230.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /07.33

WW: 450 WL: 50



mm: 57+C  
SN Ax: 1235.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /07.47

WW: 450 WL: 50



Im: 58+C  
SN Ax: 1240.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/II  
Tilt: 0.0  
0.6 s/HE /07.60

WW: 450 WL: 50



kn: 59+C  
SN Ax: 1245.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

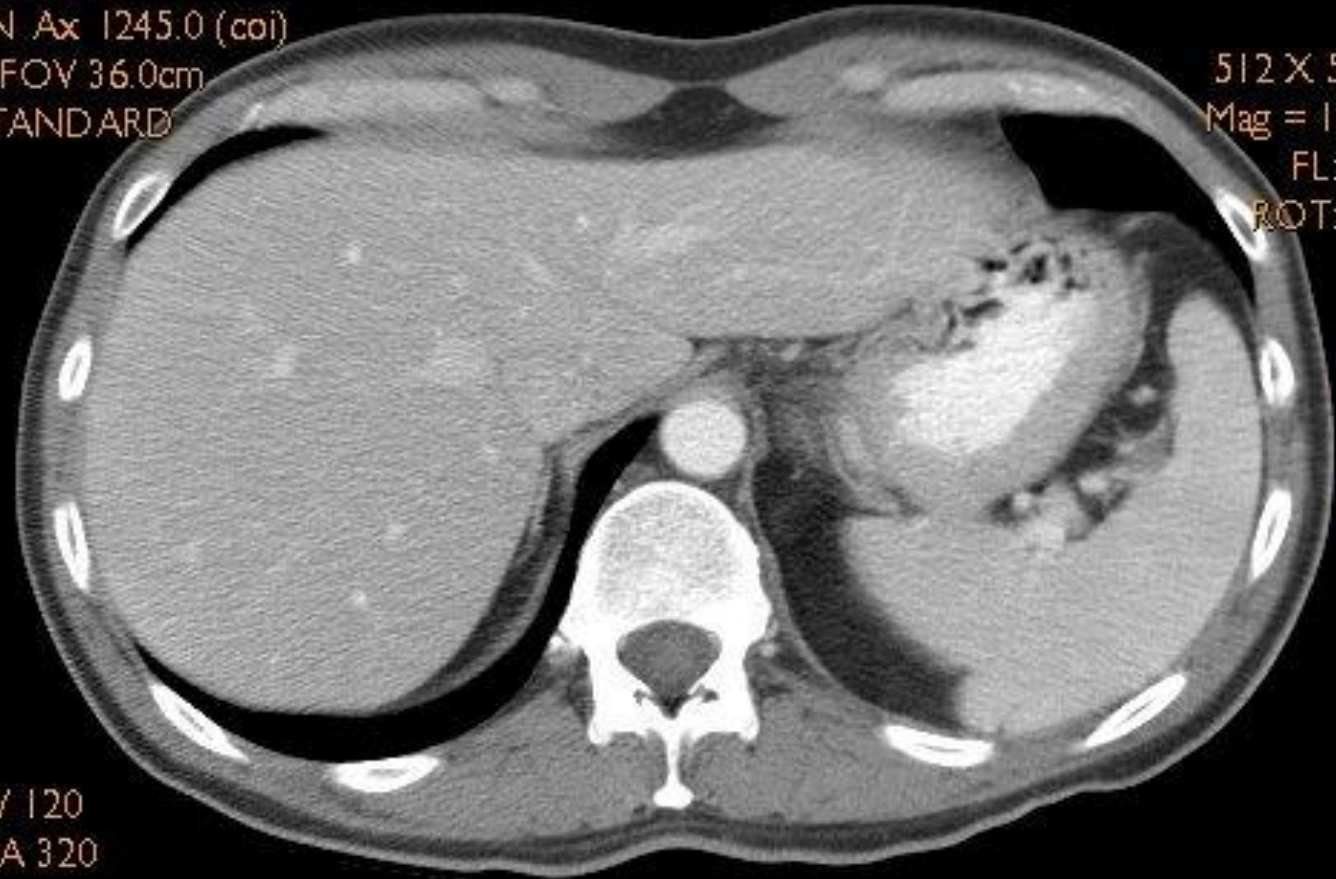
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /07.73

WW: 450 WL: 50



Am: 60+C  
SN Ax 1250.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /07.87

WW: 450 WL: 50



Im: 61+C  
SN Ax 1255.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /08.00

WW: 450 WL: 50



kn: 62+C  
SN Ax 1260.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

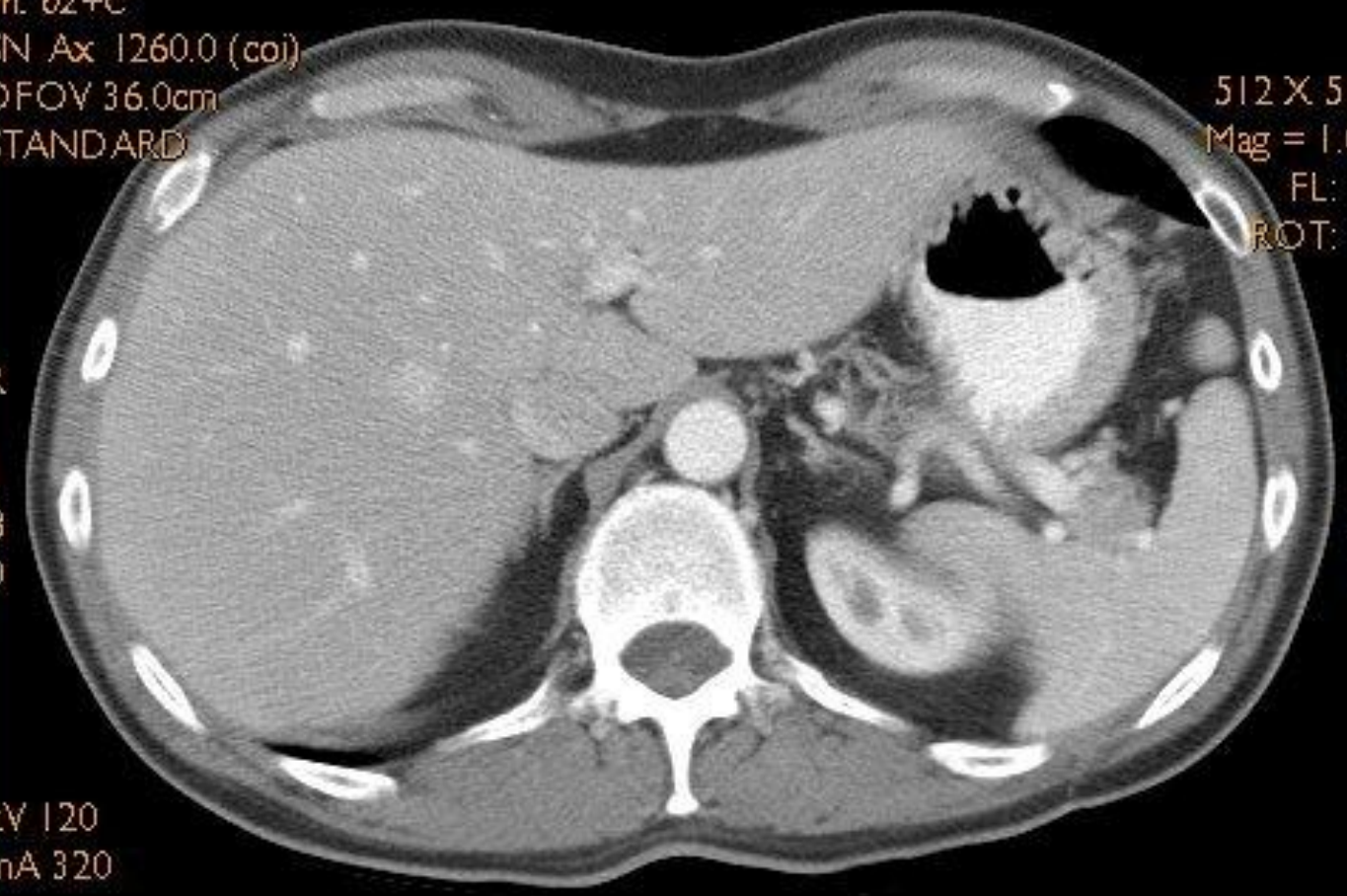
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/1i  
Tilt: 0.0  
0.6 s /HE /08.13

WW: 450 WL: 50





Im: 63+C  
SN Ax 1265.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /08.27

WW: 450 WL: 50



kn: 64+C  
SN Ax 1270.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /08.40

WW: 450 WL: 50



Im: 65+C  
SN Ax: 1275.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/1i  
Tilt: 0.0  
0.6 s/HE /08.53

WW: 450 WL: 50



Im: 66+C  
SN Ax 1280.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

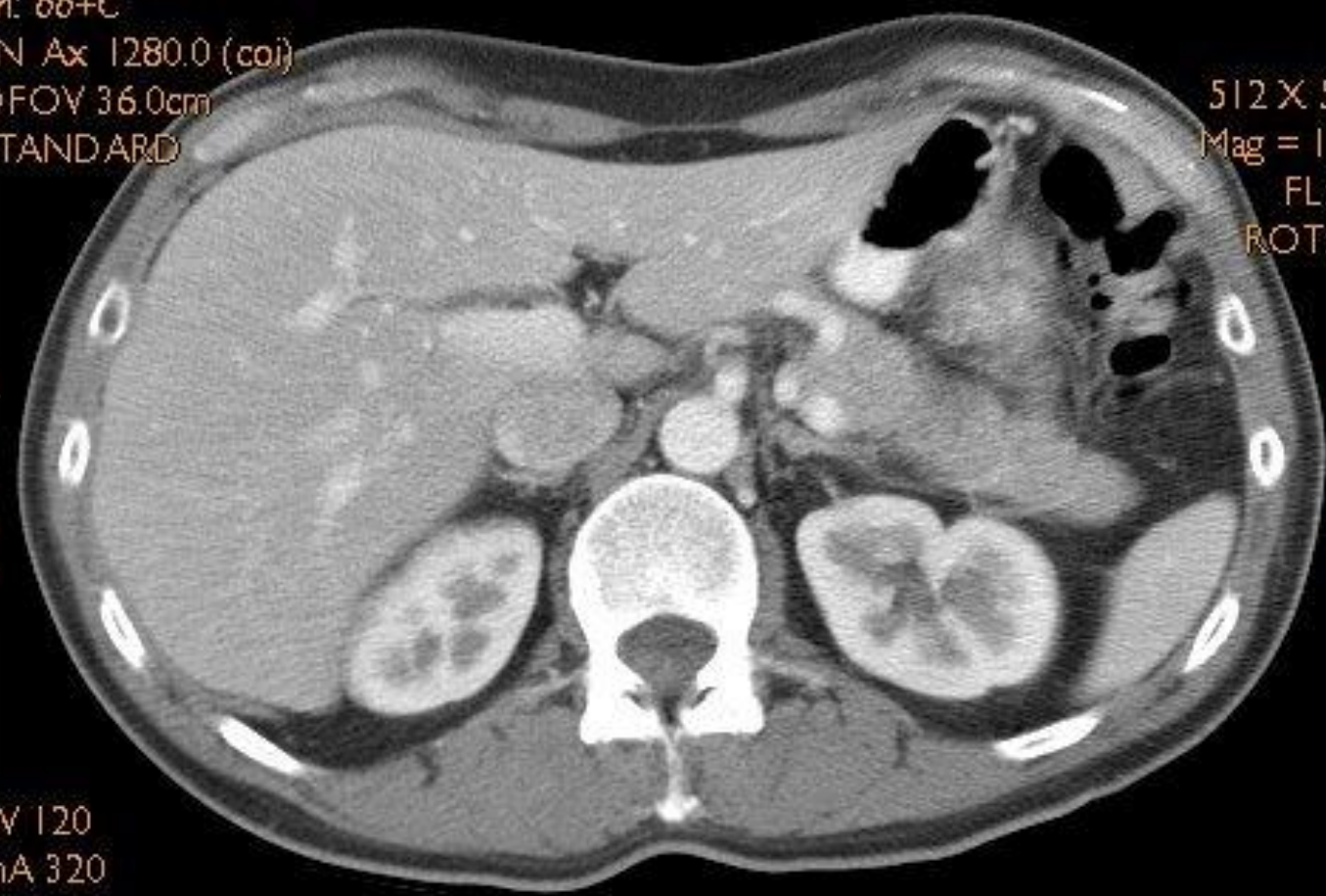
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /08.67

WW: 450 WL: 50



mm: 67+C  
SN Ax 1285.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

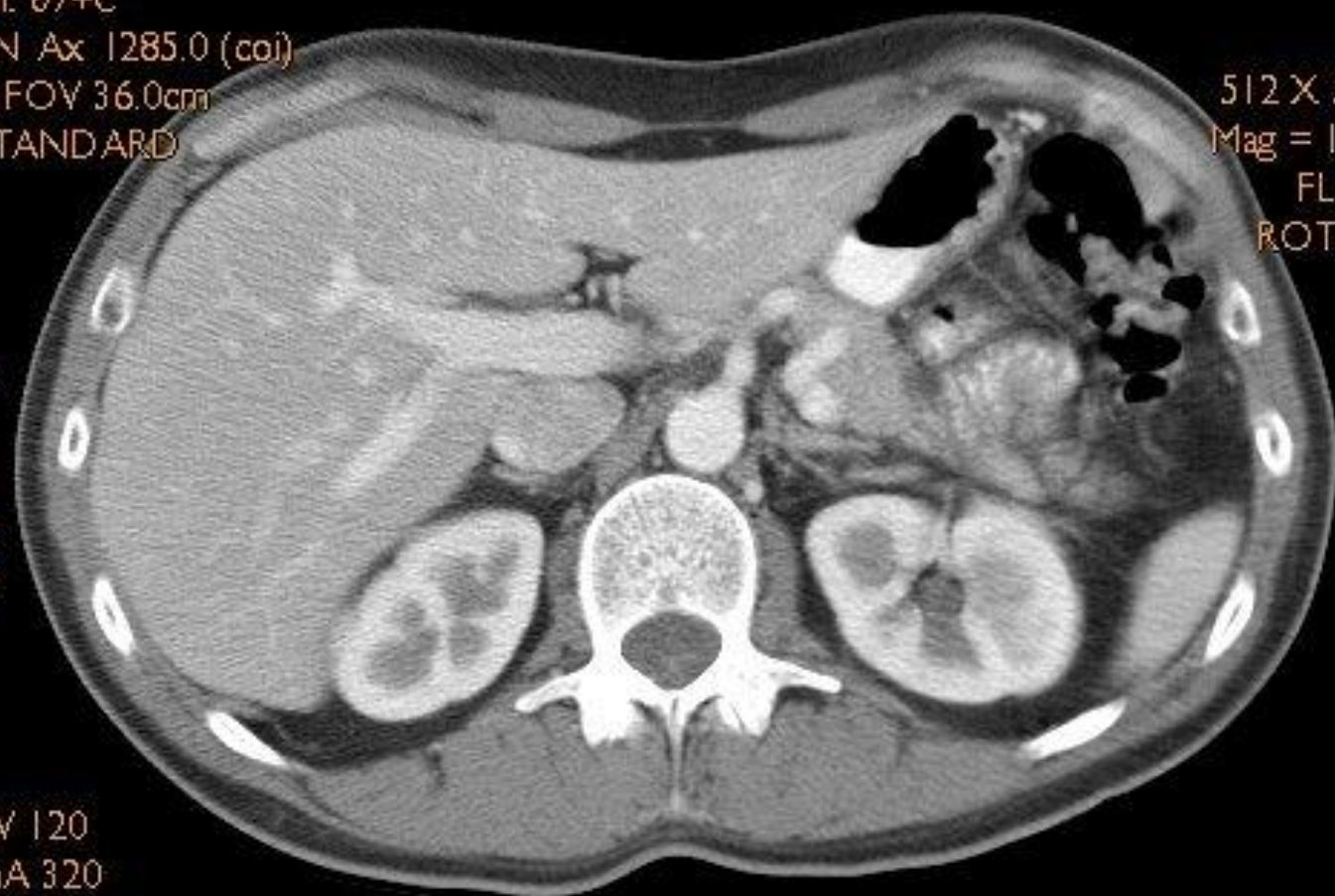
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s /HE /08.80

WW: 450 WL: 50



Im: 68+C  
SN Ax: 1290.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

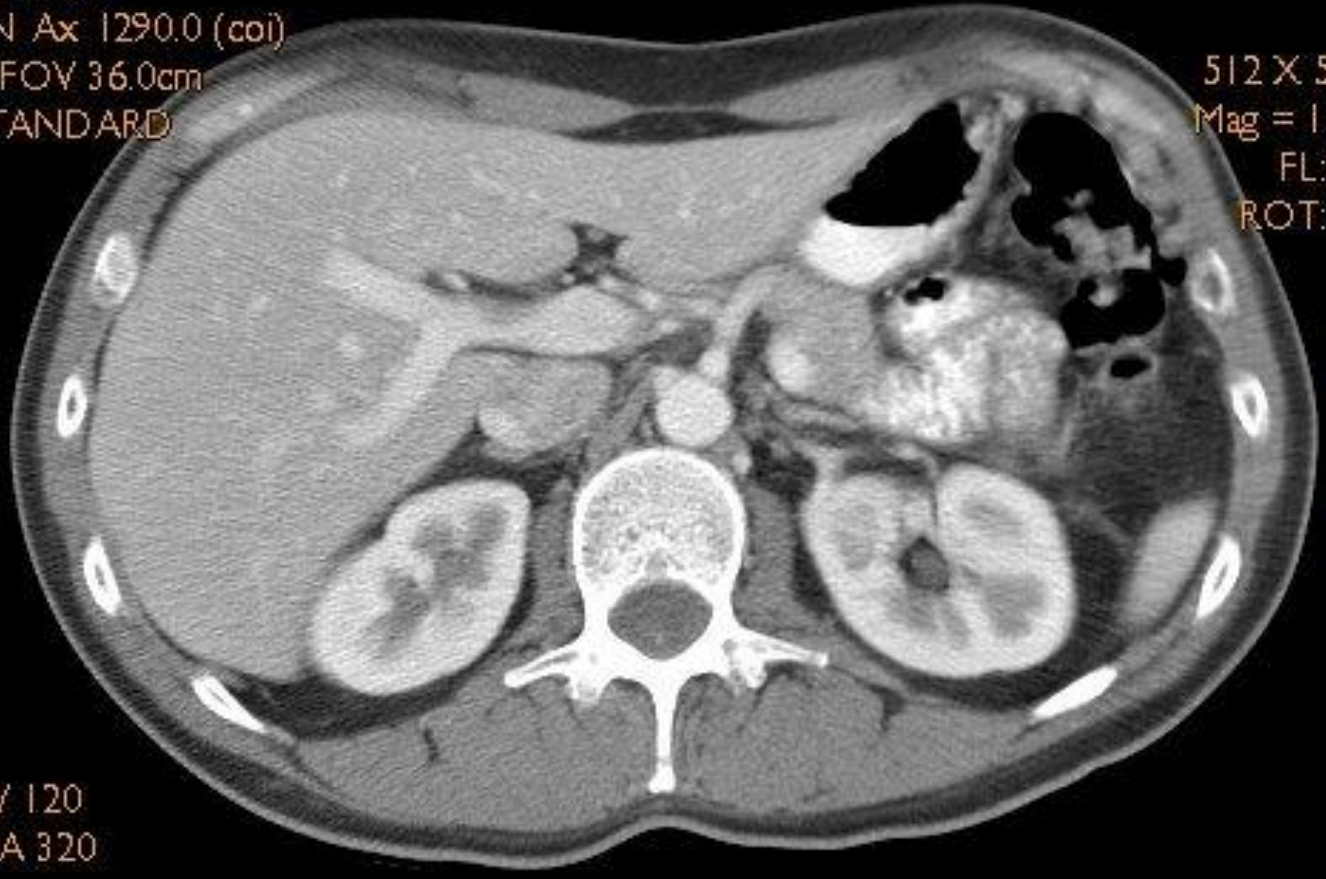
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/11  
Tilt: 0.0  
0.6 s/HE /08.93

WW: 450 WL: 50

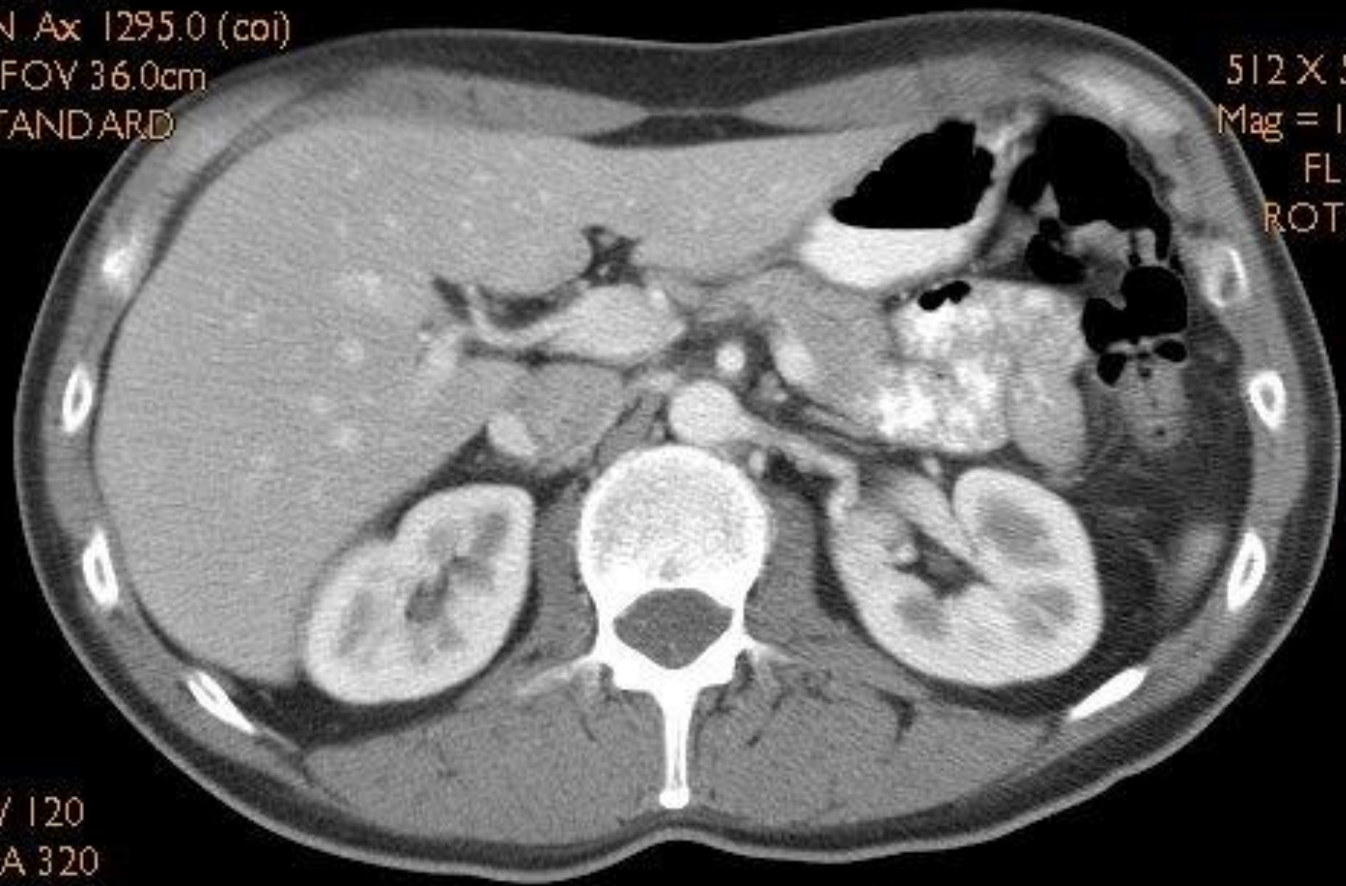


Age: 69+  
SN Ax 1295.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0



kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/11  
Tilt: 0.0  
0.6 s/HE /09.07

