

NAME # HANIFULLAH

Program # B.S Radiology

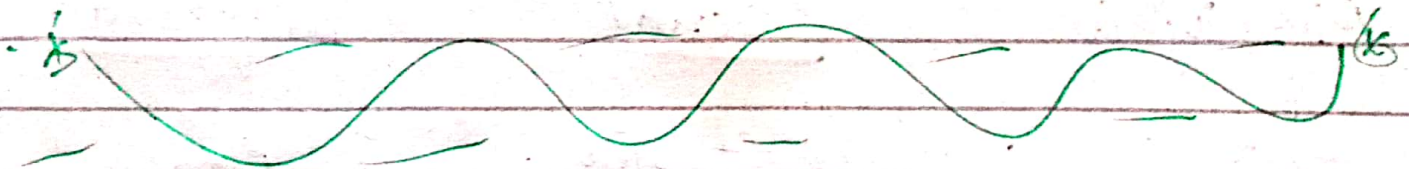
ID # 14095

Papax CT Scan Produce

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Semester 8th

Date = 26/06/2020



(1)

Q2:-

Ans:- CT Head & Neck-Sinuses

Indication

- Sinusitis
- Polyps
- Post-nasal drip
- facial bones
- Anosmia
- Cranial fossa for lesions
- Nasal bleeding
- DNS

Patient Preparation

- Supine / Head First, taking care to position head symmetrically.
- Always ask if patient has had previous surgery and when it was performed, and document.

Imaging Protocol: (Sinuses HCT Scan)
(0.5mm)

Scan Slice Thickness	0.5mm x 64
Pitch	Detail
KV	120
mA	150
Rotation Time	0.55

(2)

Scan range :-

Start Below maxillary sinuses
End Above frontal sinuses
Plane Parallel to hard palate

image range :-

S/5mm ~~Below~~ Bone Sharp
Volume Bone Sharp

Reformatting :-

Multiview	<u>Coronal</u>	<u>Sagittal</u>
Plane	Perpendicular to hard 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 the position is not, it, reformatting may need to be performed to ensure correct anatomical position.

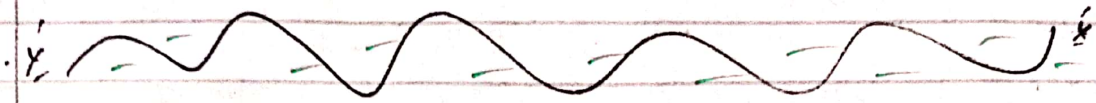
Comments :-

- If there is a single opaque sinus or completely opaque sinuses, reconstruct 5/5mm axial sections, ^{soft} Tm, soft tissues standard.
- If clinical indication Anosmia, reconstruct (p. 4.0)

(3)

5/5mm axial sections, ~~with~~ ^{sure} soft tissues standard, and be sure to check, Anterior cranial fossa for lesions. (Requires post-contrast head study).

* If scanning for a lump on the palate, scan patient with mouth open.



Q3:

Ans:- CT Musculoskeletal - Lumbar spine

indications:-

- * Lower Back Pain (LBP).
- * Sciatica
- * femoral neuralgia
- * Spinal canal stenosis

Patient Preparation

- Supine / Feet First, sponge under knees, can be scanned in lateral decubitus or prone position if unable to lie supine.

C.P. 101

(4)

Imaging Protocol: [Lumbar Spine 3mm
(0.5mm)]
[L5/L6 Lumbar Spine 3mm
(0.5mm)]

~~Scan #~~

Scan Slice Thickness	0.5mm x 64
Pitch	Detail
KV	135
mA	Sub Exposure 3D High Quality.
Rotation Time	1.0s (1.5s)

Scan Range:

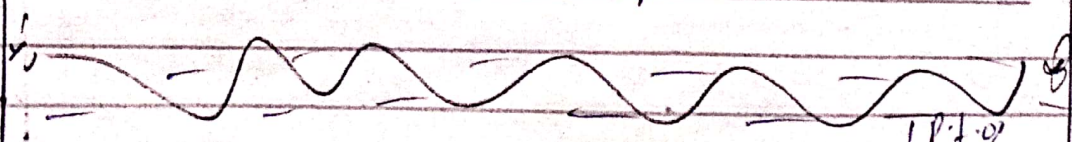
- Levels specified, otherwise.
- Routine L2-S1
- If patient < 30y.o, then L3-S1 unless specific symptoms @ L2-3
- Start Above pedicle of L2
- End Below S1 (increase scan range to obtain sufficient data for MPRS for L5-S1 discs).

