

Name:- NADIA SUBHANI

ID:- 13957

Paper:- CT Procedures  
And Clinical Practice

Dated:- 26.6.2020

Teacher:- Madam Maheeh

UNIV:- Jyra National  
University - Jayatbad  
(Per)

Semester:- Radiology 6th

Exam:- Final exam

(P-1)  
Ans<sup>1</sup>) Triphasic Examination of

Ans: 1) Liver:-

Triphasic CT scan is a very efficient tool which is always use to differentiate the Liver lesions i-e benign and malignant focal liver lesions.

Triphasic CT scan is non-invasive tool as first line imaging modality. This method is also significant for diagnosis as it avoids unnecessary biopsy procedures.

The best example in this type of CT scan Liver (Triphasic examination) the benign lesions such as haemangioma can be

Conveniently differentiated from malignant hepatic lesion.

Triphasic Liver Computed Tomography

(CT) is a universally used medical diagnostic procedure

for detecting and characterising various benign and malignant liver lesions.

This procedure ensures low mortality rate

and morbidity rate among the liver patients because

it promotes Liver Parenchyma acquisition as in most of the

metastatic hepatic complications

the bloody supply to the

Liver is diminished but in hypovascular

primary

malignancies such as hepatocellular

Carcinoma) (P-3) and some metastases  
Such as (Carcinoids, Carcinomas  
and melanomas) the hepatic arterial  
Blood Supply is greater (hypervascular)

---

(contd on P-4)



# CT Protocols For

(P. 4)

~~Pg-4~~

## Triphasic Liver Examination:-

After oral and intravenous contrast material injection, the liver is scanned in Arterial Portal (Scanning delay, 20-40 sec), Portal (Scanning delay, 60-90 seconds), and equilibrium (Scanning delay 2-5 minutes). All these three

Phase constitutes triphasic

Computed Tomography (CT) scan in case of liver lesions.

- ① Maximum Contrast - at maximum flow rate (150cc contrast at 5cc/sec via 18 gauge green venflon.

Ans) 3) CT Scan examination

Ans: 3) of the patient suffering  
Probably from Sciatica.

As demanded in the question.

When a patient with exacerbated chronic lower back pain in the sacral region of the spinal cord with a radiation to

the back of the left leg, probably suffering from sciatica, the best way to detect and determine CT scan

Sciatica is actually neurological problem in the lower back or due to entrapped nerve in the pelvic region.

The main symptoms.

① Lumbosacral (P-6) Radicular pain  
in the leg.

② Severe pain in the hip.

③ Joint dysfunction

④ Numbness

⑤ Sensory disturbance and impairment

⑥ Tingling, numbness and burning  
Sensation, in the leg

⑦ Impairment and reflexes

## Diagnostic Tests for Sciatica:

The important diagnostic tests in this situation are X-ray, CT or CAT scan, MRI. In case of Magnetic Resonance Imaging (MRI) herniated disc or stenosis.

# Protocol for CT examination

of Sciatica: (with 2 CT scan images)

For CT scan image of the spine, a contrast dye is injected into the spinal canal before the X-rays are taken. This step of

procedure is known as myelogram.

The dye circulates around the spinal cord and spinal nerves

and the nerves appear white

in the scan. This method (CT)-spine

is a diagnostic imaging test

used for the damage to

spinal column in patients with

vertebral column injuries and

bleeding. The important positive

features of the CT scanning are



- (P-8) ~~P-8~~
- ① It is quick and painless
  - ② It is painless
  - ③ It reveals internal injuries and bleeding very quickly
  - ④ It is accurate.
  - ⑤ It is non-invasive

Some Other Important Obligations  
 For CT Scan are to be discussed with  
 Doctor / Radiologist

- ① Recent illness of the patient
- ② Recent medications used.
- ③ Allergies of the patient.
- ④ Any allergy to contrast material
- ⑤ The medications prescribed by the doctor before CT scan taken before 12 hours.
- ⑥ Jewellery may be kept at home.
- ⑦ Loose and comfortable clothes may be used (Hospital Gown)

Ans) Best CT Angiography (P. 9)

Ans: 5 Procedure for CAD :-

Coronary Artery Disease (CAD)  
is a major Cardiac

Complication leading to serious

Situation of morbidity and mortality among populations.

A less invasive test

as compared to a standard

angiogram is CTA i.e. Computed

Tomography Angiography.