WW: 450 WL: 50

Im: 70+C  
SN Ax 1300.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

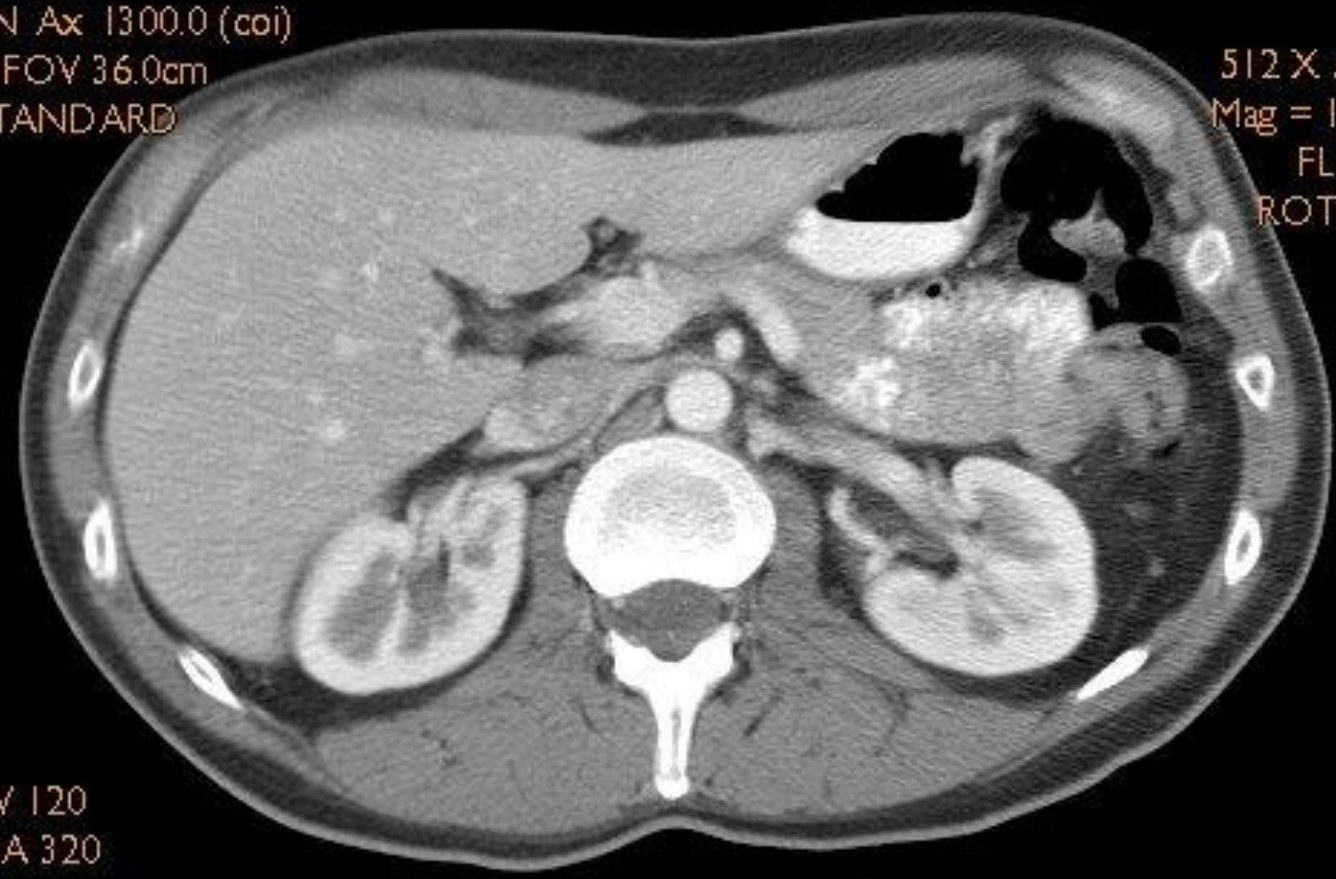
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/II  
Tilt: 0.0  
0.6 s/HE /09.20

WW: 450 WL: 50





kn: 71+C  
SN Ax: 1305.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0



kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /09.33

WW: 450 WL: 50

Am: 72+C  
SN Ax 1310.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0



kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /09.47

WW: 450 WL: 50

Im: 73+C  
SN Ax 1315.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

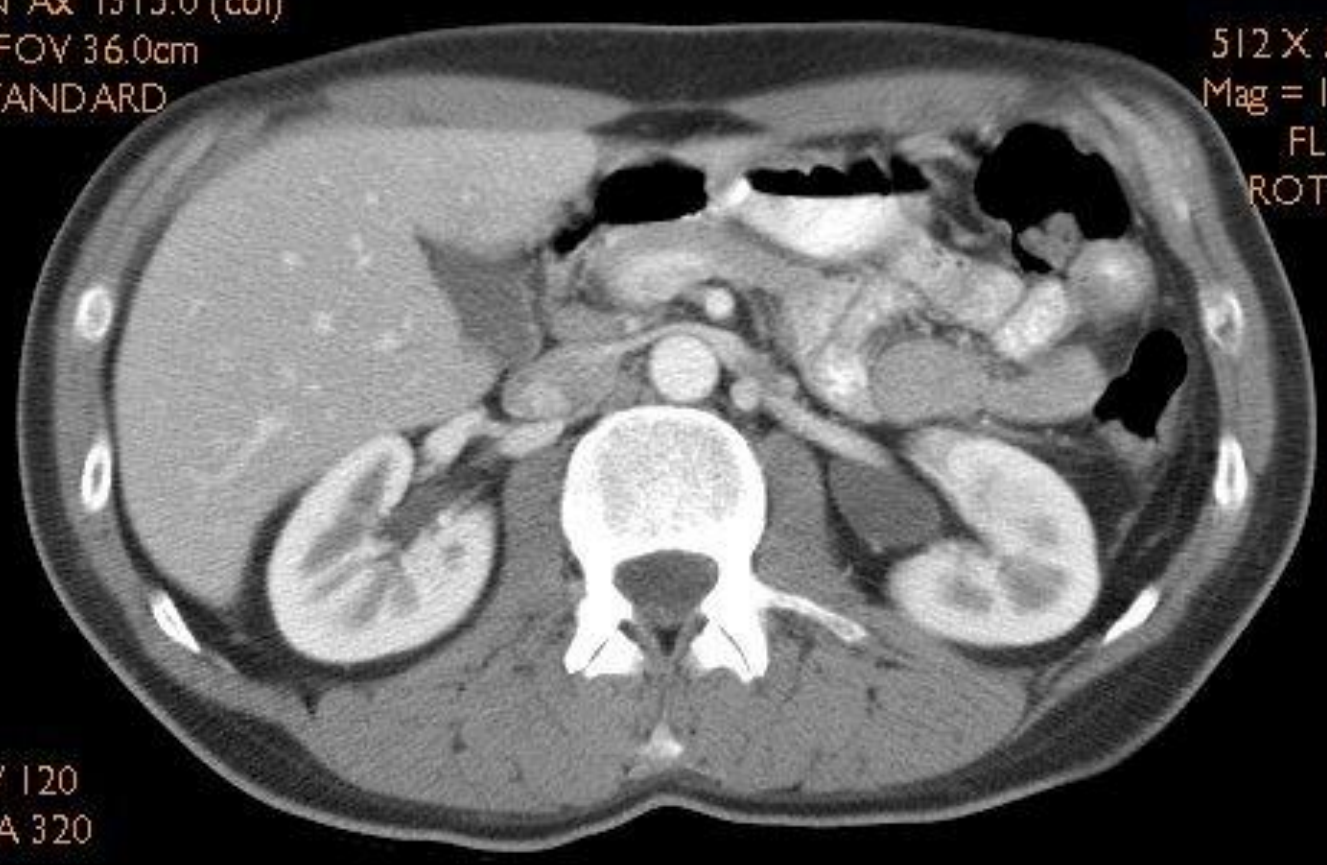
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /09.60

WW: 450 WL: 50

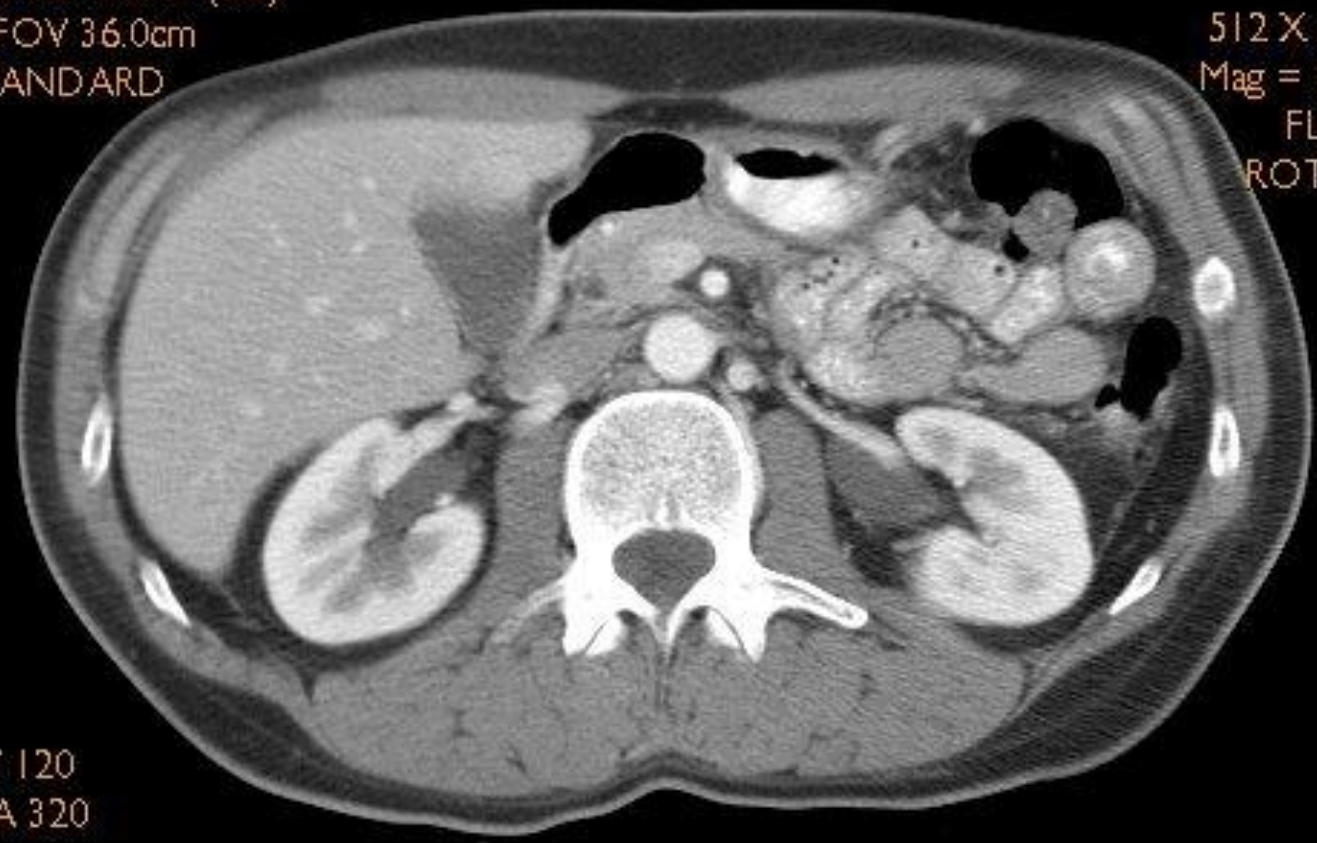


kn: 74+C  
SN Ax 1320.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0



kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /09.73

WW: 450 WL: 50

Am: 75+C  
SN Ax 1325.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /09.87

WW: 450 WL: 50

P 180

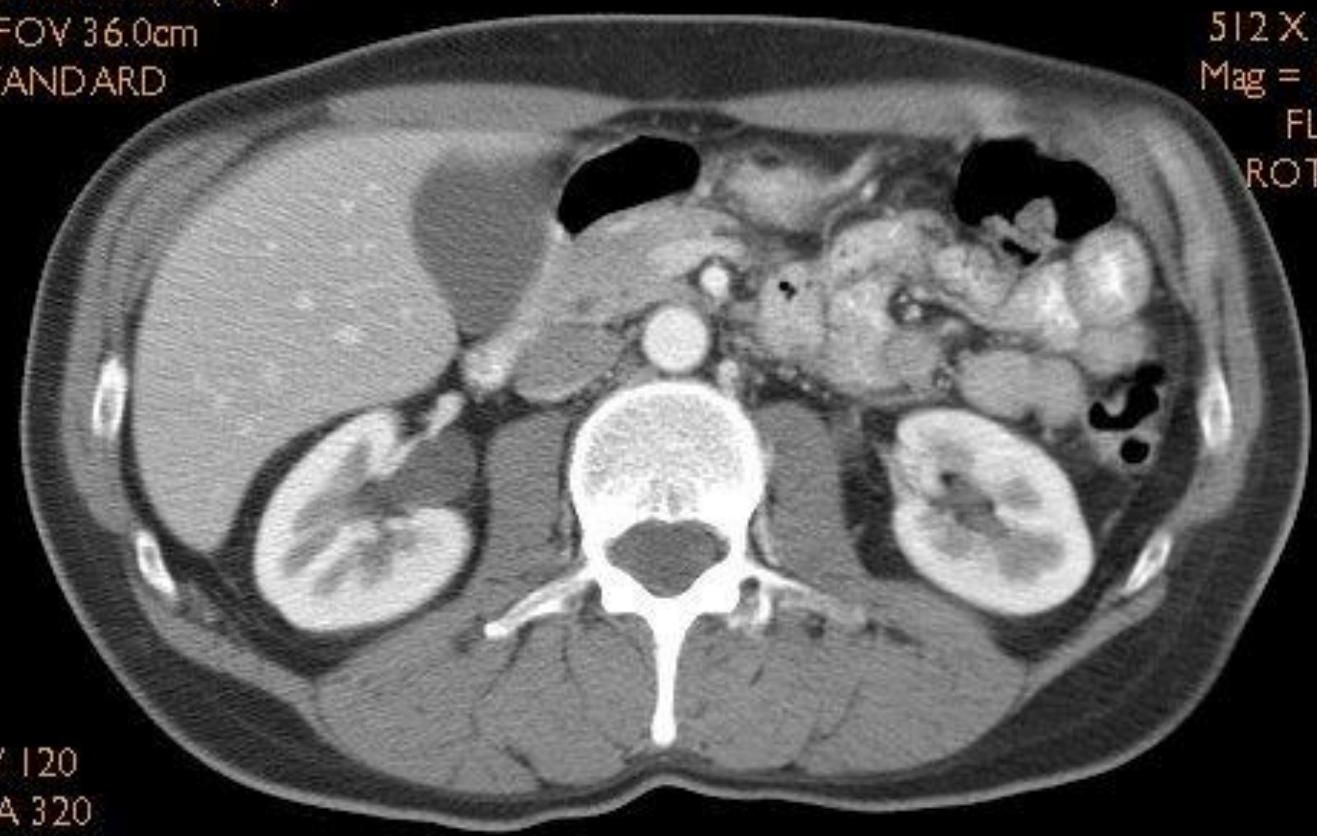


kn: 76+C  
SN Ax 1330.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0



kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /10.00

WW: 450 WL: 50

mm: 77+C  
SN Ax 1335.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0



kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /10.13

WW: 450 WL: 50

kn: 78+C  
SN Ax 1340.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0



kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /10.27

WW: 450 WL: 50

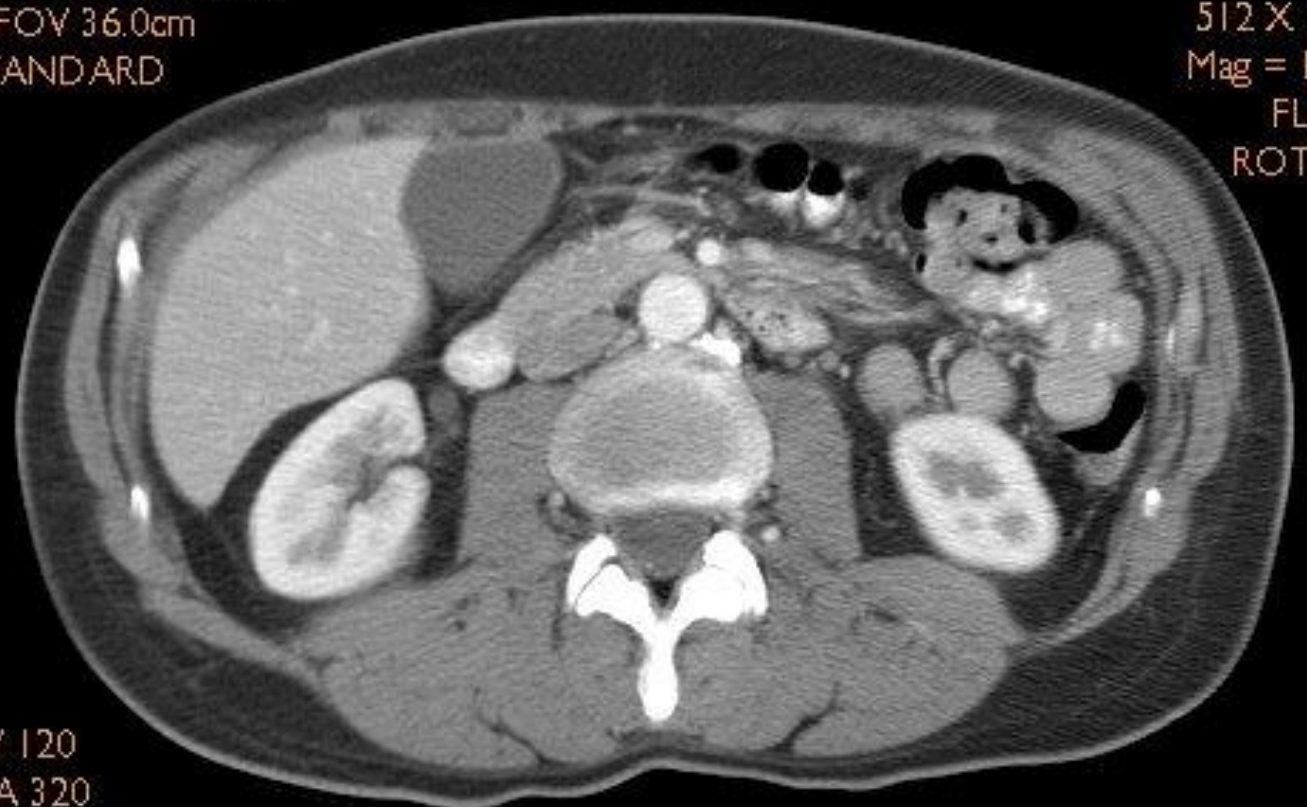


Im: 79+C  
SN Ax 1345.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0



kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /10.40

WW: 450 WL: 50

Am: 80+C  
SN Ax 1350.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

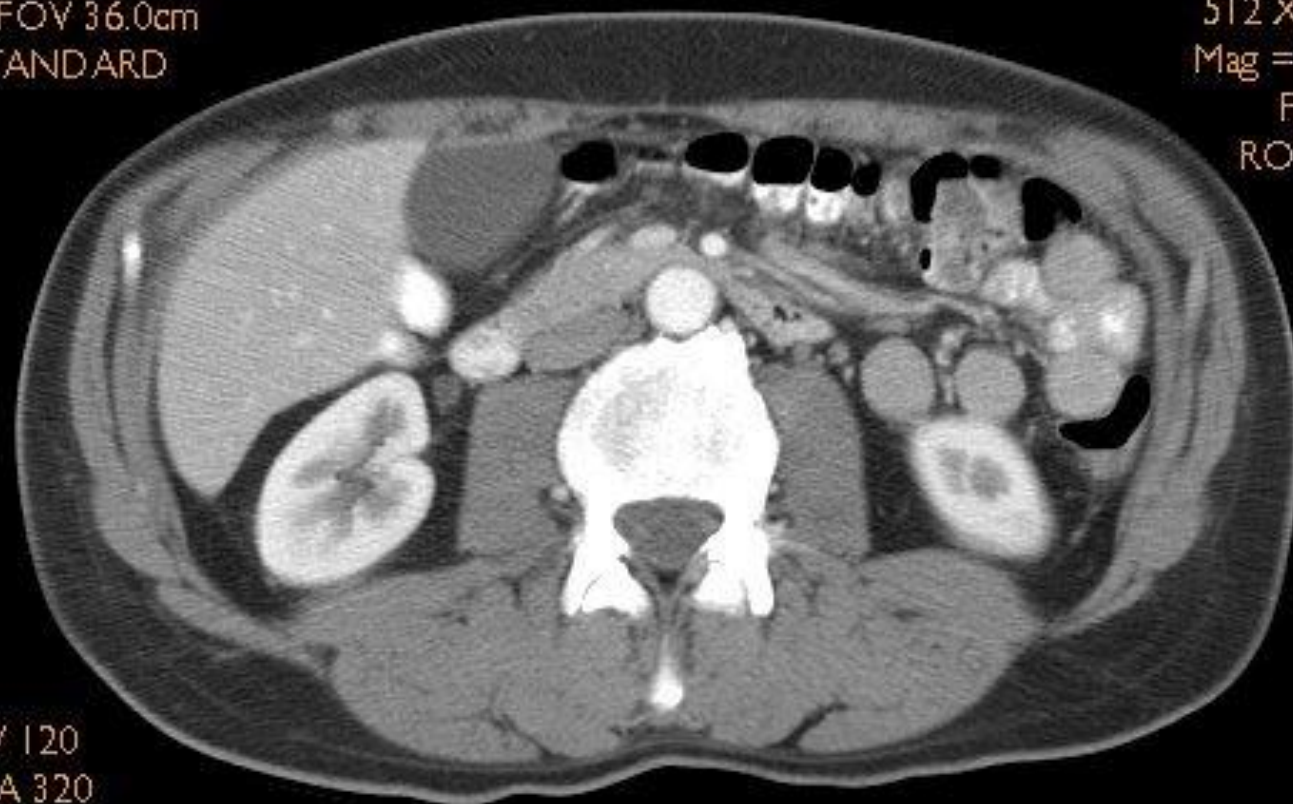
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /10.53

WW: 450 WL: 50



Im: 81+C  
SN Ax: 1355.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /10.67