Image Reconstruction

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

Reformatting :-

→ use Spine Program in MPR.



(5)

Q4:-

Ans:- Ankle Positioning

- Lie patient supine, feet first.
- Affected leg out straight.
- Position ankle in middle of the FOV.
- Toes pointing to ceiling
- unaffected leg bent to remove foot from scan field.
- Positioning aids eg. A water bottle could be used in cases where the patient may move.

CT Musculoskeletal - Ankle

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	0.5mm x 64
Pitch	Detail
KV	120
mA	100
Rotation Time	0.55

6

Scan range :-

Start	Above ankle joint
End	Below calcaneum
Plane	Straight gantry

Image reconstruction

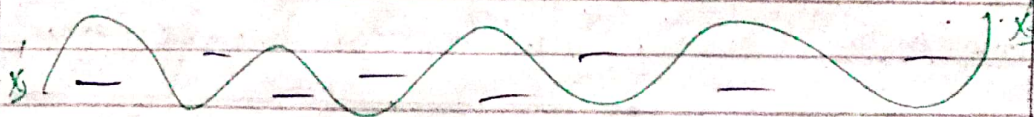
2/2mm	Bone sharp
Volume	Bone sharp
Plane	Straight gantry
Volume for 3D	Soft tissues standard.

Reformatting

	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

Comments:-

→ If fractured, then 3DS are required.



(P.T.O)

(7)

Q:-

Explain:-

Ans:- CT Coronary Calcium Screening

- Atherosclerosis is a build-up of fat, plaque, and other substances, including calcium.
 - Coronary artery calcification is a marker of coronary artery disease (CAD).
 - Patients with CAD may exhibit no symptoms of the disease.
 - In many patients myocardial infarction is the first sign of CAD.
 - The goal of CT for calcium scoring is to determine the location and extent of calcified plaque in the coronary arteries.
 - This is a helpful diagnostic tool.
 - By measuring the amount of calcium that builds up in the coronary artery CT can be used to predict the likelihood of subsequent cardiovascular events in people with symptoms.
 - It is frequently performed as a screening study for patient with risk factors for CAD but no clinical symptoms.
 - The amount of calcification on cardiac CT is expressed as a calcium score.
 - A negative examination shows no calcification within coronary artery and suggests that atherosclerotic
- LP.T.02

(8)

Plaque is minimal and that the chance of CAD developing during the next 2 to 5 years is low.

→ A positive test means that CAD is present, regardless of whether or not the patient is experiencing any symptoms.

→ Different methods of CAD or scoring are used.

CT vascular - CTA cardiac

Indication:-

* Investigation of CAD.

* assessment of coronary stents.

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

Patient Position/Set-up:-

→ ~~ECG~~ Supine/feet first.

→ ECG dots placed on chest, arms above head.

Imaging Protocol: [cardiac CTA (0.5min)]

Scan Slice Thickness	0.5mm x 64
Pitch	Determined by ^{sure} Cardio™
KV	120
mA	400
Rotation Time	Determined by ^{sure} Cardio

(9)

Scan range:-

Start Casina
End Below apex of
Plane heart.
Straight gantry

Contrast:-

Single-phase contrast injection protocol.

Phase 1	XX mL @ 4-5 mL/s
Phase 2 (Saline)	50 mL @ 4-5 mL/s

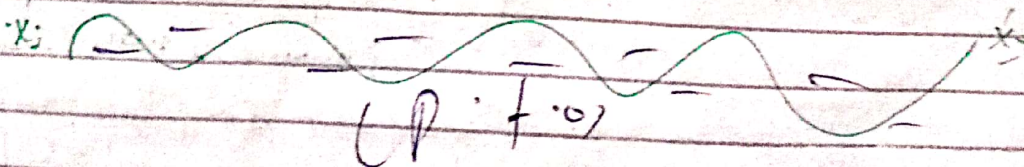
$XX = (\text{Scan time} + 10) \times \text{injection rate}$
Start on descending aorta at level of pulmonary trunk. Trigger at 180 HU.

image reconstruction

- use ImageXact to determine the optimal phase for ~~motion~~ motion-free images.
- Volume Cardiac CTA

Comments

- ^{sure} Cardio should be used ^{to} ensure that the pitch, rotation speed, and reconstruction method are optimized for the scan.