In case of standard angiogram

involves threading a thin

tube (Catheter) through an artery

of the arm or leg but

in case of CT Angiogram,

no tubes are inserted in the

body

Contrast - enhanced CT ~~P. 10~~

Coronary angiography Provider

non invasive alternative

test for intravascular ultrasound

for the evaluation of

Coronary plaque position,

nature and severity especially

for Coronary Arterial Stenosis

in ~~known~~ known or suspected

CAD which may be the

leading cause of death.

Its significance is to

diagnose the cause of

Chest Pain or other symptoms.

And in this process a

powerful X-ray machine is used

to produce images of the heart

and coronary vessels.

# Protocol For CTA :-

① CTA is a test which uses X-rays for taking pictures of the heart and blood vessels supplying the heart (Coronary Arteries).

② This test should be used to detect narrowed and blocked areas of the blood vessels such as Aneurysms (a bulge in the blood vessels) or plaque (fatty material collection in the blood vessels).

The important steps in this procedure are the following:

① The patient lies on the table that passes through an opening in the scanner ( doughnut shaped opening).

② A special dye called

Contrast material is injected  
 in the vein of the arm  
 so that the blood flows  
 in the coronary arteries  
 may be seen on the scan  
 conveniently.

③ A beta-blocker medication is  
 given to the patient to slow down  
 the heart rate. (P.T.O For other  
 protocols)

Benefits:

- ① Less invasive test than  
 standard angiogram.
- ② No tubes are put in the  
 body in CTA.
- ③ In case of major blockage in  
 the blood vessels, immediate  
 angioplasty is not ~~obtained~~  
 needed, but in case of  
 standard angiogram angioplasty is

needed. (P.13)

Some other Basic protocols are as follows

(a) Patient Positioning

→ Supine / Feet First

→ ECG dots placed on Chest's arms above head.

(b) Imaging Protocol (Cardiac CTA (0.5mm))

→ Scan Slice Thickness (0.5mm x 64)

→ Pitch (Determined by SURE Cardio™)

→ KV 120

→ mA 400

Rotation Time (Determined by SURE Cardio)



Ans<sup>4</sup>) Tarsal Coalition:-

It is a Congenital Bridging / Fusion of two or more tarsal bones in the foot. It may be fibrous or syndesmosis, cartilaginous - synchondroses, or may be osseous (also called synostosis)

Continue...

Ans (4) Patient (P-14) Positioning  
For the CT Procedure.

Ans: (Tarsal Coalition)

④ Tarsal Coalition is that the position of the hindfoot tends to be fixed in Patients with a tarsal Coalition. Sometimes the foot is fixed in a neutral position. But sometimes it is fixed in a Barry flat footed position. In either case, the hindfoot does not move normally.

(contd on P-15)

# Examination Protocol For CT Procedure For Tarsal Coalition

On the basis of type of Tarsal Coalition different CT findings are observed.

Ossseous Coalitions are straight forward while non ossseous Coalition shows abnormal

narrowing of the joint space. Most often, in non ossseous Coalition, the imaging closely

resemble to Osteoarthritis. Showing eburnation as well as

Subchondral Cystic changes in One of the Tarsal joint.

90 Percent Tarsal Coalition involve Calcaneous and

Navicular Bone (Tallo calcaneal Joint).



Scan Slice Thickness  $\rightarrow$  0.5mm x 64 Pg 16

Ditch  $\rightarrow$  Detail

KV  $\rightarrow$  120

mA  $\rightarrow$  100

Rotation Time  $\rightarrow$  0.5s

---

Ans: (2)

Ans (2)

**Anosmia:** (Small blindness)

Anosmia is the inability to feel and sense smell. It may be temporary or permanent. It may be congenital or acquired. The cause may be any mechanical blockage which prevents to reach the olfactory nerve.

(a) Recommended CT Procedure For Anosmia:

$\rightarrow$  If clinical indication is anosmia, reconstruct 5/5m

Axial Section, Soft  
Standard.

(b) Imaging Protocol:-

Scan Slice Thickness  $\rightarrow$  0.5 mm x 64

Pitch  $\rightarrow$  Detail

kV  $\rightarrow$  120

mA  $\rightarrow$  150

Rotation Time  $\rightarrow$  0.5 sec.

Patients Preparation:-

Supine / Head First, taking care to

Position head symmetrically.

Always ask if patient has had

Previous Surgery and when

it was performed, and

"The End"

Nadia :- Subhani

ID :- 13957