WW: 450 WL: 50



Am: 82+C  
SN Ax 1360.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0



kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /10.80

WW: 450 WL: 50

Am: 83+C  
SN Ax: 1365.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

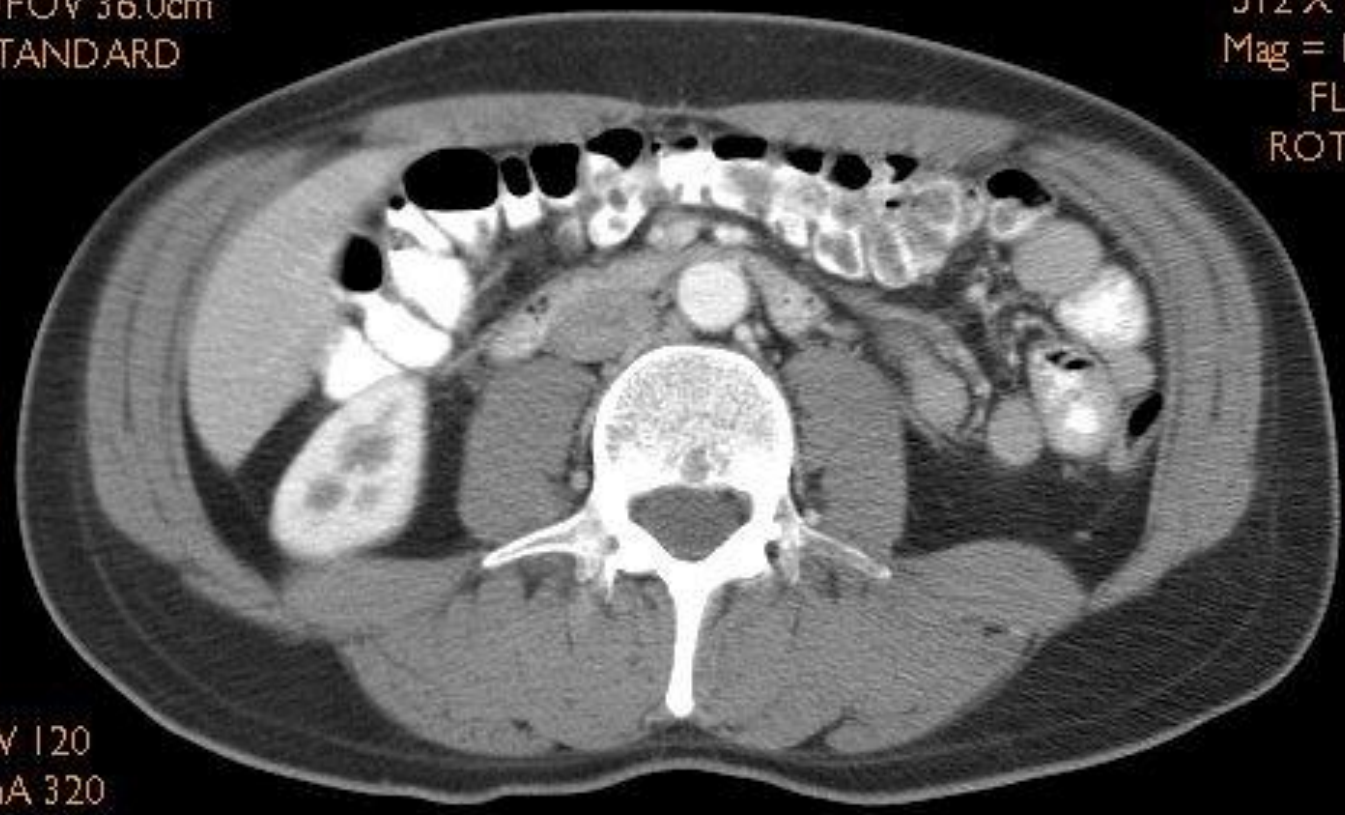
R  
1  
8  
0

L  
1  
8  
0

kV 120  
mA 320

SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /10.93

WW: 450 WL: 50



kn: 84+C  
SN Ax 1370.0 (coi)  
DFOV 36.0cm  
STANDARD

512 X 512  
Mag = 1.00  
FL:  
ROT:

R  
1  
8  
0

L  
1  
8  
0

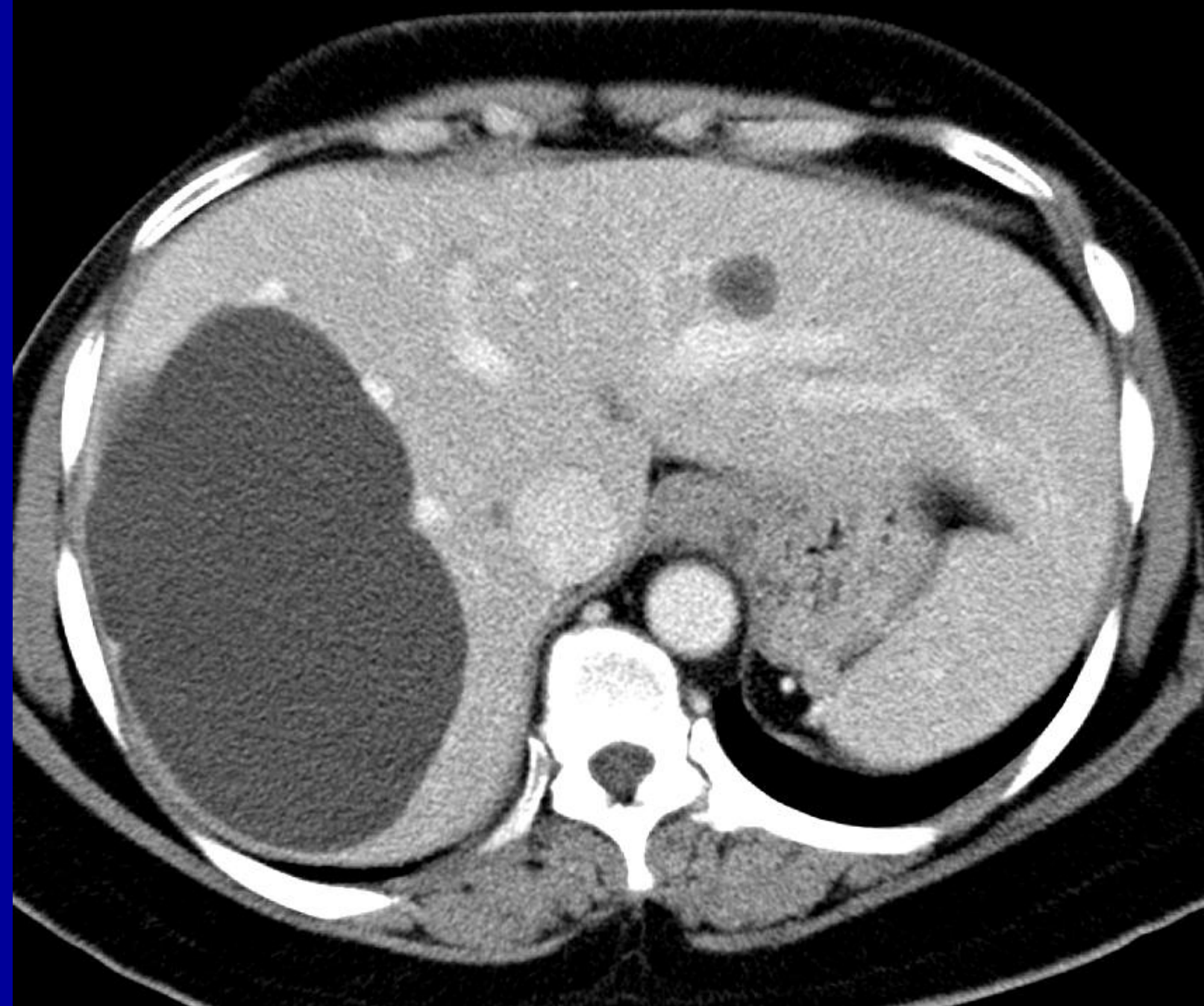


kV 120  
mA 320

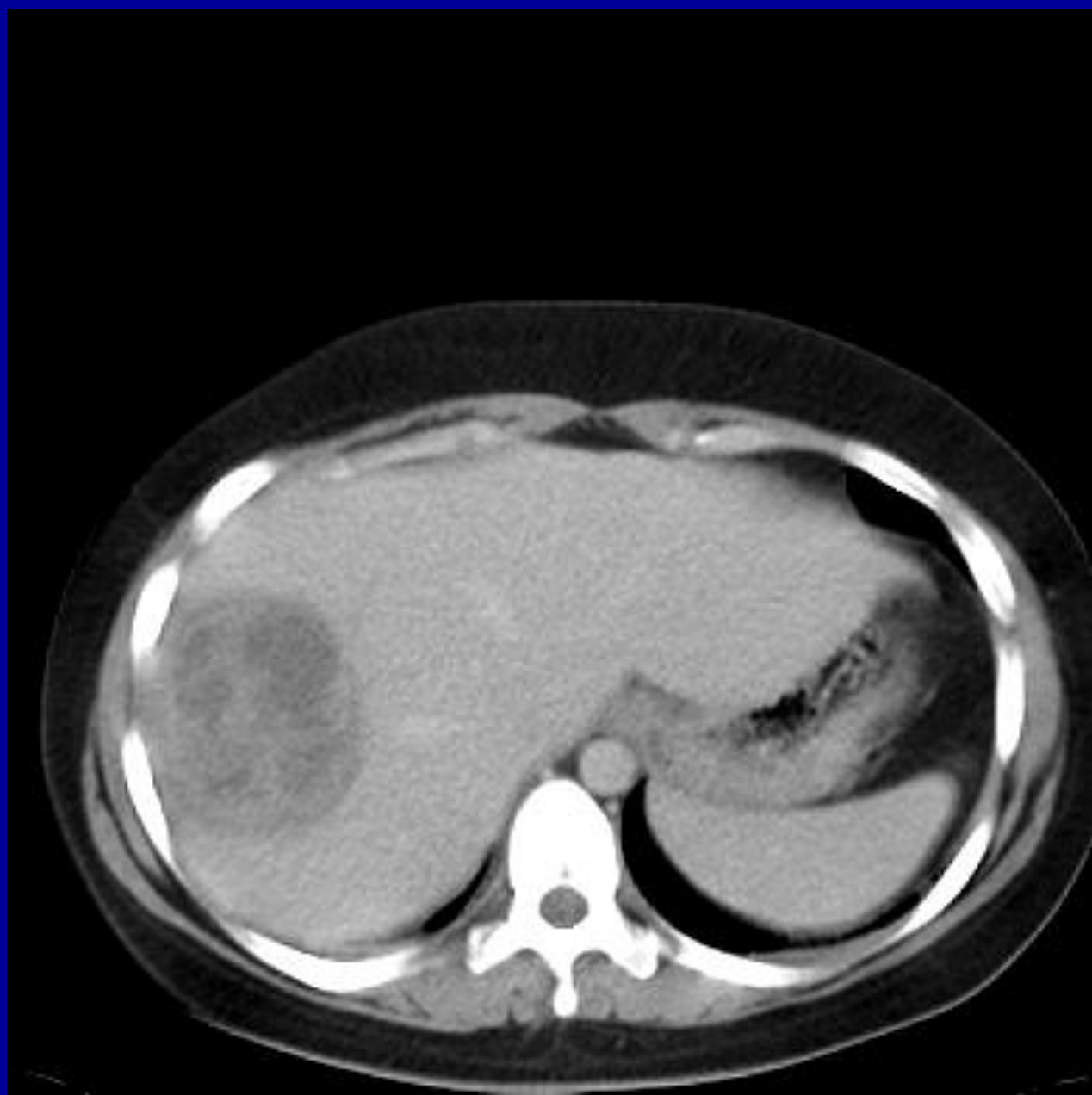
SFOV 50.0cm  
5.0mm 22.50mm/s HS/li  
Tilt: 0.0  
0.6 s/HE /11.07

WW: 450 WL: 50

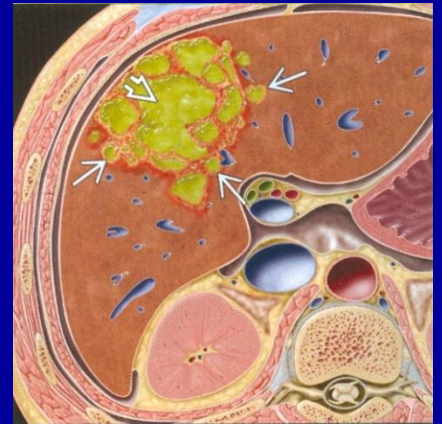
# Liver Pathology



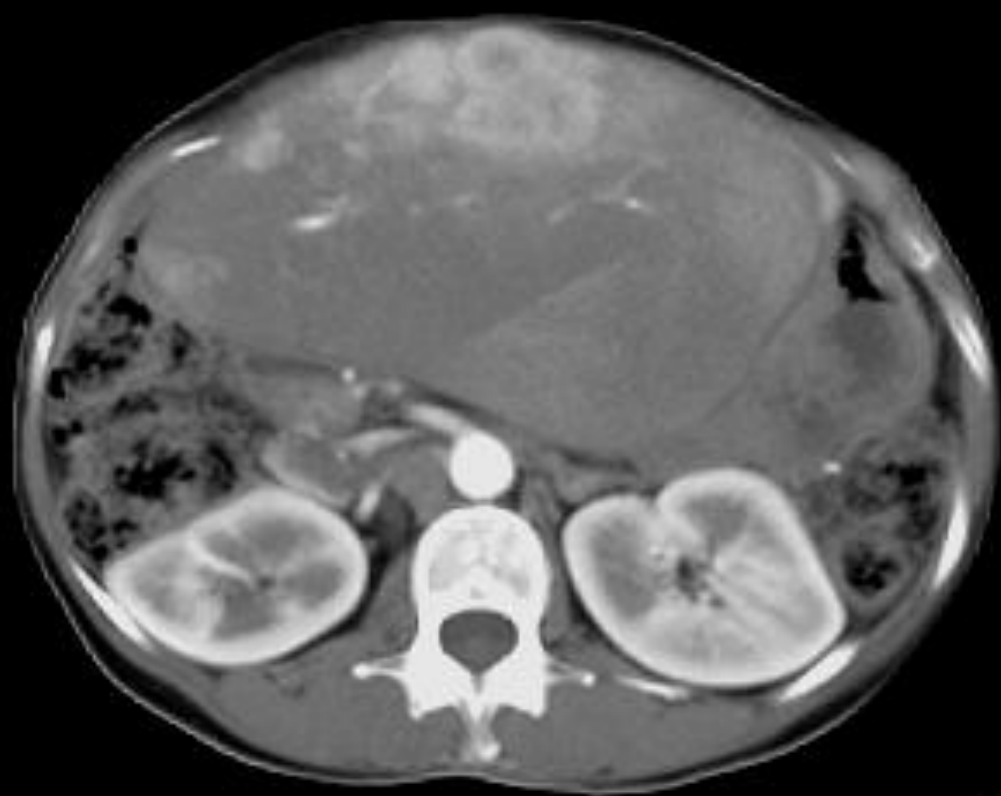




# Liver Abscess



- 50% multiple
- Pyogenic 88% Amoebic 10% Fungal 2%
- Causes of Pyogenic abscesses:-
- Biliary obstruction (cholangitis),  
Portal vein-diverticulitis, appendicitis, IBD  
Endocarditis  
Direct spread-perf ulcer, pyelonephritis  
Trauma-blunt/penetrating injury





# Hypervascular Metastases

- Renal cell carcinoma
- Melanoma
- Thyroid
- Neuroendocrine (carcinoid, gastrinoma, islet cell, glucagonoma)
- Choriocarcinoma



1  
210  
120

# Hypovascular Metastases

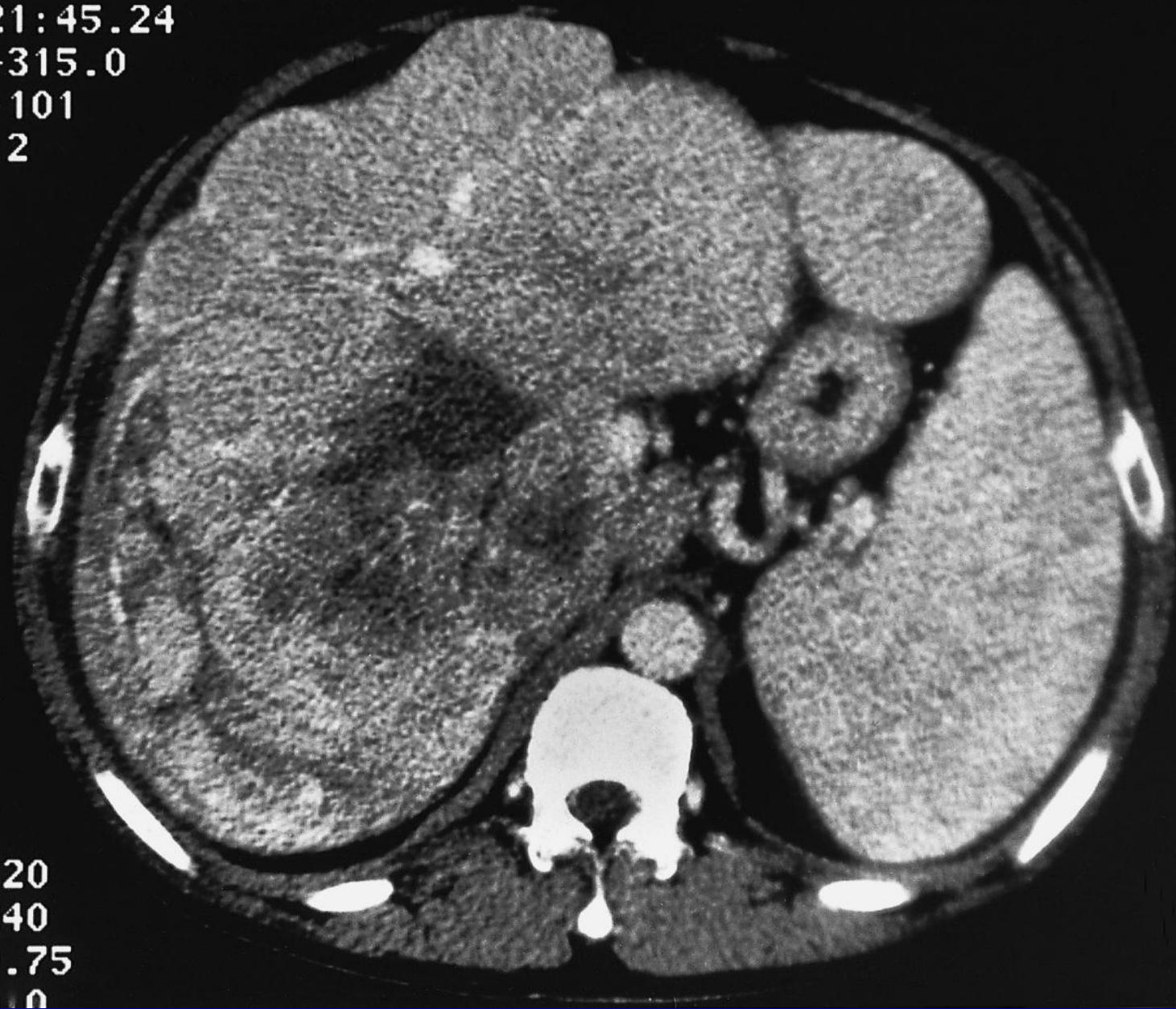
- Gut:- colon, stomach, pancreas
- Bronchus
- Breast

# Liver Metastases

- Liver-one of commonest site for metastases
- Common primary sites-colon, gastric, pancreas, breast, lung
- In a known carcinoma 25-50% have liver 2s at autopsy
- Often multifocal
- CT enhancement pattern depends on primary but can be variable



-JUN-1997  
:21:45.24  
-315.0  
A 101  
[ 2



120  
240  
0.75  
0.0



# HCC

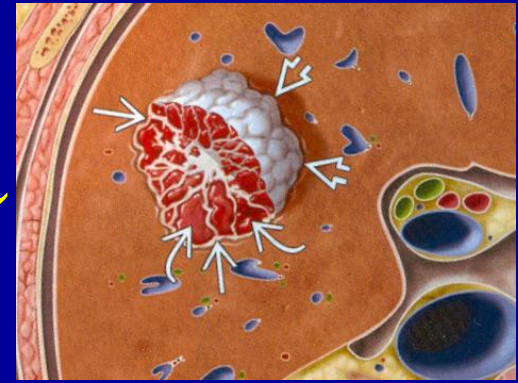
- One of commonest primary tumours worldwide
- Increasing in Asia and Africa
- ↑ in cirrhosis (80%), hep B, C, alcohol
- Three forms:- solitary, multifocal and diffuse infiltrative
- CT-Hypervascular lesion with chaotic vessels. Variable washout in portal phase
- Invades portal vein , Hep Vs and IVC







# Haemangioma



- Commonest solid benign liver tumour (7-20% of adults)
- F>M 2-5:1 up to 50% multiple
- Composed of dilated vascular spaces separated by fibrous septa
- Rarely bleed
- Characteristic enhancement with peripheral globular pattern with fill in over minutes

