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Paper CT scan

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QUESTION NO 01

In which circumstances
in live triphasic
examination performed?

Triphasic CT scan is a
good non-invasive tool and
can be used as first
line imaging modality for
differentiating benign and
malignant focal liver
lesions.

Benign lesions like
haemangioma can be
reliably differentiated from
malignant liver lesion.

Therefore unnecessary biopsies
can be avoided.

Triphasic live CT is a
standardized procedure
for the detection and

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characterization of a large variety of benign and malignant liver lesions. This helps in the decline of mortality and morbidity rates among patients with liver disease.

They performed to assess the liver and their related structures for tumors and other lesions, injuries, bleeding, infections, abscesses, etc.

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What is the general protocol for liver triphasic examination?

Liver hypervascular.

INDICATION:

- Primary liver tumors.
- Renal cell carcinoma,
ly leiomyosarcoma, thyroid tumors, Carcinoid and other neuroendocrine tumors.
- Melanoma and breast.
- Pancreatic islet cell tumors, (GIST)

Patient Preparation:

- ① 4-hr fast.
- ② Positive oral contrast 60/45/30/15 minutes before the CT, Remainder immediately prior to scan.
H₂O may be suitable

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alternative (750ml 30 min prior
250ml immediately prior
to scan)

* Supine the patient position.
feet first.

Imaging protocol	p. Liver 5mm (c-5mm)
scan slice thickness	0.5mm x 64 (1mm x 32)
pitch	Standard
KV	120
MA	Exposure 30 standard
Rotation time	0.5s (0.75s)

Scan Range:

Arterial phase

	Arterial phase	p. venous phase
Start	Top of higher hemidiaphragm	Top of higher hemidiaphragm
END	iliac crests	below ischium.
Plane	straight gantry	straight gantry.

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CONTRAST:

- (1) Volume: 70-120ml (depend patient weight).
- (2) Rate: 4ml/s
- (3) Delay: start 180 HU in abdomen
aorta + 10s portal venous.
65s fixed delay.

Image Reconstruction:

5/5mm

body standard
axial.

Volume

body standard
volume.

Reformatting:

Multiple view	coronal	sagittal.
• Start.	Posterior	Left
• End.	Anterior	Right
• Thickness.	4mm	4mm
• Spacing.	4mm	4mm.

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ANSWER no 2

ANOSMIA

Anosmia is the partial or complete loss of the sense of smell.

This loss may be temporary or permanent.

Common conditions that irritate the nose lining, such as allergies or a cold can lead to temporary anosmia.

So you may need to get a CT scan so that the doctor can get a better look of the area.

ANOSMIA:

The complain of anosmia we perform the CT head and neck to see sinuses.

Protocol

INDICATIONS:

Sinusitis, polyps, post nasal drip and also facial bones anosmia.

Patient Preparation:

first we supine the patient head first and also must taking care the patient position head symmetrically.

* Always ask if patient has had previous surgery and when it was performed.

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Imaging Protocol (sinuses HCT 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 plate

Image Reconstruction:

S/5mm: bone sharp

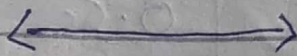
Volume: bone sharp

Reformatting:

	coronal	sagittal
(1) Plane	perpendicular to hard palate	perpendicular to hard plate
(2) START	Anterior to frontals	medial wall of left orbit

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③ End	Posterior to sphenoids	medial wall of right orbit
④ Thickness	2mm	2mm
⑤ spacing	2mm	2mm



QUESTION NO 3

INDICATION: CT musculoskeletal
Lumbar spine.

INDICATION:
Low back pain
sciatica femoral neuralgia
spinal canal stenosis

Patient Preparation:

first
supine the patient feet
first, used sponge under
knees for stability.
knee can be scanned
in lateral or

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Prone position if unable to lie supine.

Image Protocol:

(Lumber 3mm)
0.5mm

Slice thickness

0.5mm x 64

pitch

Detail

KV

135

MA

Exposure 30 H. (3) (high gain)

Rotation time:

1.0s (1.5s)

Scan Range:

① levels specialized otherwise.

② pitline L2-S1

③ START: Above pedicle L2

④ END: below S1

⑤ Routine L2-S1

Image Reconstruction:

3/3mm → Spine thoracic lumber

3/3mm → bone standard

Volume → spine thoracic lumber.

Reformatting:

Use spine
Programme in MPR:



QUESTION NO 4

Write the patient position and explain protocol for CT procedure advise for tarsal coalition?

For the tarsal coalition CT Musculoskeletal - Ankle are best procedure.

Patient Position:

First of all we prepare the patient for exam mainly. Secondly supine the patient

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Feet first.

Ankle of interest at center of FOV. other leg bent up.

Ankle immobilized.

Complete protocol:

Indication:

Tarsal coalition

talar, ankle joint.

pathology. loose bodies.

Patient preparation:

Supine. feet first.

feet immobilized.

Image protocol:

Ankle/foot

2mm (0.5mm)

scan slice thickness 0.5mm x 64

pitch detail

KV 120

MA 100

Rotation time 0.5s

Scan Range:-

start: Above ankle joint

end: Below calcaneum.

plane: straight gantry.

Image Reconstruction.

2/2mm bone sharp.

volume bone sharp.

volume for 3D soft tissue standard.

Reformatting.

	coronal	sagittal
plane	True coronal	True sagittal
start	Posterior to calcaneum	lateral to fibula.
END	Anterior to navicular	medial to fibula.
Thickness	2mm	2mm
spacing	2mm	2mm

Comments.

77 fracture than 3D's are required.

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QUESTION NO 05

In which CT angiography procedure should be performed for investigating coronary artery disease (CAD).

Explain the complete protocols for that CTA?

Ans

✓ CT vascular- CTA cardiac.

INDICATION:

Investigation of CAD
assessment of coronary stents

We recommend our 10 steps

guide to coronary CTA

for detailed instructions

for performing these studies.

Patient Positioning.

- * Supine the patient
- * feet first
- * ECG dots placed on chest
- * Arms above head

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Imaging Protocol:

Cardiac CTA
(0.5mm)

scan slice thickness 0.5mm x 64

pitch determined by
Cardio

K.V 120

MA 400

Rotating time determined by
Cardio.

Scan Range:

start Carina

END below apex of heart

plane straight gantry

Contrast:

Single-phase contrast
injection protocol

Phase 1 20ml 4.5ml/s

Phase 2 1 50ml 4.5ml/s

xx - (scan time + 10) x injection rate

180HU.

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Image Reconstruction:

Use image exact to determine the optimal phase for motion-free images.

Volume → Cardiac CTA.

Comments:

Cardiac should be used to ensure that the pitch, rotation speed, and reconstruction methods are optimized for the scan.

END