Q1:-

Ans: CP Body-Liver (Hypervascular)indications:-

- Rule out/follow up Liver for hyper-vascular metastasis from the following:
 - o Primary Liver tumours.
 - o Renal cell carcinoma, leiomyosarcoma, thyroid tumours, carcinoid and other neuroendocrine tumours.
 - o Melanoma and breast (may be hypovascular).
 - o Pancreatic islet cell tumours, CrIST, (Gastrointestinal Stromal cell tumor)

Patient preparation:-

- 4-hour fast.
- Positive oral contrast 60/45/30/15 min prior, remainder immediately prior to scan.
- H₂O may be suitable alternative (750mL 30min prior, 250mL immediately prior to scan).
- Supine/Feet First.

Imaging Protocol:- (2 Phase Liver 5mm (0.5mm))

(Lsg 2 Phase Liver 5mm (1mm))

CP + 0

(11)

Scan slice thickness	0.5mm x 64 (1mm x 32)
Pitch	Standard
KV	120
mA	sure Exposure 3D standard
Rotation Time	0.5s (0.75s)

Scan range :-

	Asterial Phase	Postal venous Phase
Start	Top of higher hemidiaphragm	Top of higher hemidiaphragm
End	Iliac crests	Below ischium
Plane	Straight gantry	Straight gantry

Contrast

Volume	70-120ml (depending on patient weight).
Rate	4ml/s
Delay	sure start Tm 180HU in abdominal aorta + 10s postal, venous @ 65s fixed delay.

Image reconstruction:

5/5mm volume	Body Standard Axial
	Body Standard volume

Reformatting :-

Multiview	Coronal	Sagittal
Start	Posterior	Left
End	Anterior	Right
Thickness	4mm	4mm
Spacing	4mm	4mm

ks

(P+V)

(12)

CT Body - Liver (Hypovascular)

Indications:-

- Rule out/follow up Liver for hypovascular metastasis from the following:
 - Primary adenocarcinoma in digestive tract, (esophagus, stomach, colon, and rectum), pancreas, or lung.
 - Squamous cell carcinoma (head and neck, lung, anus).
 - Lymphoma

Patient Preparation:

- 4-hours fast.
- Positive oral contrast 60/45/30/15 min prior, remainder immediately prior to scan.
- H₂O may be suitable (750ml 30min prior, 250ml immediately prior to scan).

Imaging Protocol:- [Abdomen 5mm (0.5mm)]
[Lrg abdomen 5mm (1mm)]

Scan Slice Thickness	0.5mm x 64 (1mm x 32)
Pitch	Standard
KV	120
mA	sure Exposure 3D Standard
Rotation time	0.55 (0.75s)

Scan range:-

Start Above of higher hemidiaaphragm
End Below ischium
Plane Straight gantry

Contrast:-

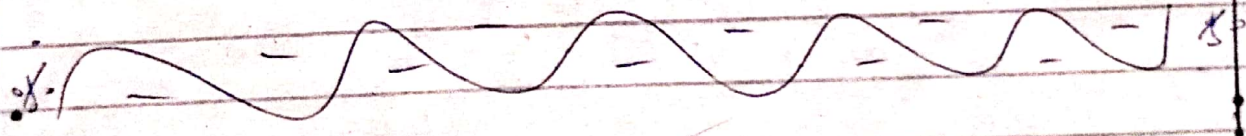
Volume 70-120ml (depending on patient weight)
 Rate 2-4ml/s
 Delay 65-70s

image reconstruction:-

5/5mm Body Standard Axial
 Volume Body Standard volume

Reformatting:-

<u>Multiview</u>	<u>Coronal</u>	<u>Sagittal</u>
Start	Posterior	Left
End	Anterior	Right
Thickness	4mm	4mm
Spacing	4mm	4mm



THE END