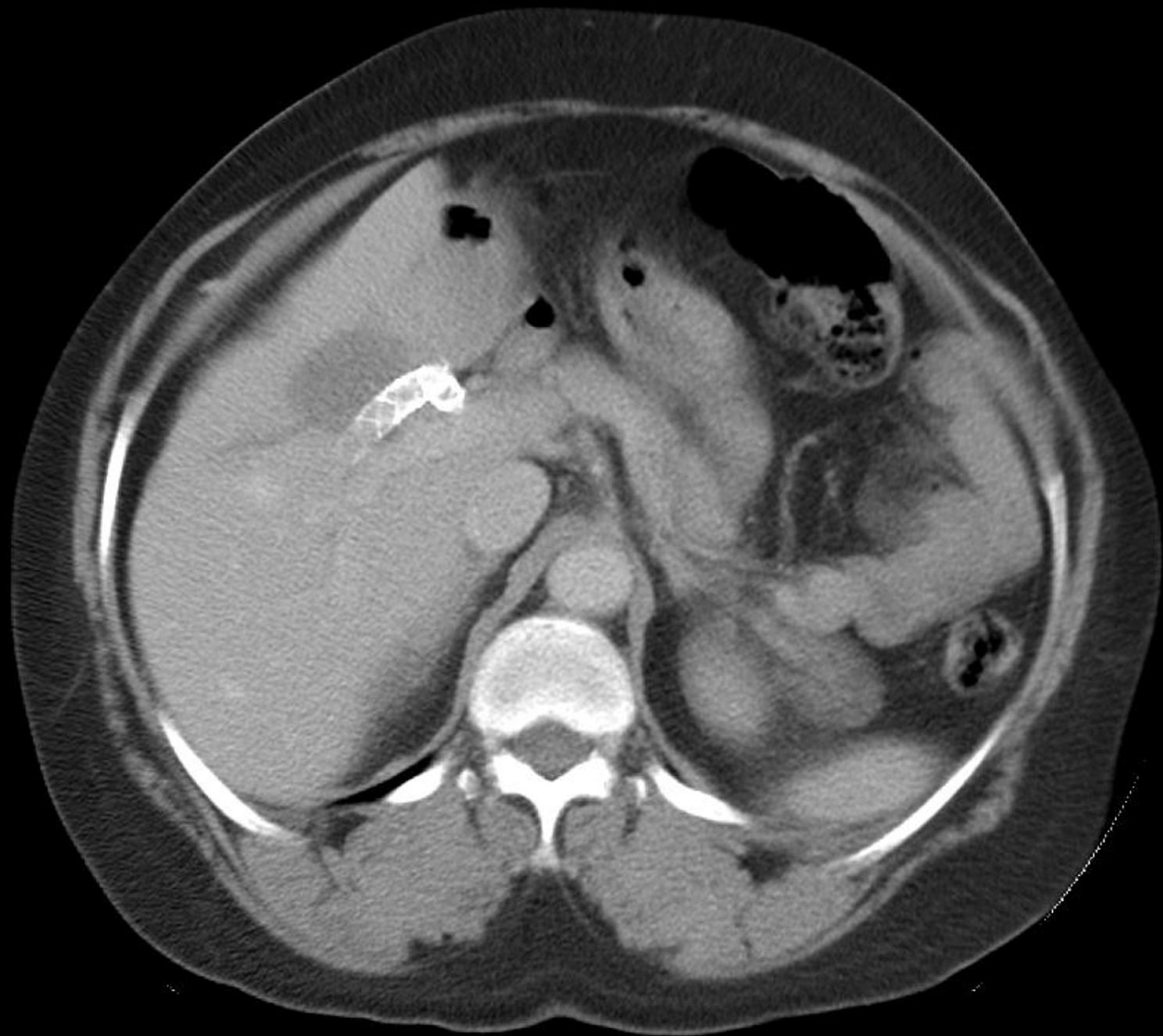


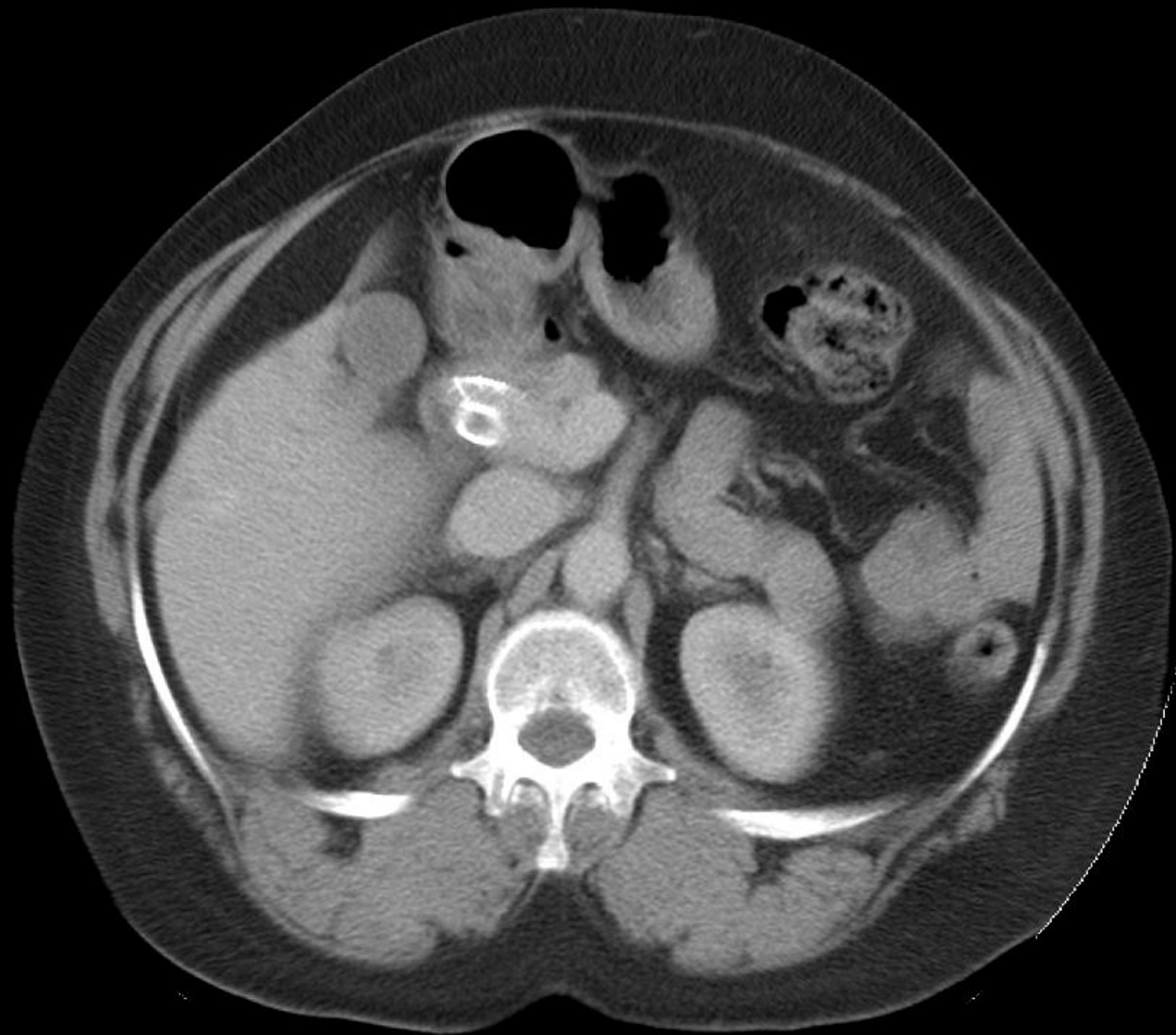




# Focal Nodular Hyperplasia

- 8% of primary liver lesions (2<sup>nd</sup> commonest benign lesion).
- Hamartoma (normal constituents in abnormal arrangement)
- F>M 8:1
- 3<sup>rd</sup>-5<sup>th</sup> decade 10-20% multiple
- CT: Avid arterial enhancement from a central feeding vessel. Remains hyperdense in portal phase
- Central stellate scar in 20%







GE MEDICAL SYSTEMS  
HiSpeed ZXI

A 167

SYNCOPE - CONFINÉ  
ZXI abdo pelvis

XY Ax 1106.0 (cof)  
DFOV 30.9cm  
STD+

512 X 512  
Mag = 1.02

FL:  
ROT:

R

1  
7  
6

L

1  
3  
3

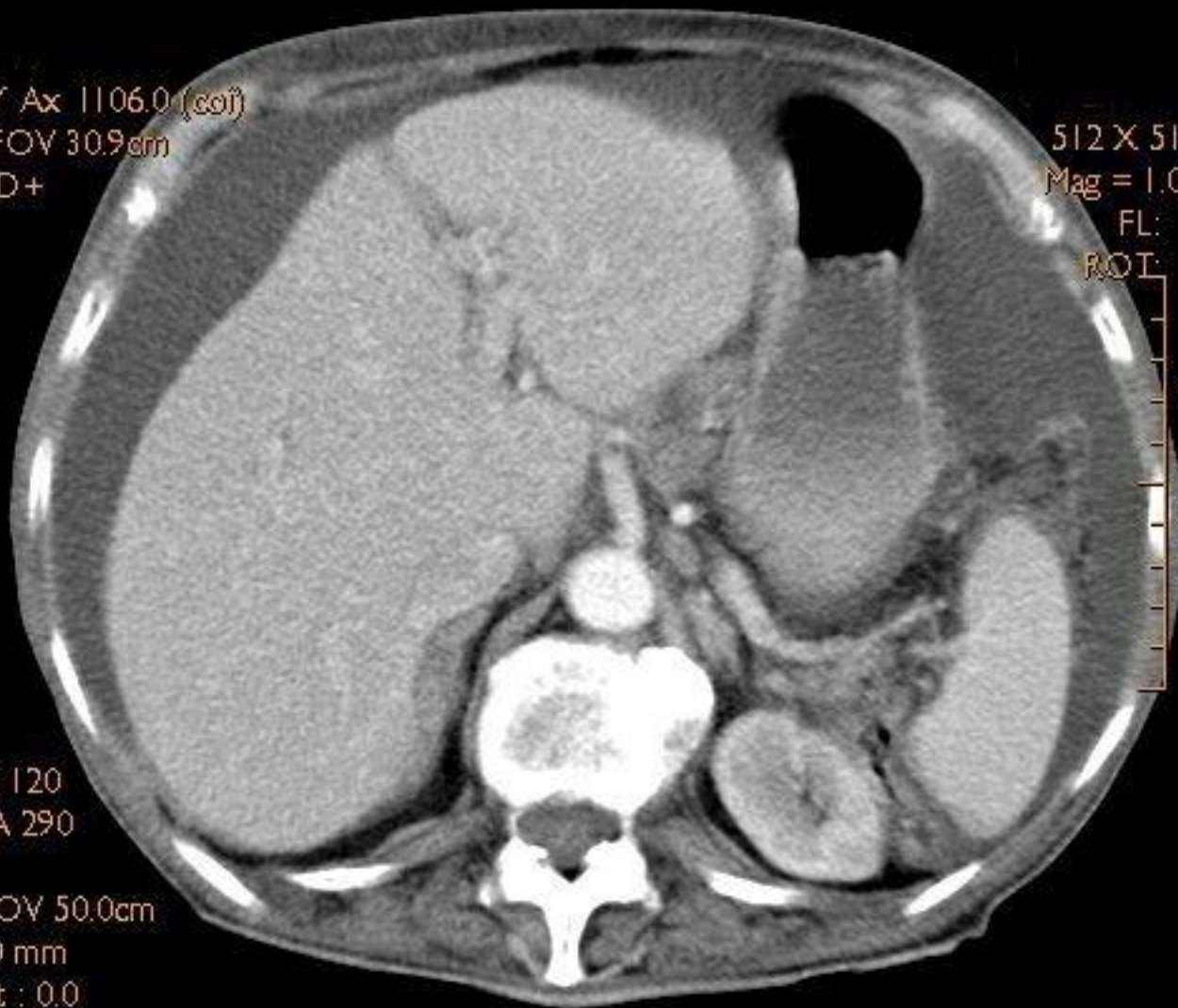
kV 120  
mA 290

SFOV 50.0cm  
5.0 mm  
Tilt : 0.0

0.7 s HELICALPLUS MODE

MWW: 251 WL: 47

P 143



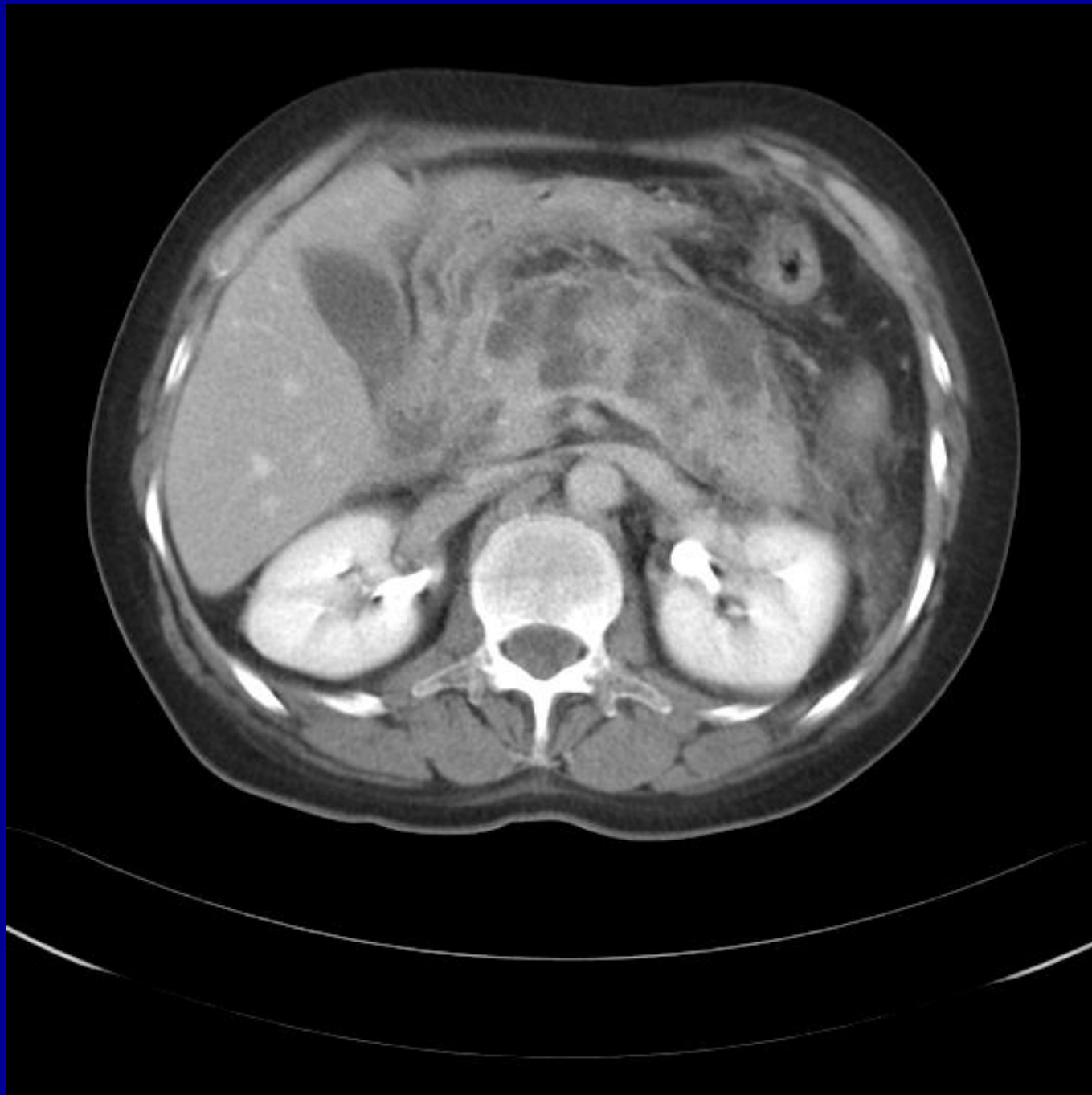


# Spleen





# Pancreas



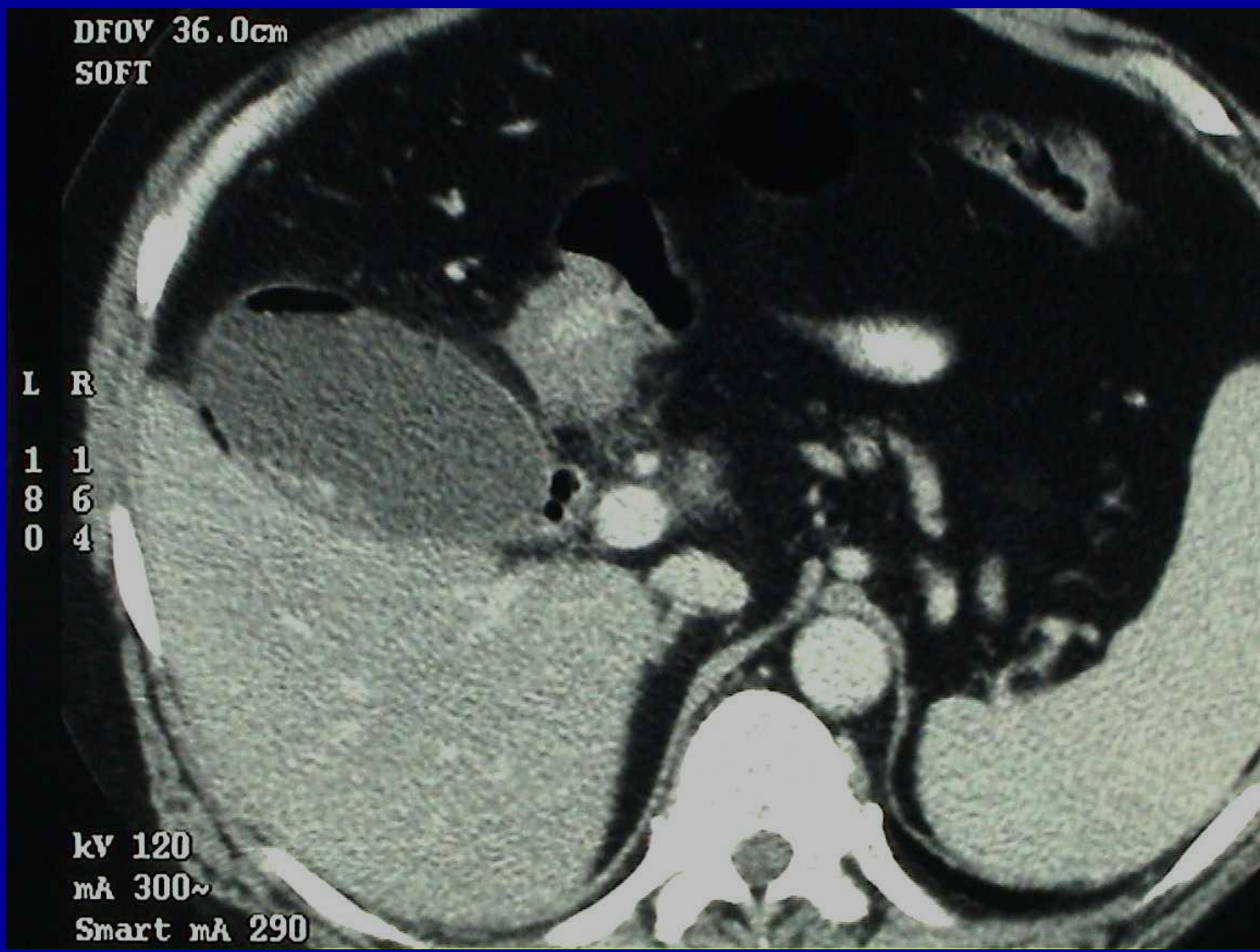




DFOV 36.0cm  
SOFT

L	R
1	1
8	6
0	4

kV 120  
mA 300~  
Smart mA 290



Bowel

3D  
Ex: 5472  
Se: 4  
Volume Rendering No cut

DFOV 42.6 cm  
STND  
4/0

P  
L

R  
L

No VOI  
kv 120  
mA 100  
0.7  
3.0 mmHS/2.0sp  
Tilt: 0.0  
10:04:25 AM  
W = 1103 L = 2294





# CT Colonography

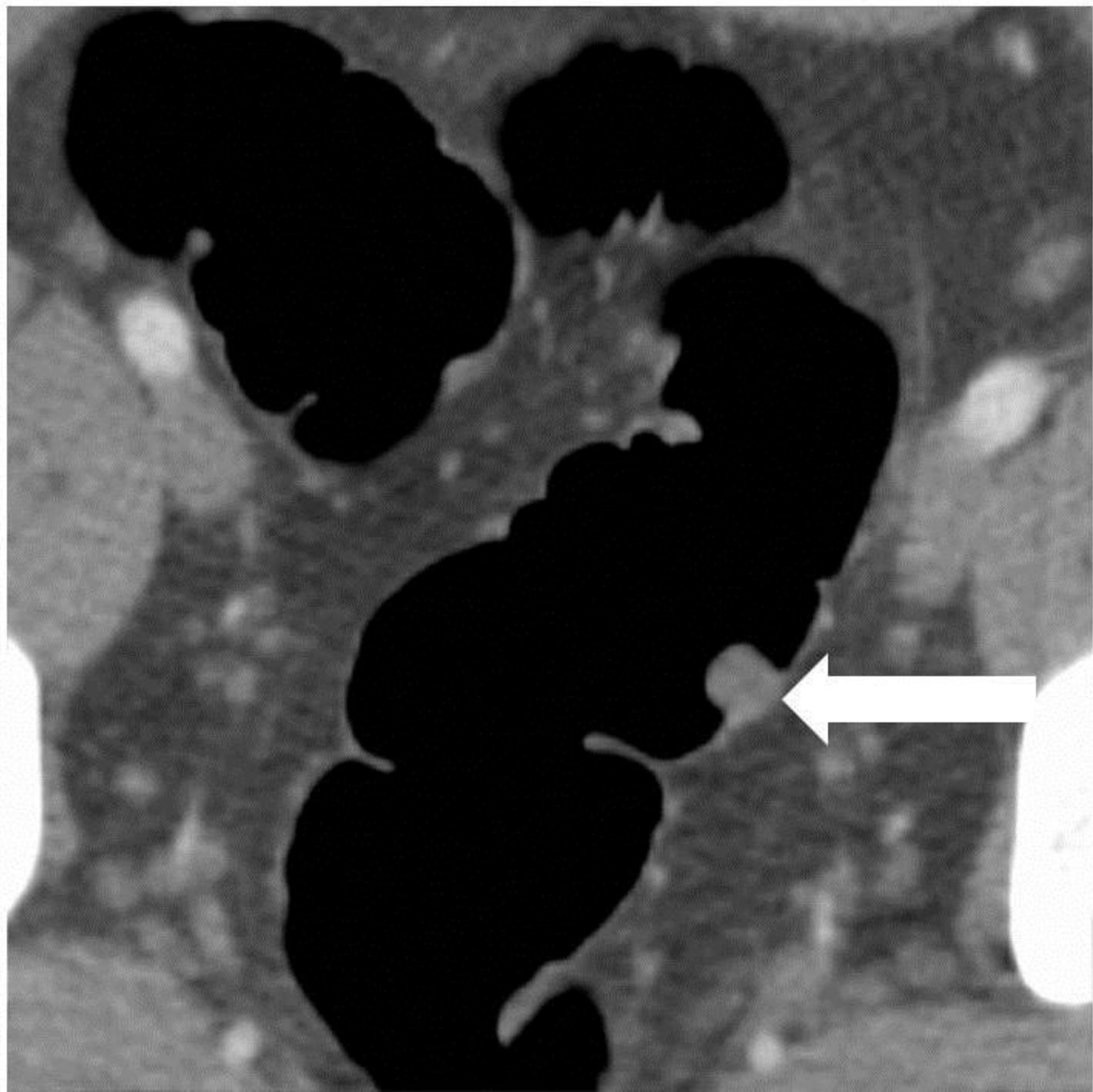
## Technique

- Bowel preparation (picolax)
- Bowel relaxant (Buscopan IV)
- Rectal gas insufflation (CO<sub>2</sub> or air)
- Scan supine and prone
- IV contrast
- Available in 1/3 NHS centres

