

Name :: Naveed Rahman

ID :: 14144

Dep :: Bs Radiology

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Course :: CT procedures

Q2 Patient of age 45 years has complaint of anosmia, which CT procedure is performed in such case and explain the complete protocol for that examination.

Ans. Indications go

Sinusitis, polyps,  
post-nasal drip, facial bones,  
anosmia.

Patient Preparation in

Supine Head  
first taking care to position  
head symmetrically  
Always ask if patient had  
had previous surgery and when  
it was performed and document.

Imaging protocol in (Sinuses H<sub>1</sub> 5mm)

Scan Slice Thickness	0.5mm x 64
pitch	Detail
Kv	120
mA	150
Rotation Time	0.5s

## Scan range :-

Start Below maxillary sinuses  
End Above frontal sinuses  
plane parallel to hard palate

## Image reconstruction :-

5/5 mm

Bone Sharp

Volume

Bone Sharp

## Reformation :-

Muti view	Coronal	Sagittal
Plane	perpendicular to hard palate	perpendicular to hard palate
Start	Anterior to frontals	Medial wall of left orbit
End	posterior to Sphenoids	Medial wall of right orbit
Thickness	2mm	2mm
Spacing	2mm	2mm

If it is patient is not  
it reformat need to be  
perform manually to on site  
correct anatomical position.

Q.3 A patient was presented with exacerbated chronic lower back pain in the Sacral region with irradiation to the left leg producing a strong pain throbbing and burning behind the knee pain was aggravated when bending forward or in reaching out position diagnosis is probably a sciatica Identify the CT examination performed and explain the complete protocol for that examination?

Ans Indication is

Low Back pain (LBP), Sciatica, femoral neuropgia, spinal canal stenosis

patient preparation is

Supine/feet first, sponges under knees can be scanned in lateral decubitus or prone position if unable

to lie supine

**Imaging protocol:** (Lumbar Spine 3mm  
(0.5mm) Irg Lumbar Spine 3mm (0.5mm))

Scan slice thickness 0.5 mm x 64

pitch Details

KV 135

MA Exposure 3D High quality

Rotation time 1.0s (1.5s)

**Scan range:**

Levels Specified

other wies Routine L2-S1

If patient < 30 y.o. then

L3-S1 unless specific

Symptoms @ L2-3

Start Above pedicle of L2

End Below S1 (increase scan

range to obtain sufficient  
data for MPRs for L5-S1  
disc.

## Image reconstruction:-

3/3 mm spine Thoracic - Lumbar  
3/3 mm Bone Standard  
volume spine Thoracic - Lumbar

## Reformatting:-

program in use spine  
MPR.

Q:4 Write the patient positioning and examination protocol for the CT procedure advised for the tarsal coalition?

Ans: Indications: -

Tarsal coalition, talus or calcaneal pathology, ankle joint pathology, loose bodies

patient preparation: -

Supine / feet first, ankle of interest at center of FOV, other leg bent up  
Ankle / foot immobilized

Imaging protocol: (Ankle / foot 2mm (0.5mm))

Scan slice thickness	0.5 mm x 64
pitch	Detail
MA	100
KV	120
Rotation Time	0.5 s

## Scan range is

Start Above ankle joint

End Below calcaneum

Plane Lateral Straight gentry

## Image reconstruction is

2/2 mm Bone Sharp

Volume Bone sharp

Volume for 3D Soft Tissue Standard

## Reformatting is

	Coronal	Sagittal
plane	True Coronal	True Sagittal
Start	posterior to calcaneum	Lateral to fibula
End	Anterior to navicular	medial to tibia
Thickness	2mm	2mm
Spacing	2mm	2mm



Q: 5 Which CT angiography procedure should be performed for investigating coronary artery disease (CAD). Explain the complete protocol for that CTA.

### Indications in

Investigation of CAD, assessment of coronary stents.

Note: We recommend our 10-step guide to coronary CTA for detailed instructions for performing these studies

### Imaging protocol:- (cardiac CTA (0.5mm))

Scan slice thickness	0.5mm x 64
pitch	Determined by cardio
KV	120
mA	400
Rotation Time	Determined by cardio

## Scan range:

Start: Carina

End: Below apex of heart

plane: Straight gentry

## Contrast:

Single-phase contrast injection protocol

phase 1	XX ml @ 4-5 ml/s
phase 2 (saline)	50 ml @ 4-5 ml/s

XX = (Scan time + 10) × injection rate

<sup>super</sup> Start on descending aorta

at level of pulmonary trunk

Trigger at 180 HV.

## Image reconstruction:

Use image

X act to determine the

optimal phase for motion

free images

volume of Cardiac CIA

Q1 In which circumstances is liver triphasic examination performed? what is the general protocol for liver triphasic examination?

Circumstance is liver triphasic examination :->

Because the liver derives approximately 25% of its blood supply from the hepatic artery and the remaining 75% from the portal the intravenous (IV) administration of a bolus of contrast material. The first is the hepatic arterial phase typically occurring 15 to 25 seconds after the the contrast bolus followed by the portal venous phase, which begins at 60 to 70 seconds after contrast injection. Based on contrast circulation. the hepatic arterial phase can be further divided the equilibrium phase sometime

called: the late or delayed phase, occurs several minutes after injection.

### Indications:

Rule out / follow up liver for hypervascular metastases from the following

- Primary liver tumors
- Renal cell carcinoma, leiomyosarcoma, thyroid tumors, carcinoid and other neuroendocrine tumors
- Melanoma and breast (may be hypovascular)
- pancreatic islet cell tumors  
GIST (gastrointestinal stromal cell tumor)

### patient preparation:

4-hr fast positive oral contrast  
60/45/30/15 min prior, remainder immediately prior to scan  
H<sub>2</sub>O may substitute alternative  
(750 ml 30 min prior)

250 ml immediately prior to  
Scan Supine / feet first

### Imaging protocol: (2 phase Liver 5mm (0.5mm) Lrg 2phase Liver 1mm (1mm))

Scan slice thickness 0.5 mm x 64 (1 mm x 32)  
pitch standard  
kV 120  
mA <sup>super</sup> Exposure 3D standard  
Rotation time 0.5s (0.75s)

### Scan range is

	Arterial phase	Portal venous ph
Start	Top of high hemidiaphragm	Top of high hemidiaphragm
End	iliac crests	Below ischium
plane	straight gentry	straight gentry

### Contrast is

volume 70-120 ml (depending on p.w)  
Rate 4 ml/s  
Delay 'start' 180 HU in abdominal  
porta venas @ 65 is fixed

delay

## Image reconstruction

S/S mm  
volume

Body standard  
Body standard volume

## Reformatting :-

Multiview	Coronal	Sagittal
Start	posterior	left
End	Anterior	Right
Thickness	4 mm	4 mm
spacing	4 mm	4 mm