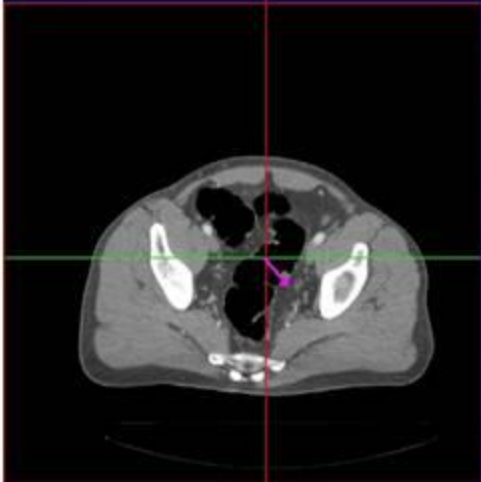
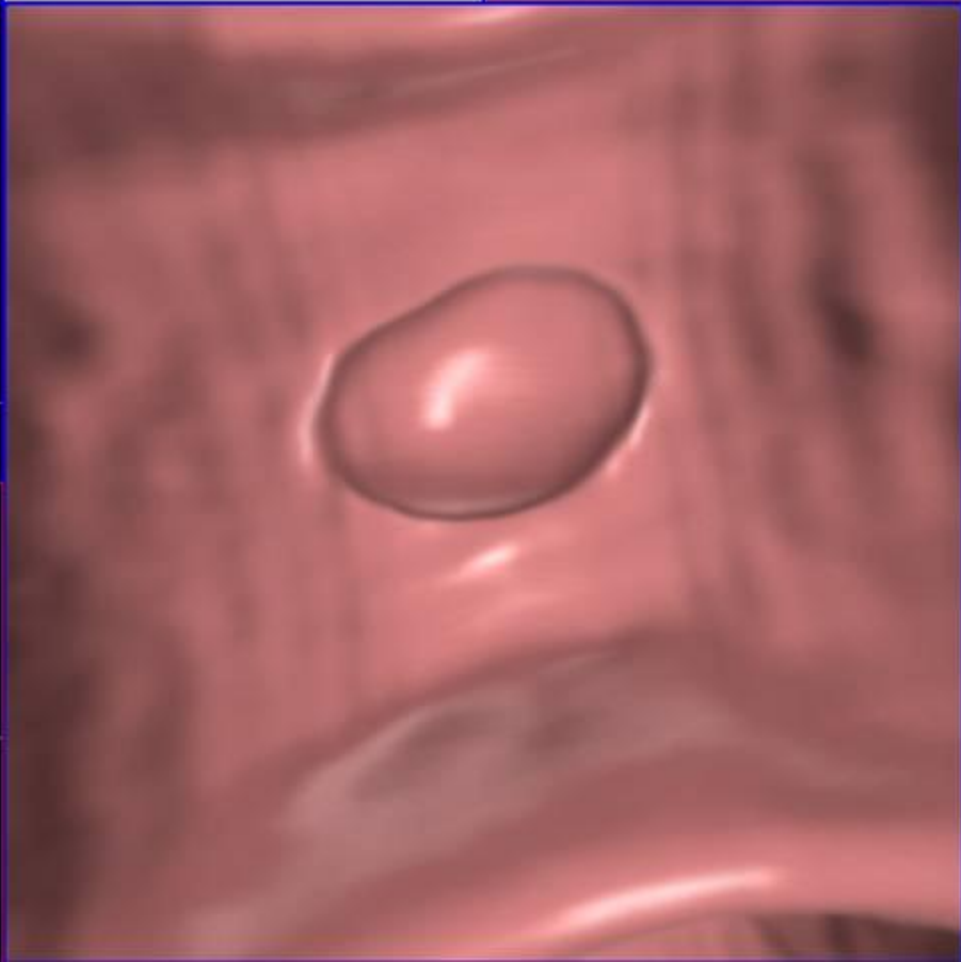
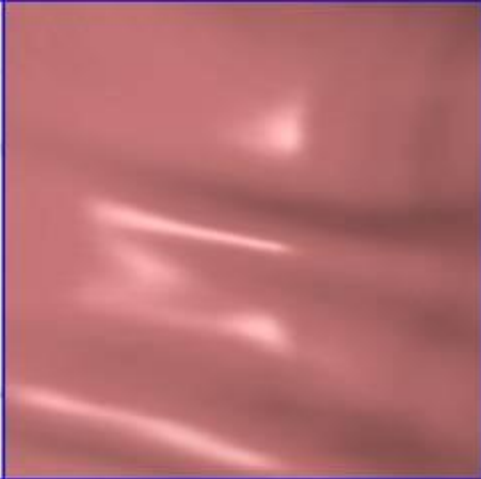
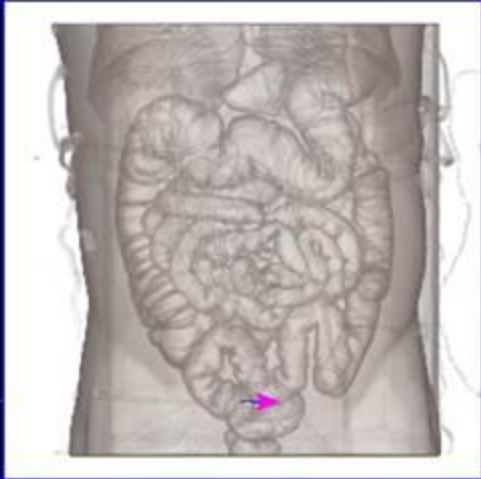






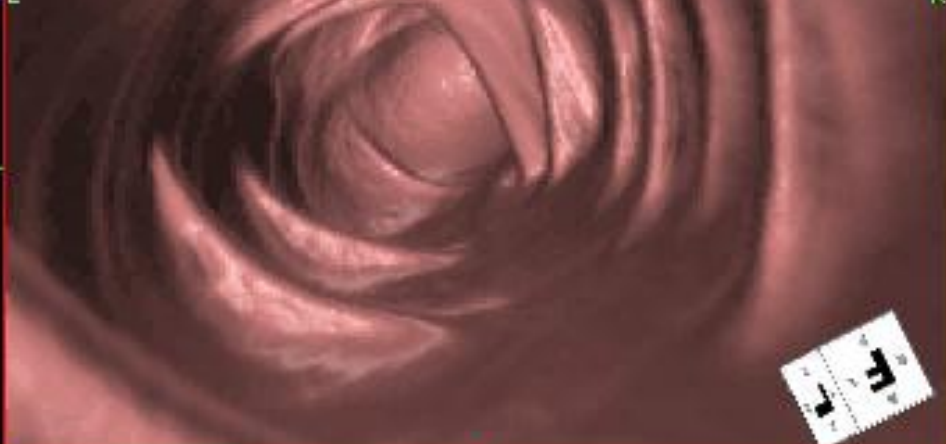
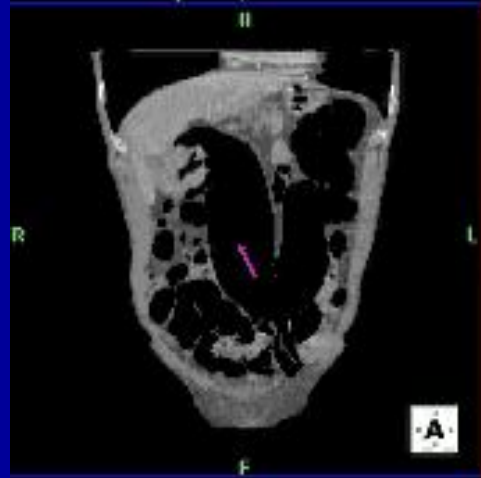
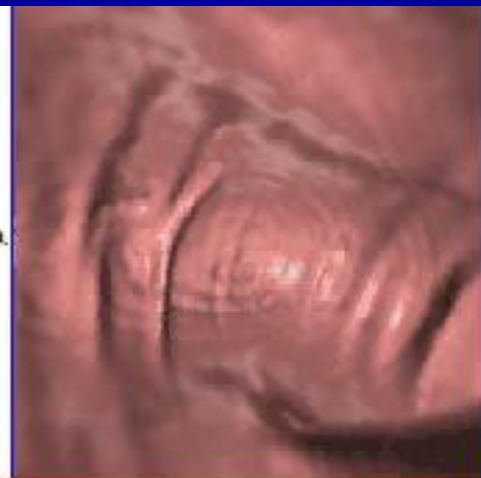
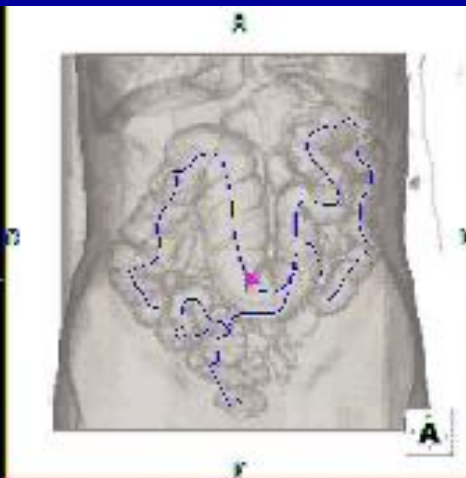


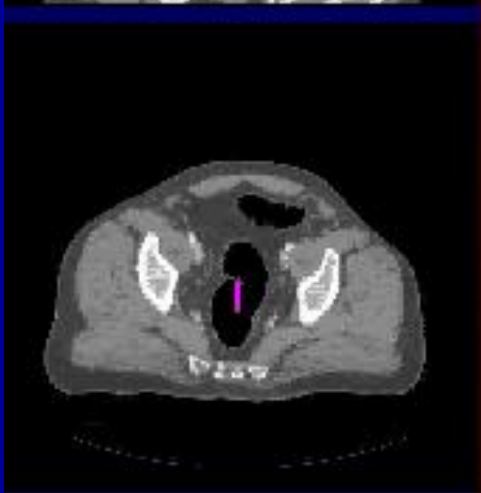
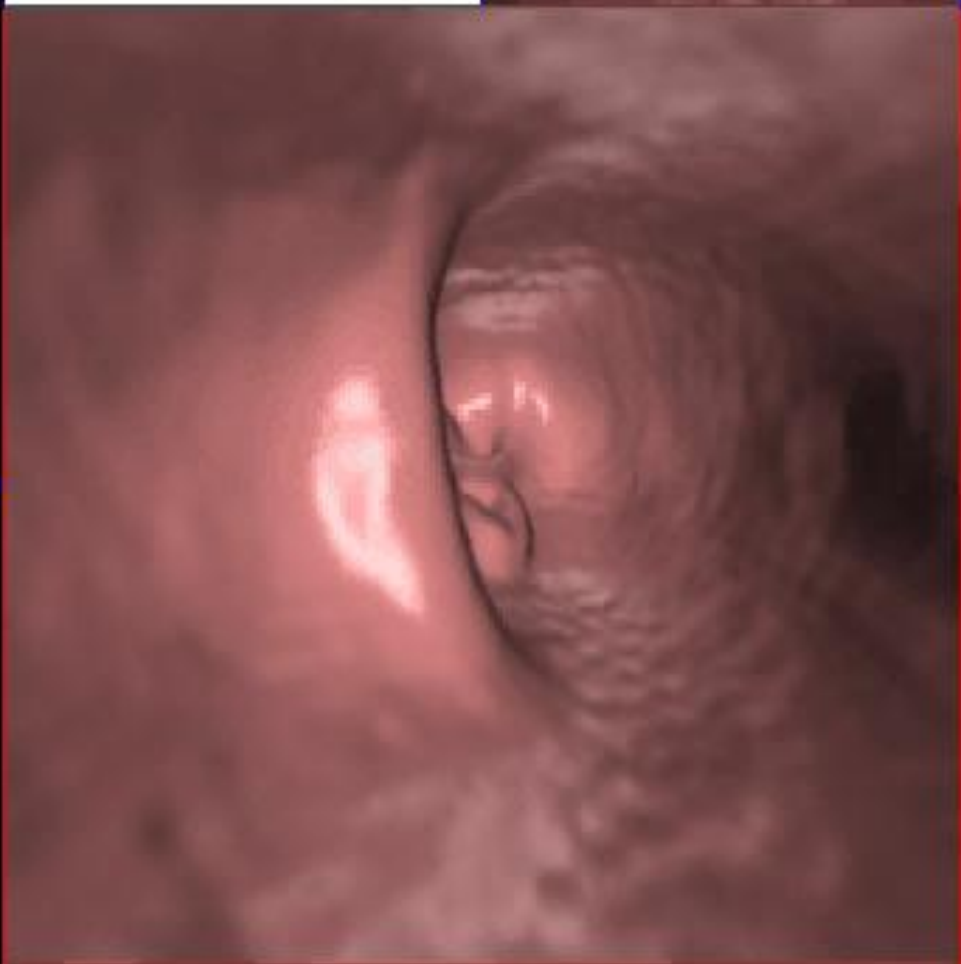
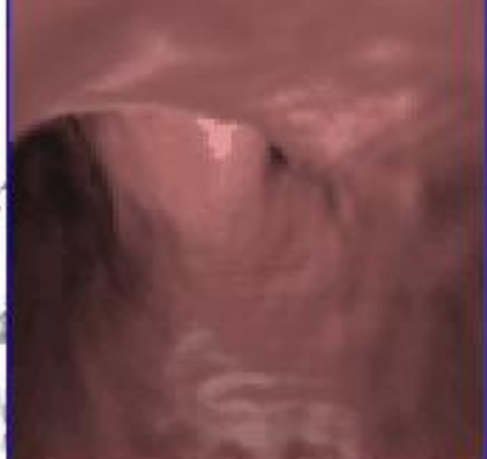
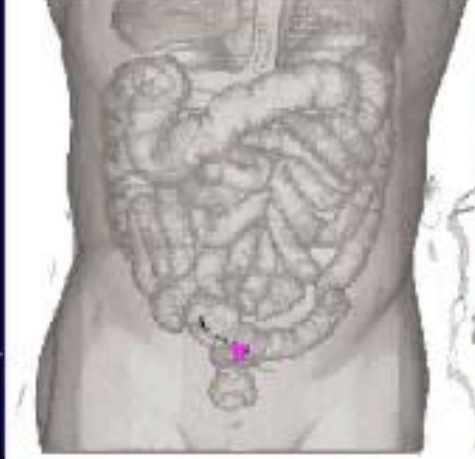
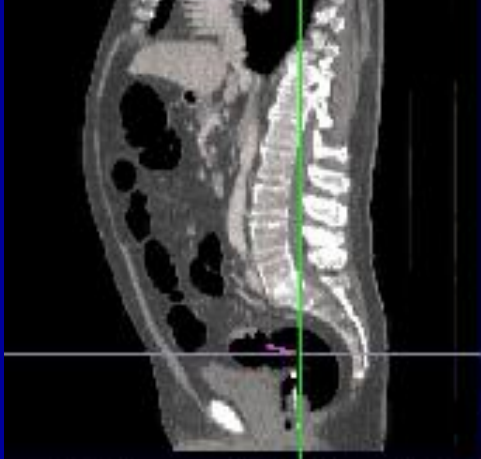


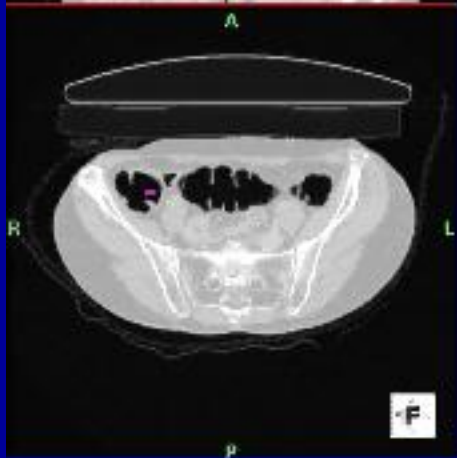
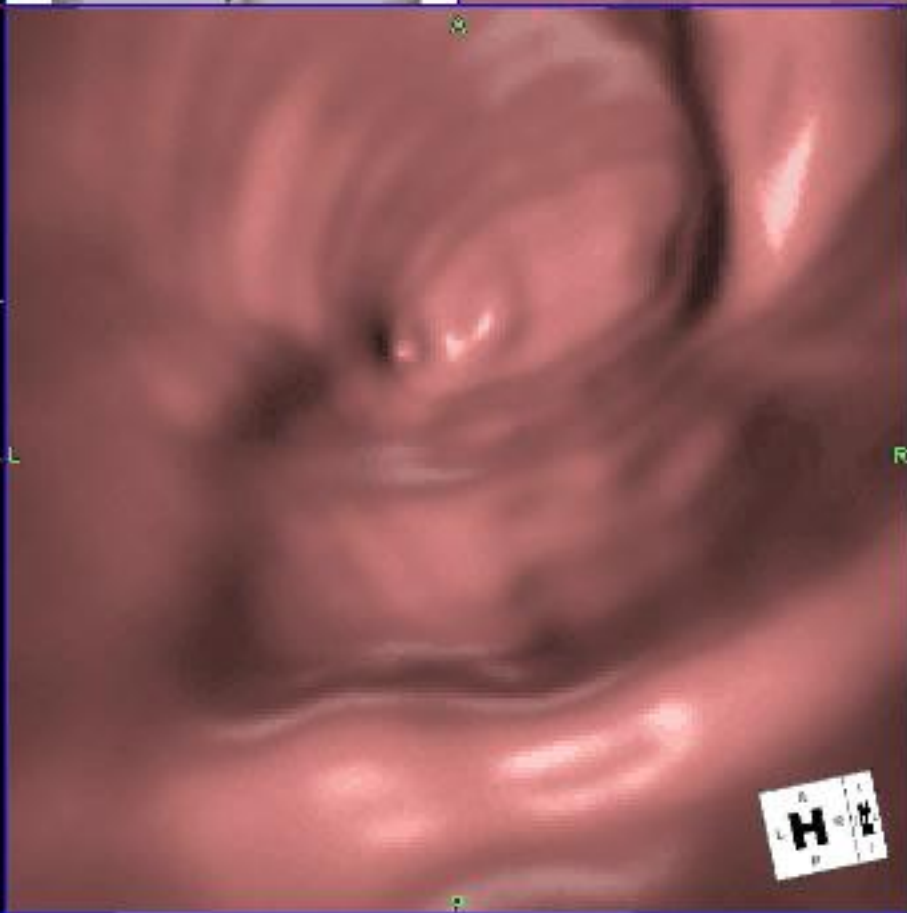
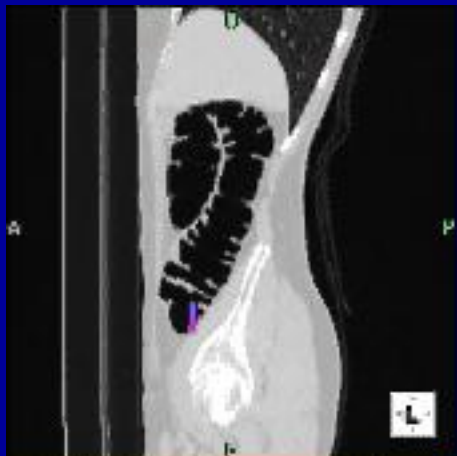


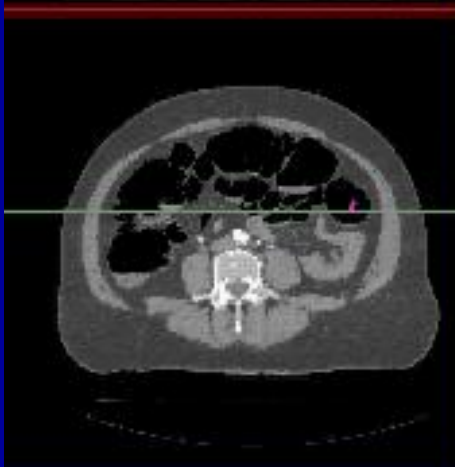
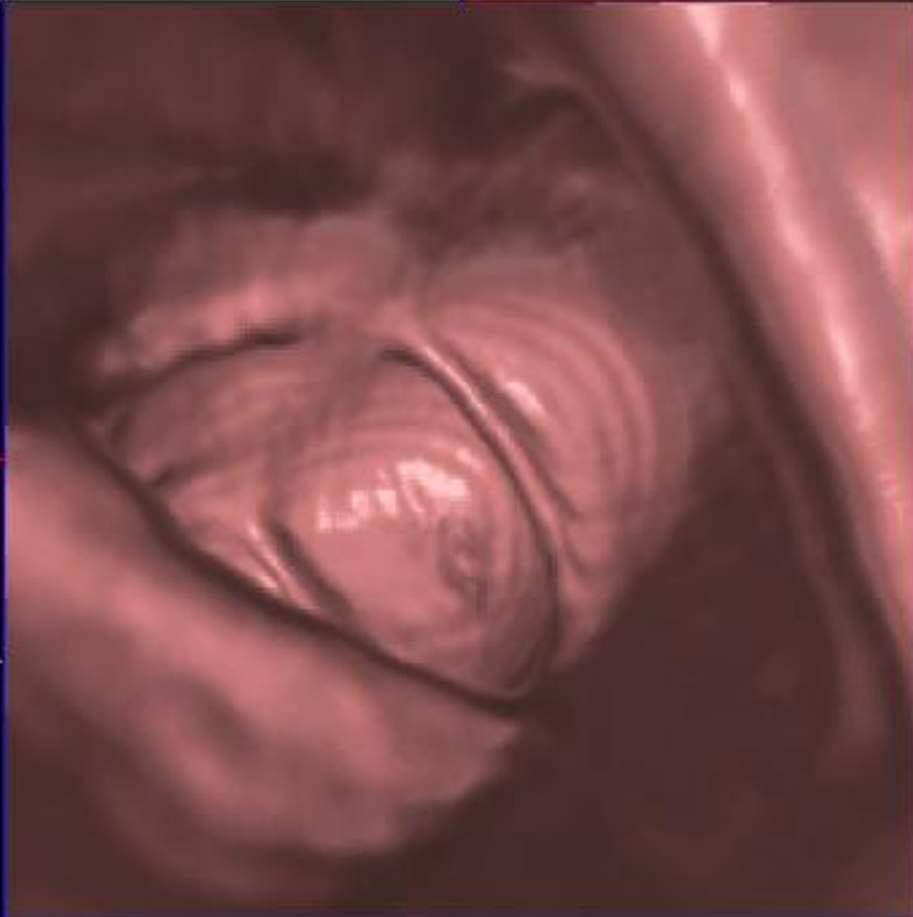
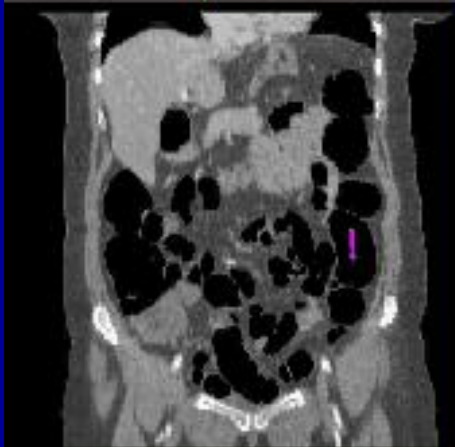
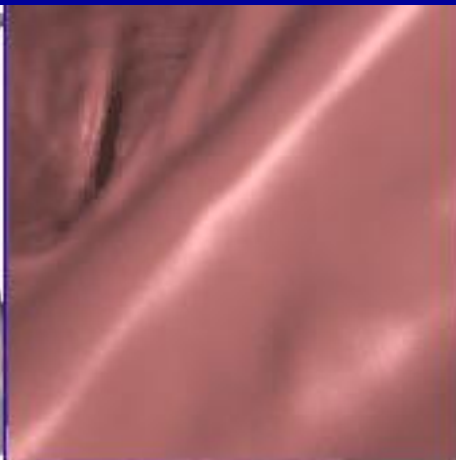
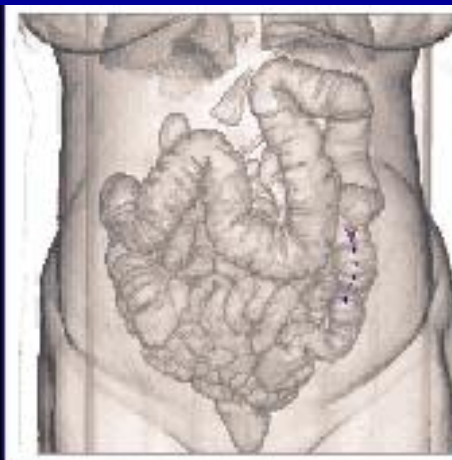
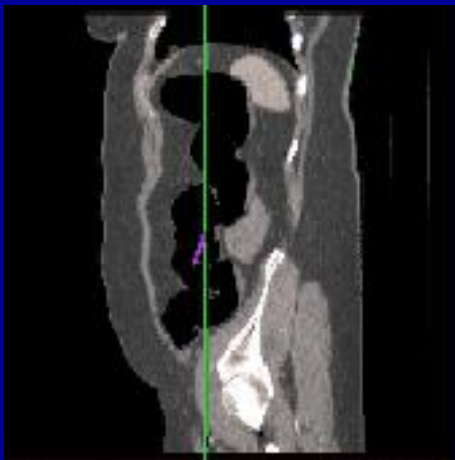








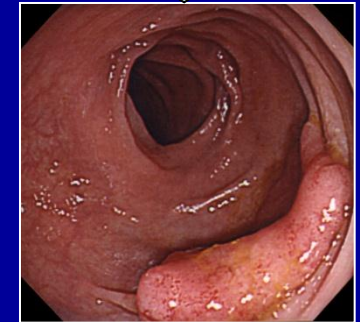
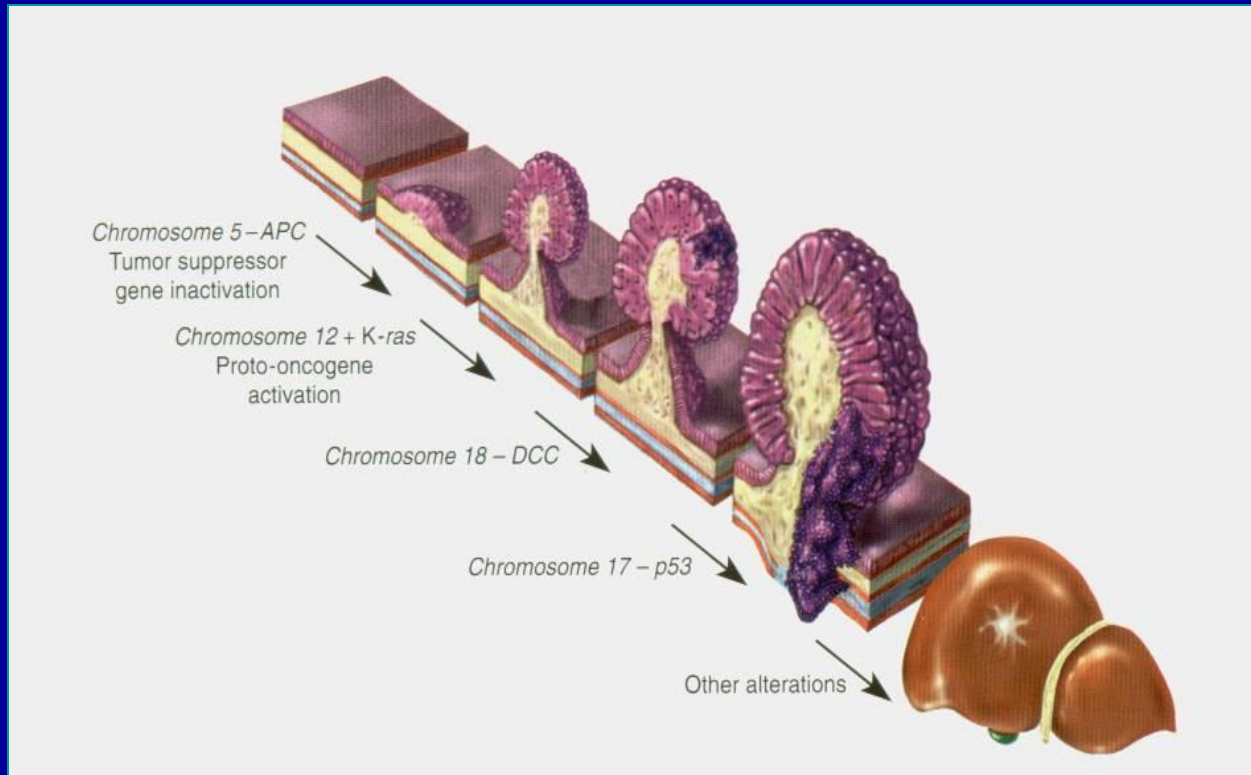




# Pathogenesis -

## Adenoma Carcinoma Sequence

- ❖ Most colorectal cancers arise from adenomatous polyps
- ❖ This progression may take up to 10 years in some people



# Virtual Colonoscopy

- Polyp detection
  - > 1 cm sensitivity/specificity > 95%
  - 5-9 mm sens 70-80 % spec 85%
- Safer, quicker, cheaper than conventional colonoscopy
- Useful in frail and failed colonoscopy
- Research- screening tool, cost benefit

# Benefits over existing techniques

- Quick (10-15mins)
- Safe –no sedation, non-invasive
- Perforation rate (CTC 0.03%, Csy 0.13%)
- Mortality rate (CTC 0, Csy 0.02%)
- Higher success rate >90%
- Can image colon prox to stricture
- Stage colorectal cancer
- Detection of important extracolonic findings (5-10%)
- Potential reduced bowel prep

# New Developments

## Computer assisted detection

- Computer extracts the gas filled colon from the CT dataset
- Looks for filling defects in the colon which could be polyps or cancers
- Highlights these to the reporting radiologist
- Improves sensitivity



**Visual** | **Analysis** | **Batch**

Grab |  W/L |  Ellipse |  Free |  Snap  
 Undo |  Restore |  Surface |  Sculpt |  Measure

**Segmentation Options**

**Sculpting Options**

- Include
- Exclude

**Segment Objects**

- Visible
- Bone Only
- Vessel Only

Upper: HU | Lower: HU | Min Vol: 10 | CC | Remove Fragments

**Object Visibility**

**Sculpt** | **Vessels**

- Transparent Background
- Semi-Transparent Background
- Tinted Foreground
- Show All
- Transparent Foreground

**Fly Through Tools**

Update All Views

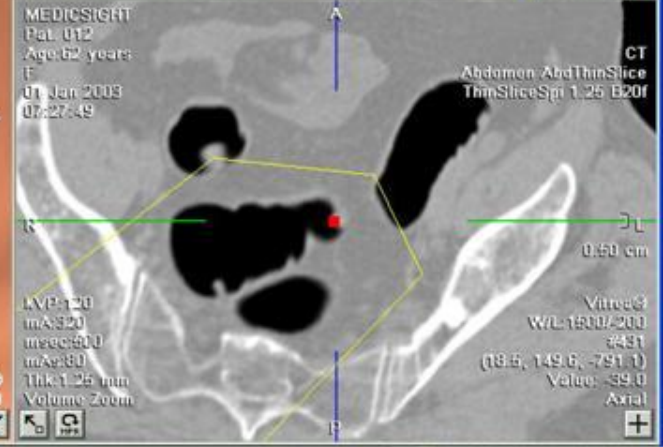
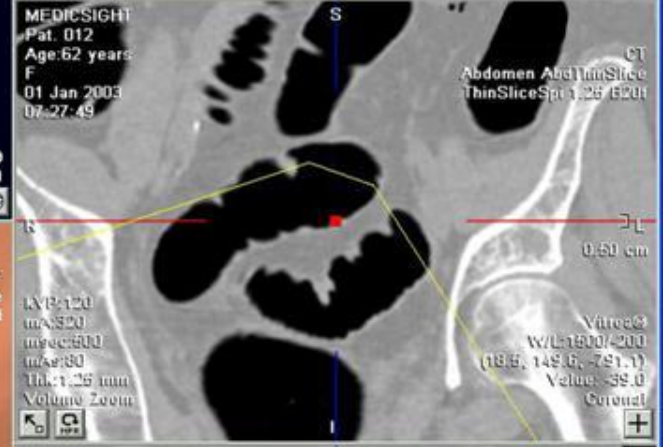
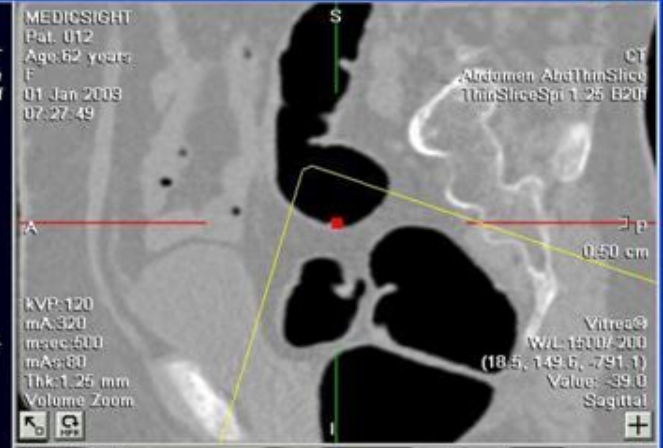
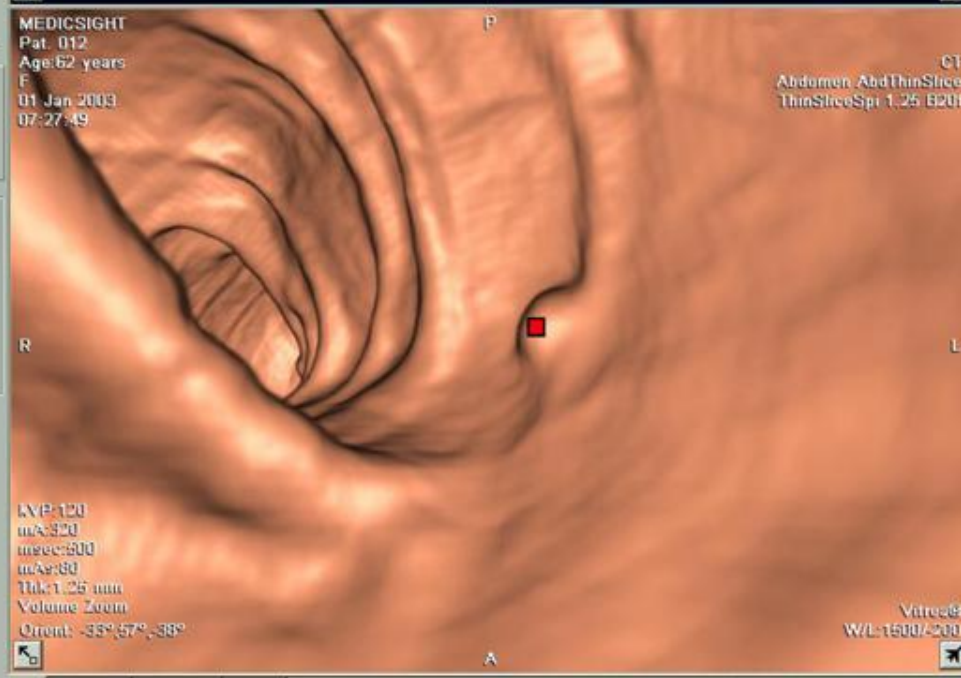
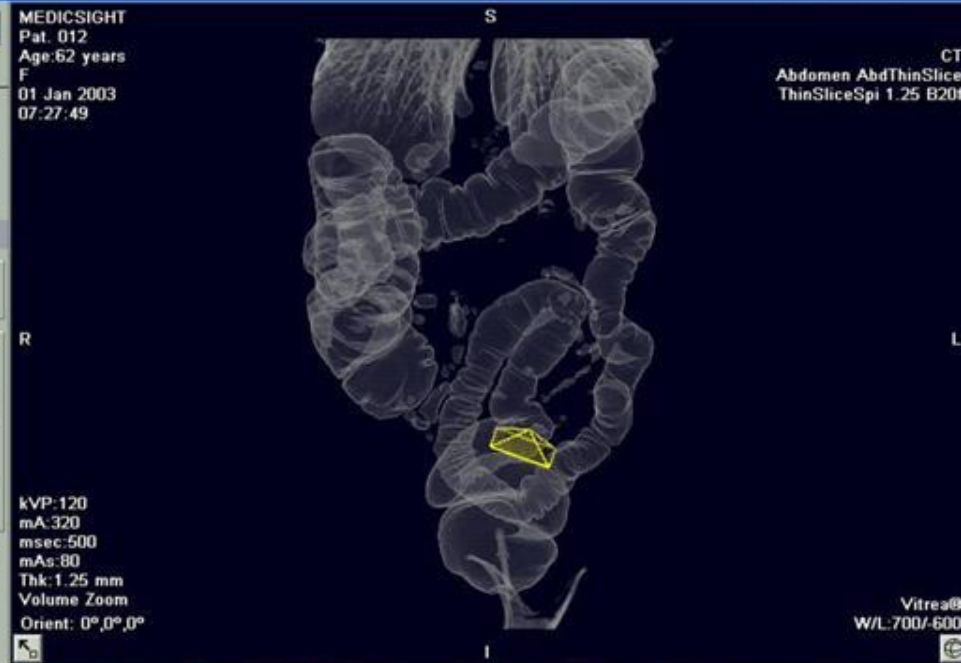
**Colon CAR Options**

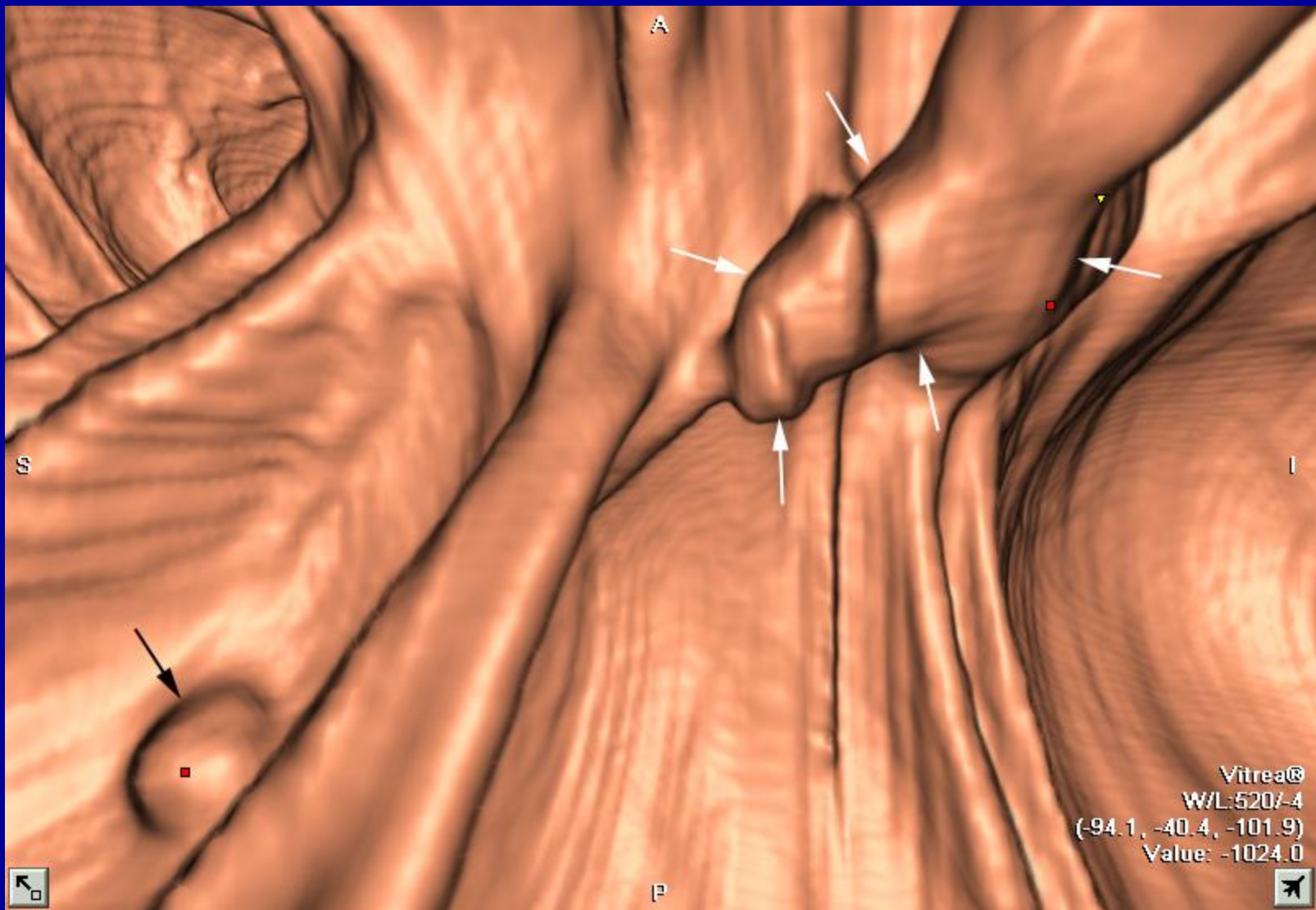
Display Candidates | Reset

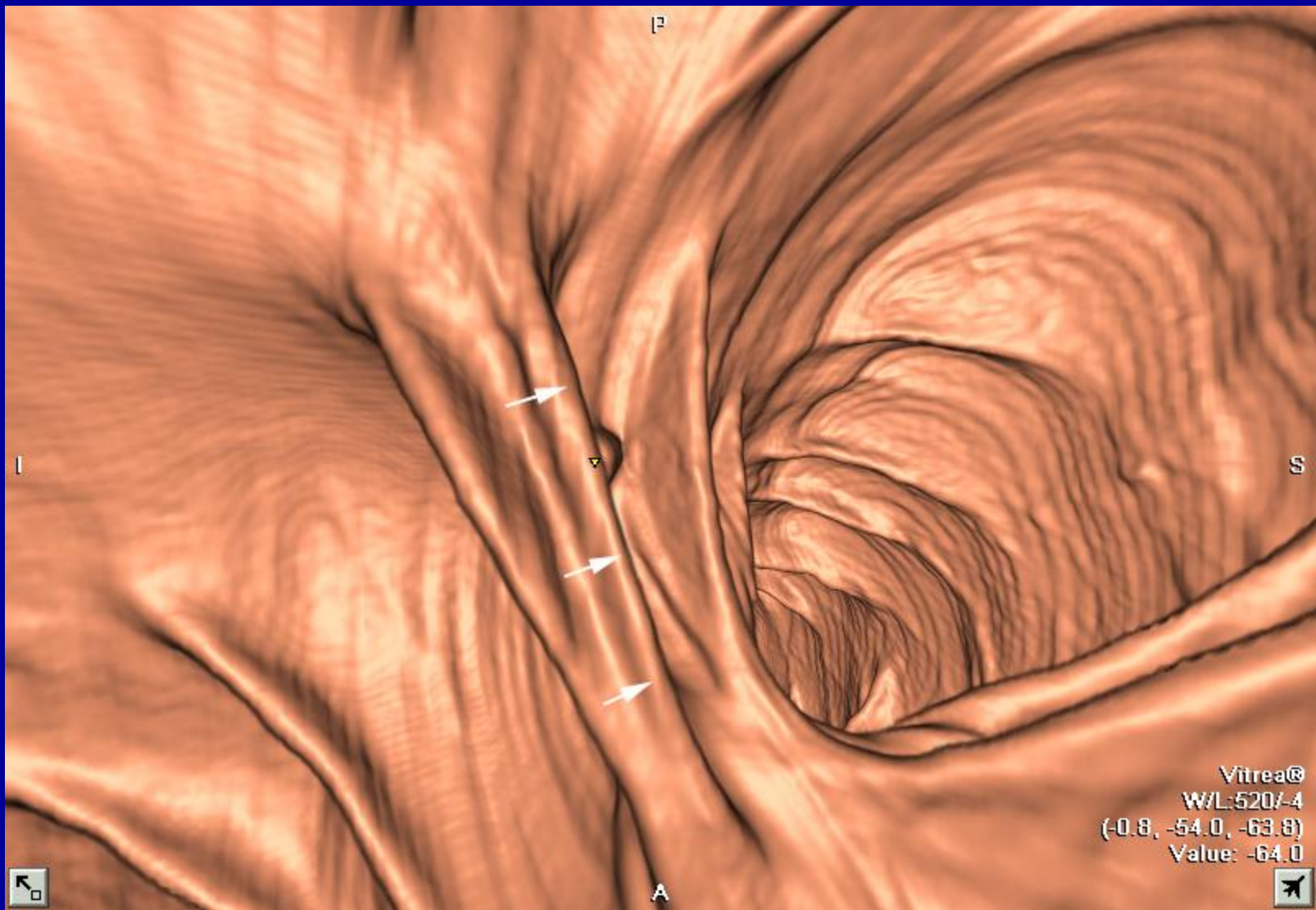
Sensitivity: 5

Current dataset candidates - #: 7

**MEDICSIGHT**  
See more. Save more.

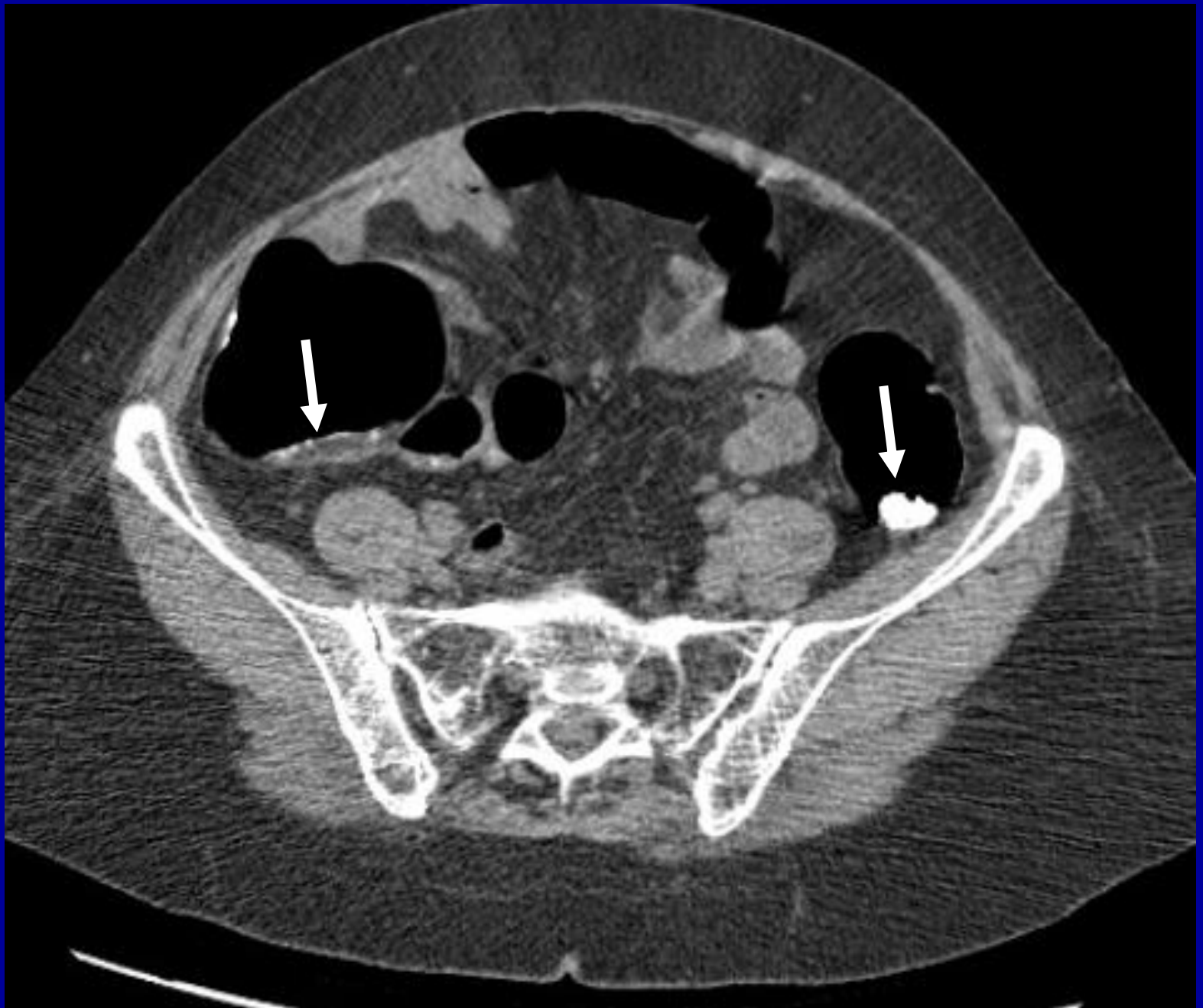


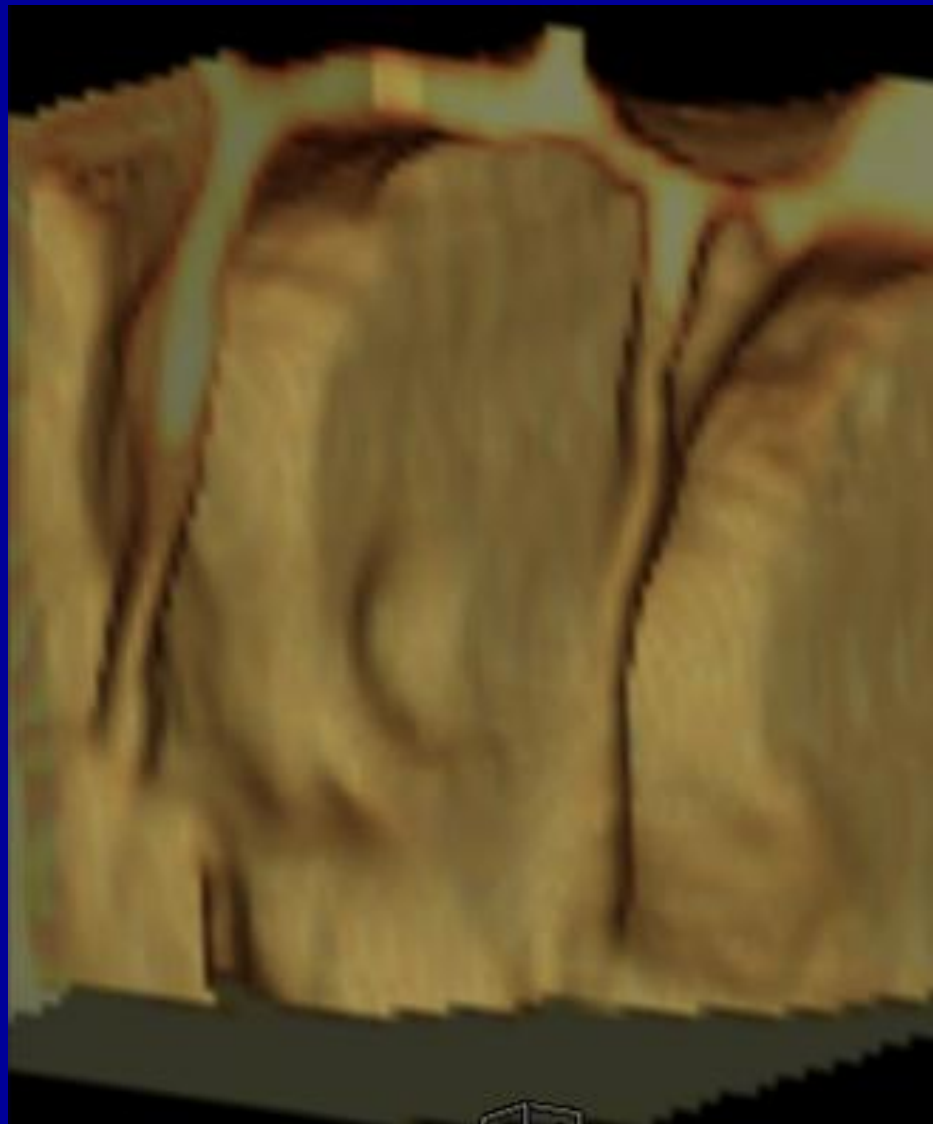
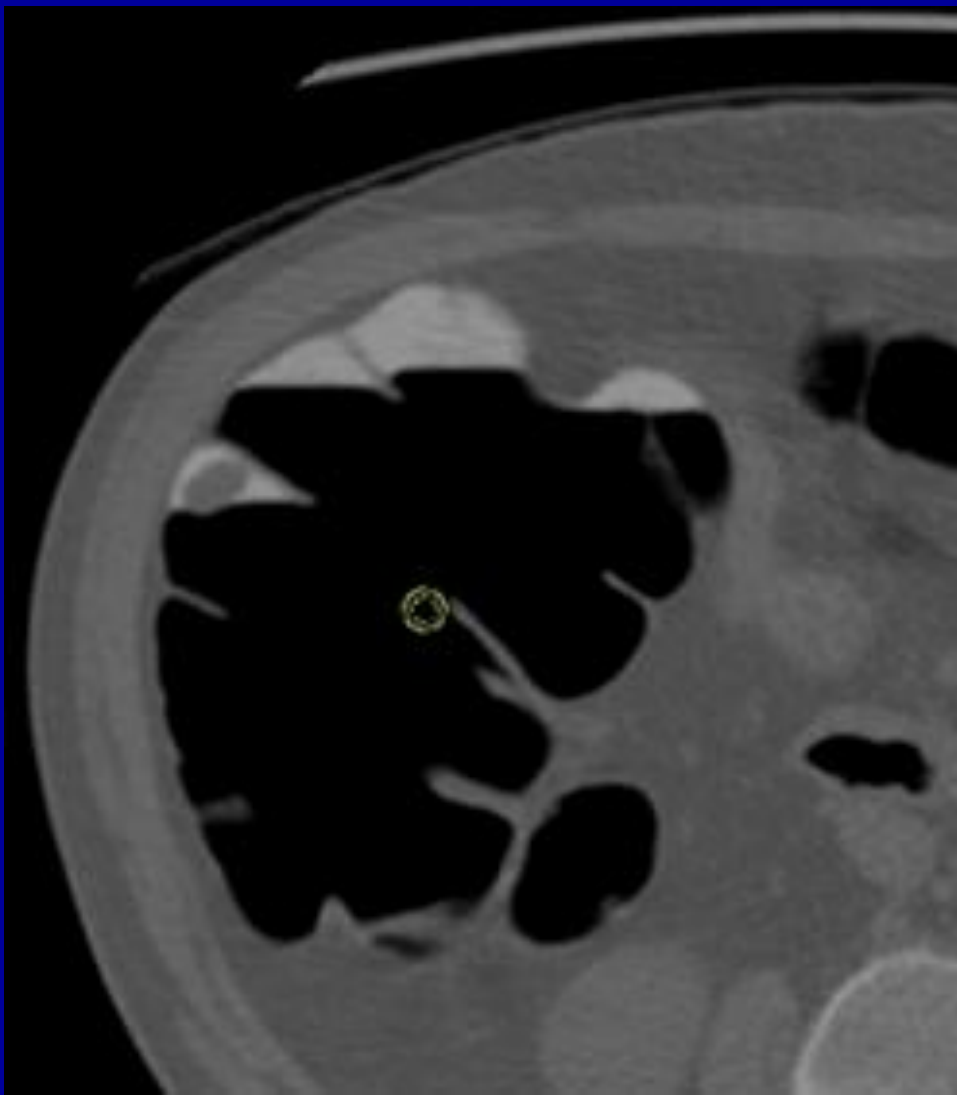




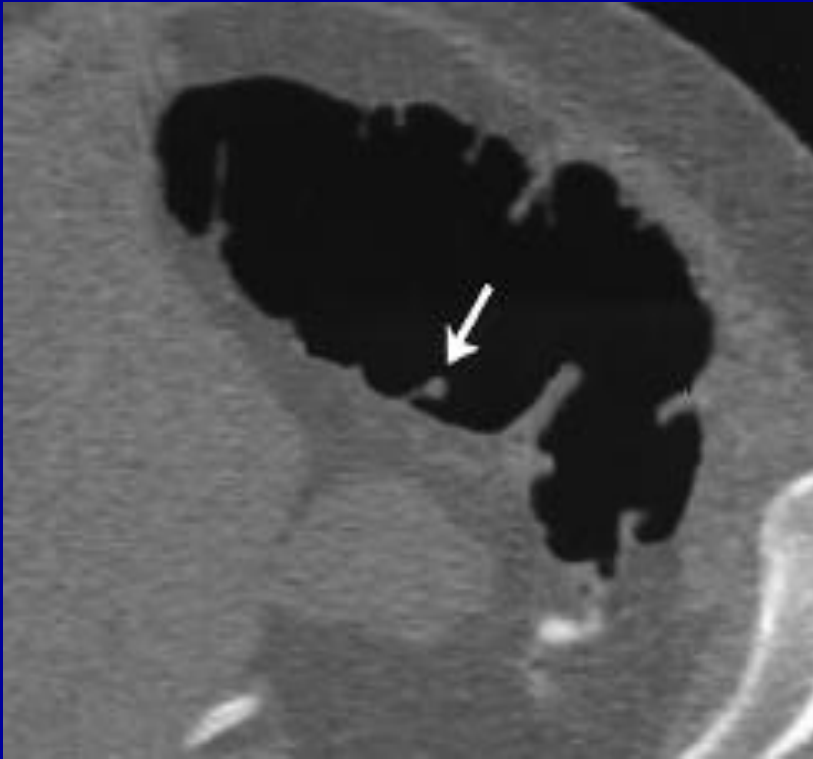
# Faecal Tagging

- Patients hate full bowel preparation
- Use tagging regimens to reduce the need for bowel preparation
- No preparation





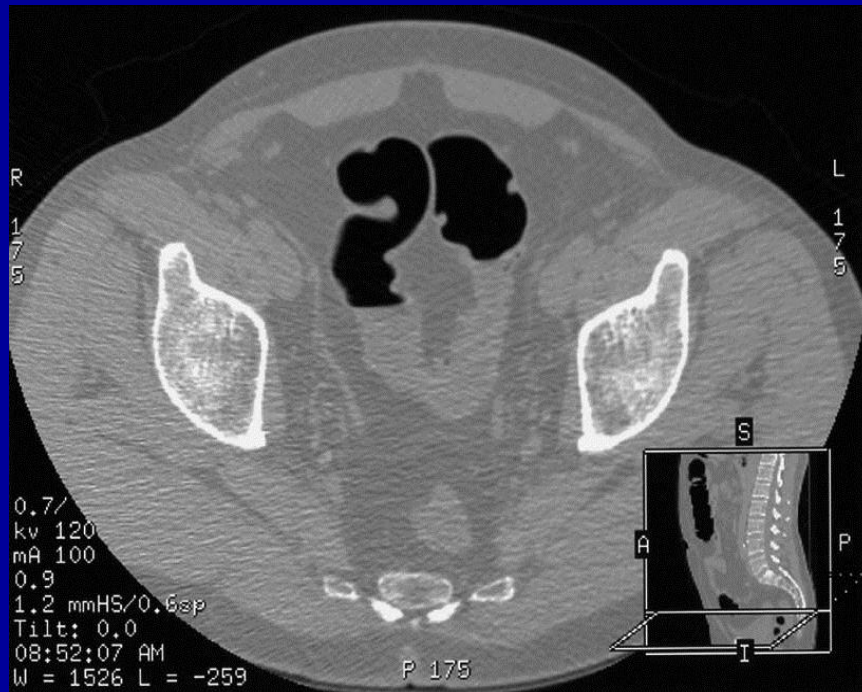
# Subtraction



**Pickhardt PJ et al. AJR 2003;181;799-805**

# Limitations of CTC

- supine



- prone





# Limitations of CTC

## Radiation Dose

- MDCT 6-10 mSv but can be reduced to 0.7-1.7 mSv and still retain polyp sensitivity
- Barium enema 7mSv
- Annual UK background radiation 2-3 mSv

# Limitations of CTC

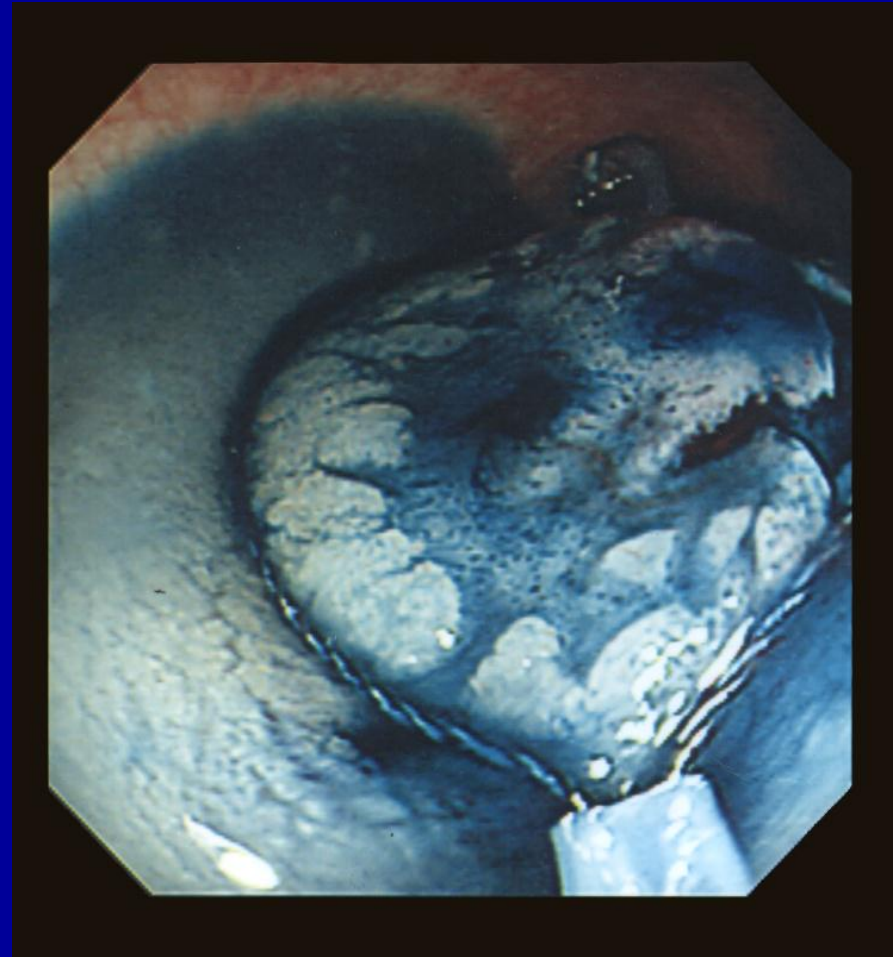
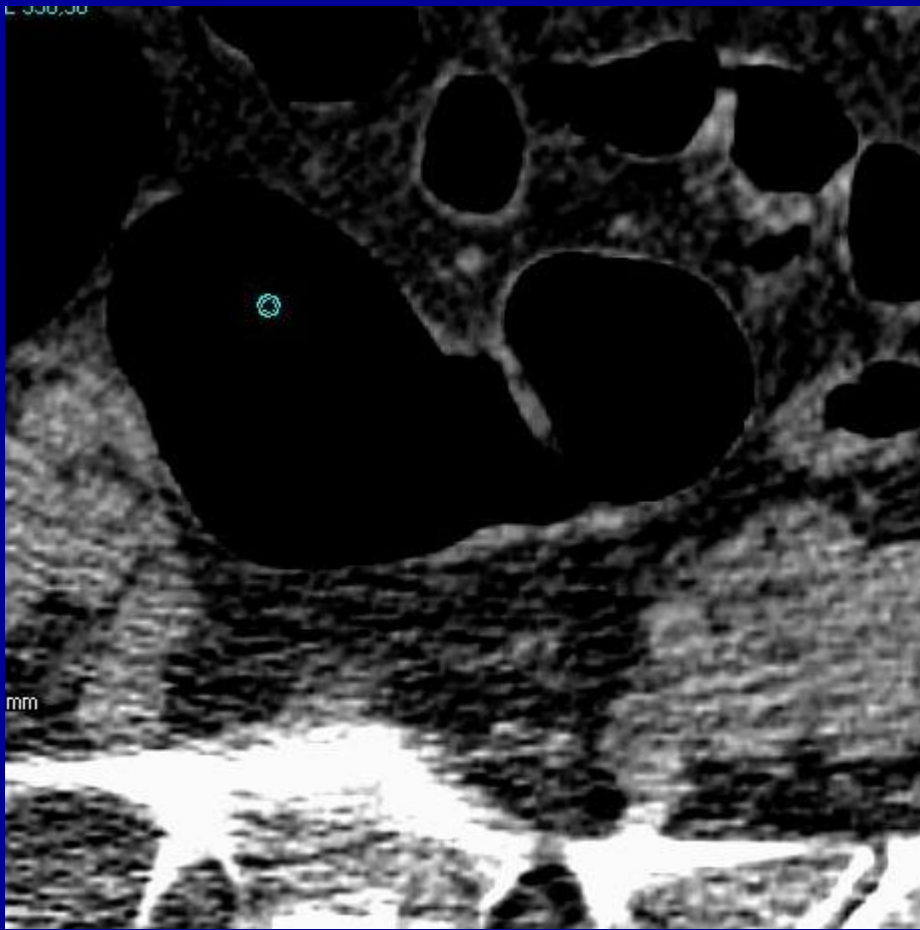
## Small polyps

- <6mm sens 48% spec 92%
- 6-9mm sens 70% spec 93%

## Flat polyps

- poor

# Flat polyps: 12mm sigmoid polyp



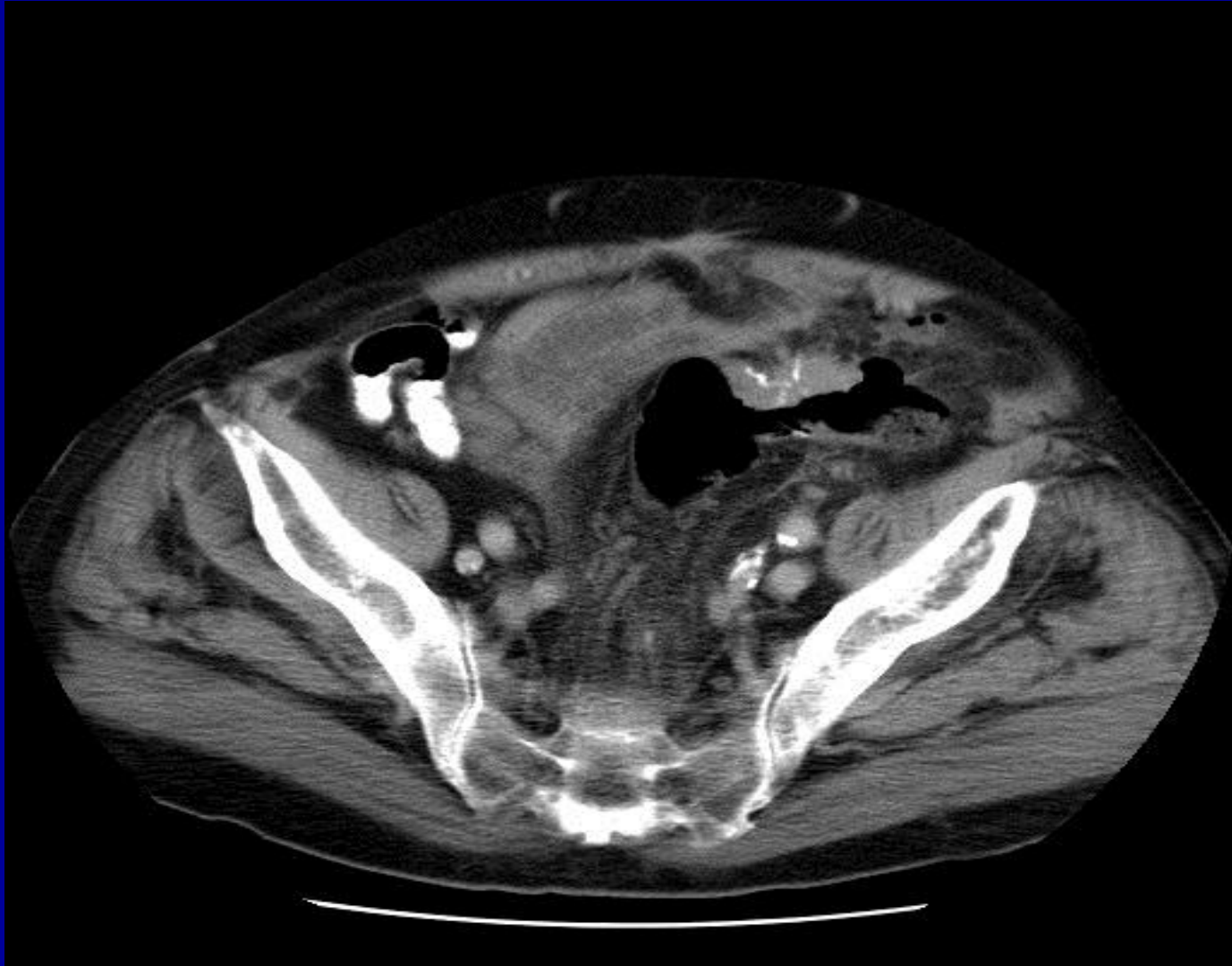
# Where might CT fit in?

- Symptomatic patients
- Those most at risk from endoscopy-related adverse events – elderly/frail screenees
- Screenees who refuse endoscopy or would prefer CT
- Moderate risk of CRC with ? same day OC

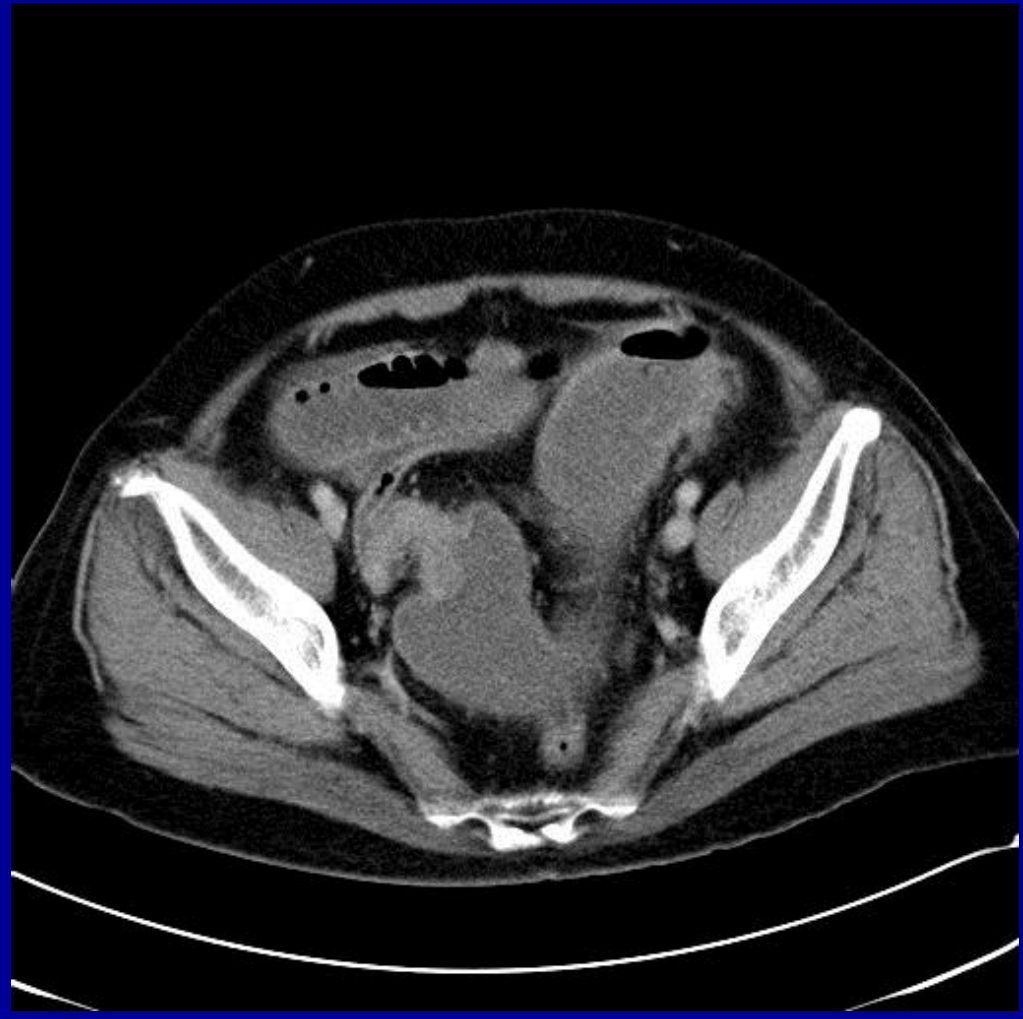
# Conclusions

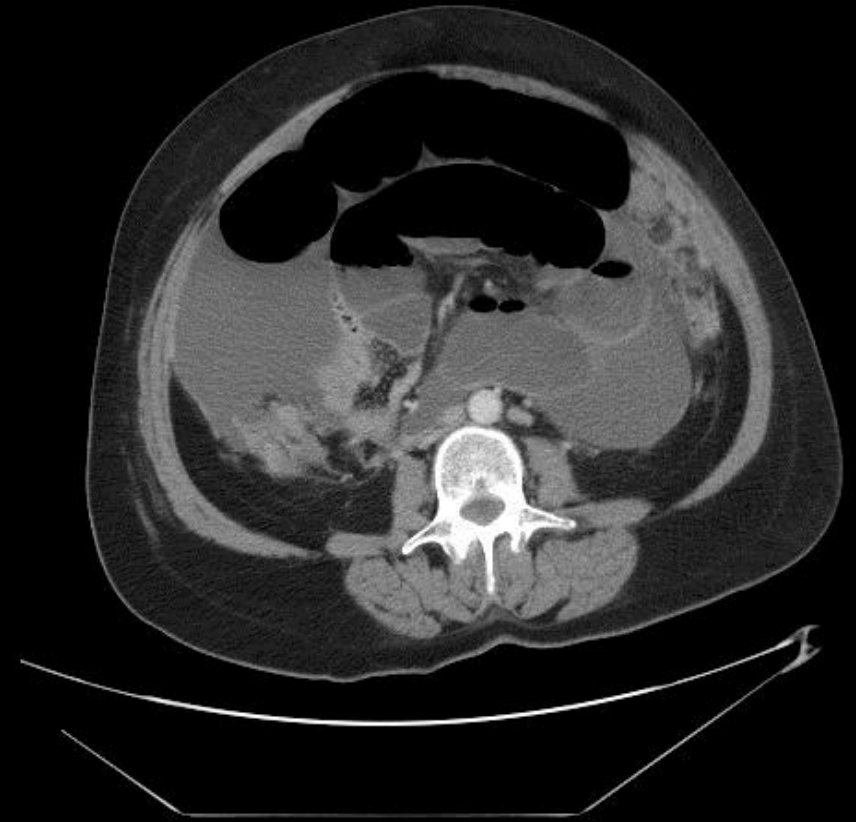
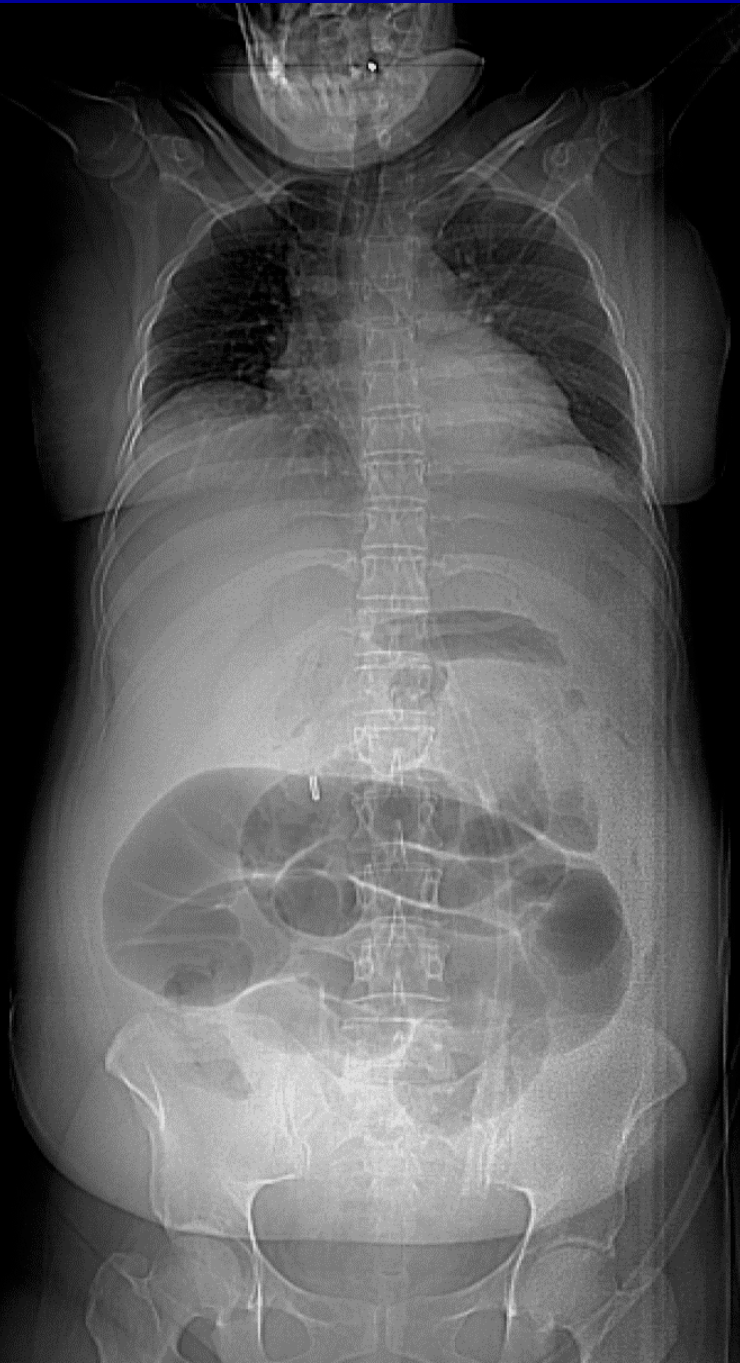
- Screening for colorectal cancer is worthwhile
- Colonoscopy remains the most sensitive test but is invasive and not without risk
- CT Virtual colonoscopy is a viable safer alternative with good patient compliance, cost & performance characteristics

# Anastomotic tumour recurrence



# Bowel Obstruction

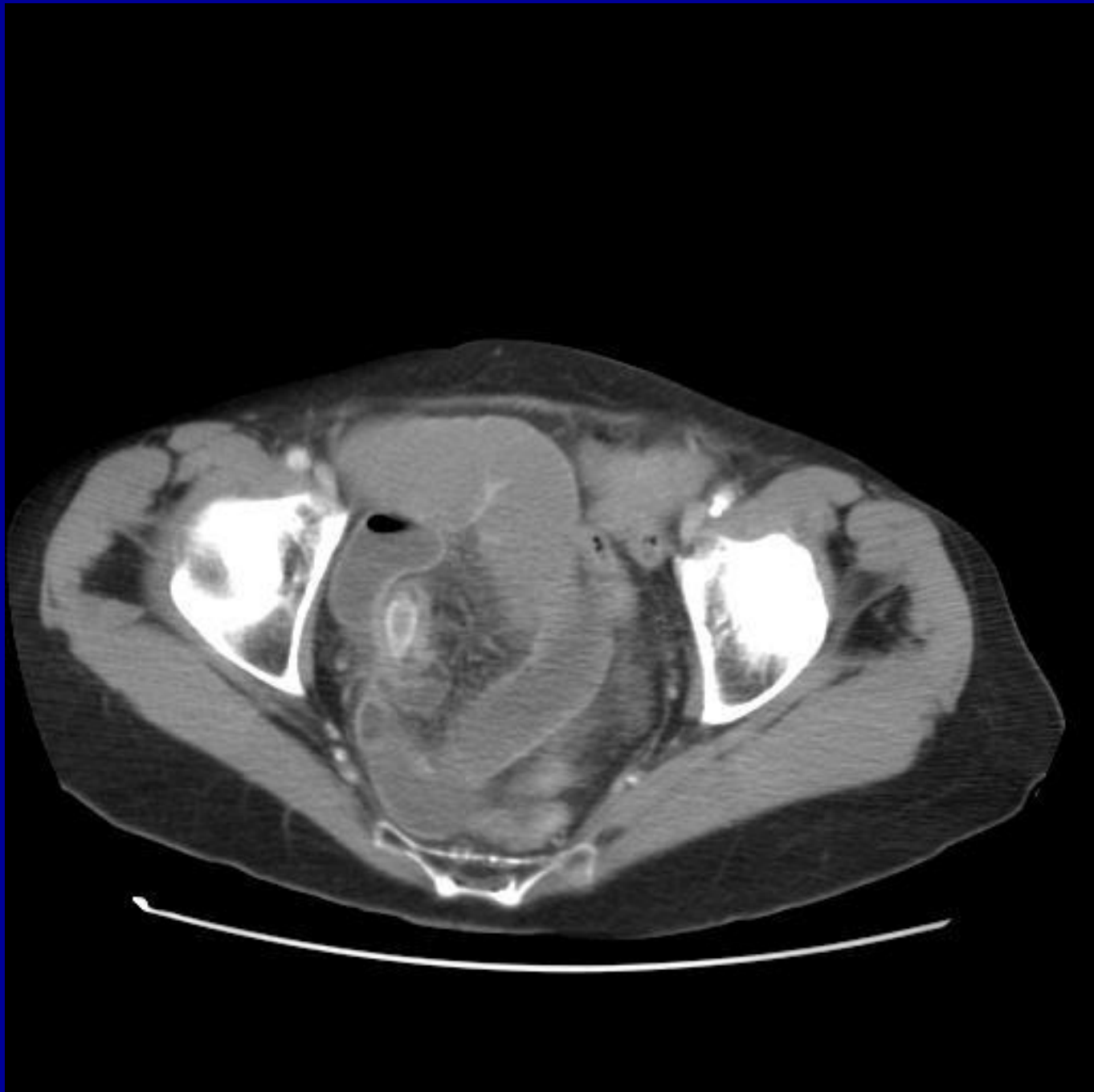


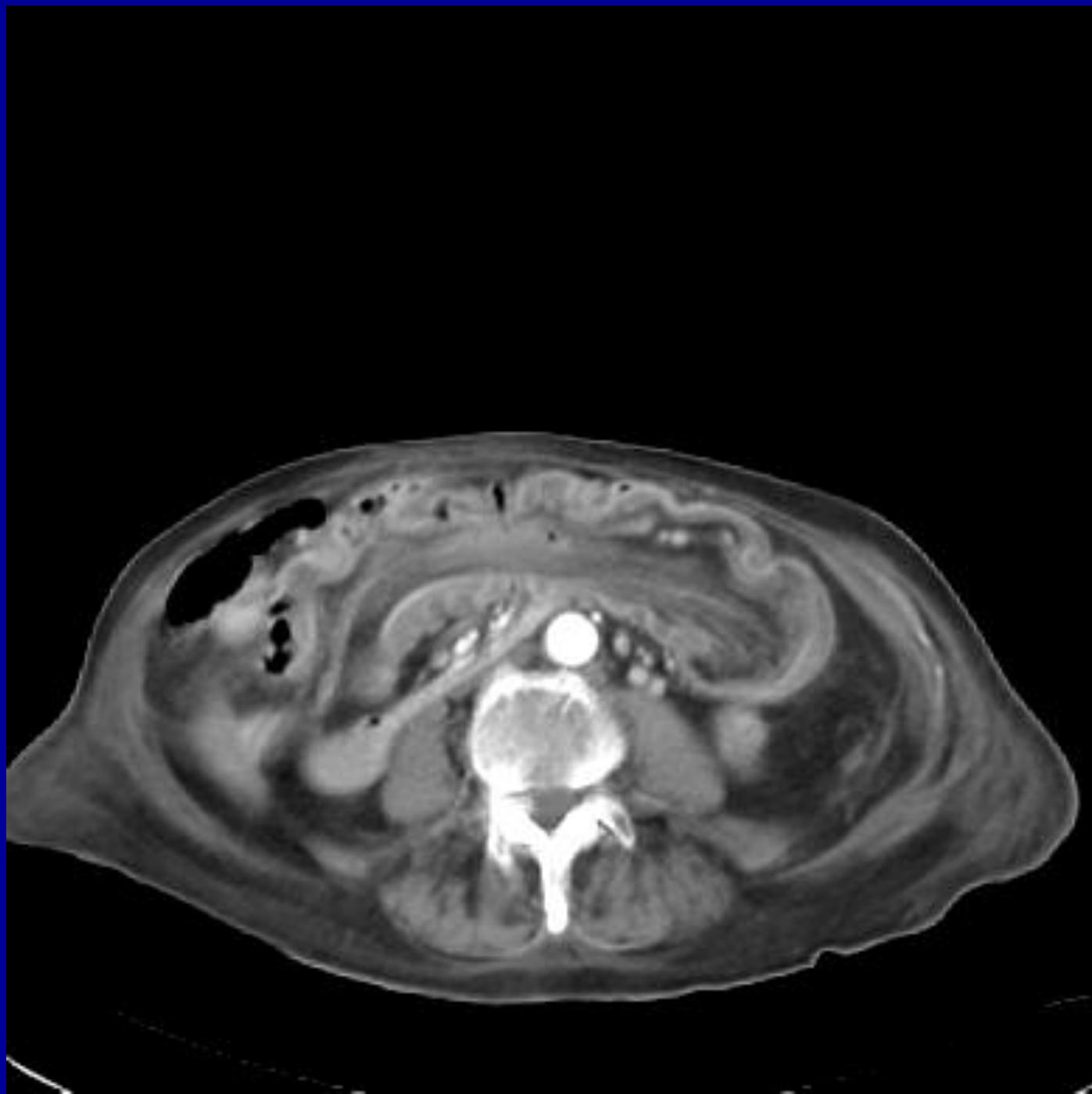


Ca Ovary



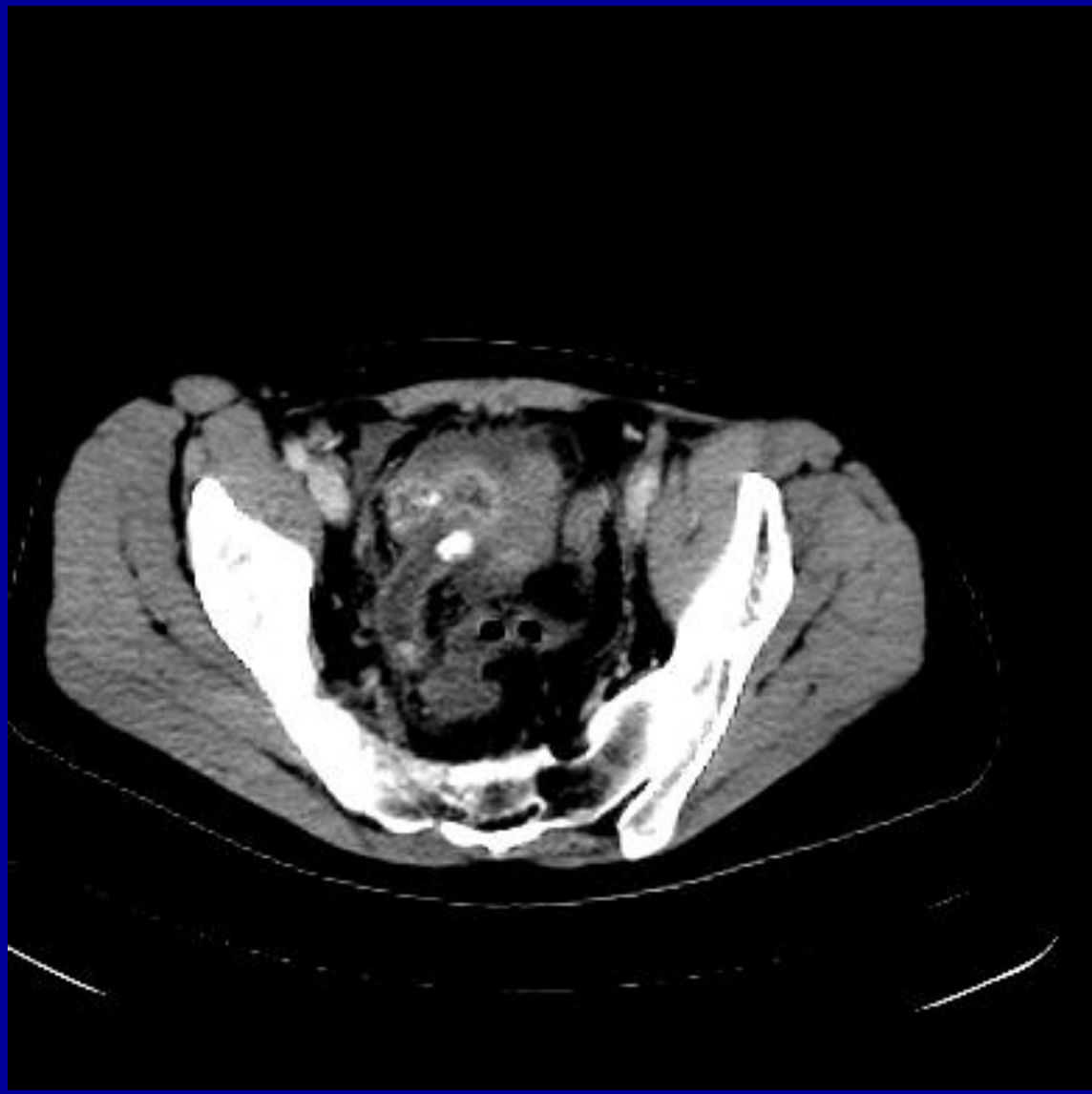






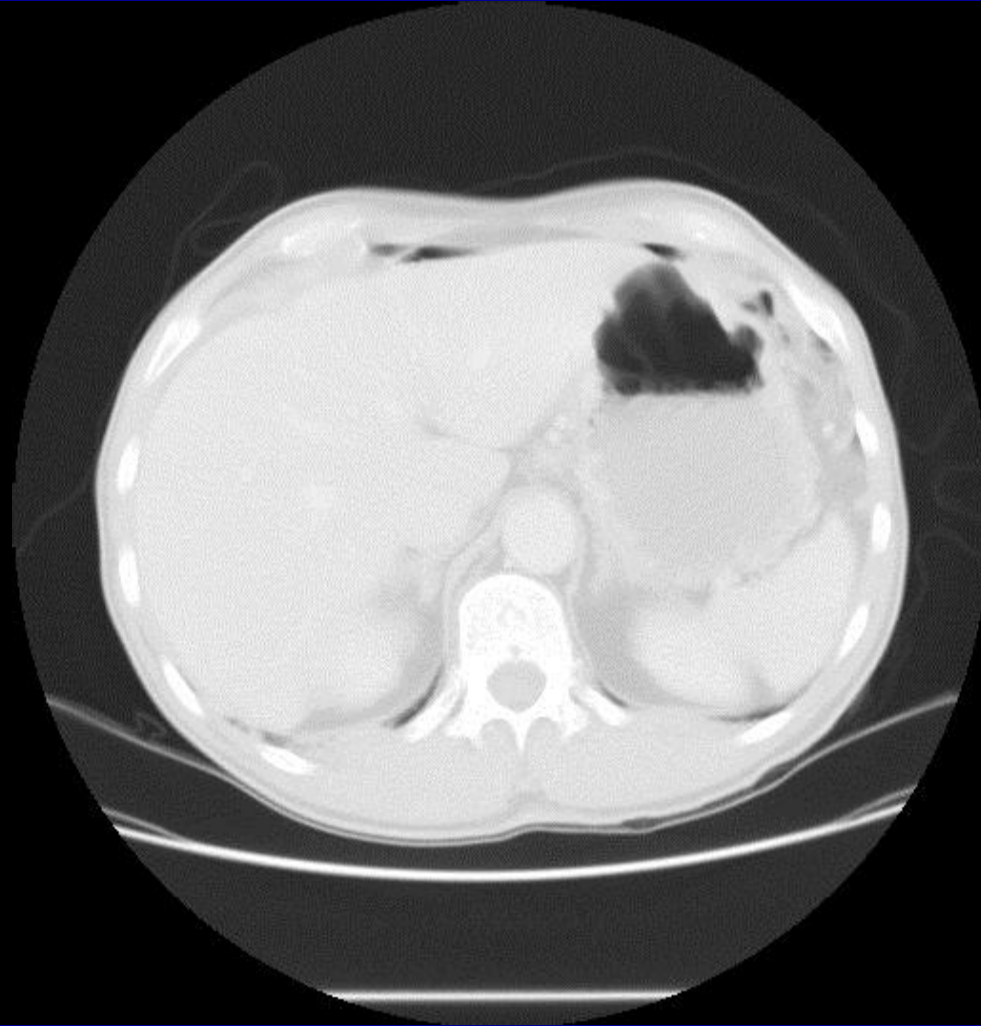
# Diverticular Abscess







# Perforation



# Radiation dose

High

CT abdo/pelvis 8-10mSv

Risk of cancer 1 in 1000 per mSv

Background 2.5 mSv/year

Major cause of man-made radiation



# Summary

Excellent imaging method for a wide spectrum of abdominal/GI disease

Radiation dose a limitation

