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•x• ————— •x• ————— •x• —————

Q1: Describe the three general phase of tissues enhancement?

Ans: General Phases of tissues enhancement:-

→ Three general phases of tissues enhancement are commonly used in CT.

① The Bolus phase

② The nonequilibrium phase

③ The equilibrium phase

① Bolus Phase :-

→ IV bolus injection

→ Attenuation difference of 30 or more HU between the aorta and IVC.

→ In the bolus phase of contrast enhancement the arterial structure are taken with contrast medium and brightly displayed on the imaged.

→ It is also called arterial phase.

→ contrast medium has not yet take

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the venous structures.

→ CT angiography images are taken while contrast is in the bolus phase.

(2) Non-equilibrium Phase

→ The second phase is the nonequilibrium phase.

→ It follows the bolus phase.

→ Characterized by difference of 10 to 30 HU AUID.

→ The contrast media is yet seen brightly in the arteries, vascular structures are also enhanced.

→ It is also called venous phase.

→ This phase begins about 1 minute after start of the bolus injection.

→ Last only a short time, about 1 min.

→ This window can be changed to some degree by varying condition such as the volume and flow rate of the injected contrast medium.

→ Most routine body images are acquired while contrast is in the nonequilibrium phase.

(3) equilibrium Phase

→ It is also called equilibrium phase.

→ The equilibrium phase of tissues

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enhancement after IV injection of contrast media is called equilibrium phase.

→ It can begin as early as 2 minutes after the bolus phase.

→ In this phase contrast media is largely emptied from the arteries, greatly diluted in the veins, and has soaked the organ parenchyma.

→ It is characterized by an attenuation difference between the aorta and IVC of less than 10 HU.

→ The equilibrium phase also called worst phase.

→ The worst phase for acquiring scans of the body, particularly the liver.

→ Compared with noncontrast examinations, visualization of tumor in the liver is improved both the bolus and nonequilibrium phases, but not in the equilibrium phase.

Q2: - List the qualities of an IV access site that would make it ideal for administering contrast media?

Ans: - ① Cubital fossa

→ Median antecubital, cephalic and basilic veins.

→ Median antecubital, cephalic and basilic veins are easy to hit and

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tend to last quite well if splinted properly.

→ These veins are the preferred sites for insertion of percutaneous central venous catheters.

→ These should be avoided unless absolutely need in any infant likely to need long term IV therapy.

(2) Foot

→ Dorsal arch:-

→ Dorsal arch veins are small, but easily cannulated and last surprisingly well.

→ The vein on the lateral aspect, running below malleolus, is easy to access, but must be splinted carefully and watched for infiltration.

(3) Leg

Saphenous vein at the knee:-

→ The Saphenous vein runs just behind the medial aspect of the knee and is often visible behind the knee and as it curves around the top of the tibia.

→ Access is easy and lasts well if properly splinted.

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(4) Hand:-

Dorsal arch veins

- Dorsal arch veins are best seen on the back of the hand, but are usually larger and easier to see and palpate over the back of the wrist.
- Skin entry should be more distally.
- IVs inserted here are easily splinted and any infiltration easily spotted, so these veins are the preferred site.



Q3: what are symptoms of an idiosyncratic reaction to contrast media? what are symptoms of chemotoxic reactions? into which category do delayed reaction belong?

Ans: Symptoms of an idiosyncratic to contrast media

- (1) Flushing, metallic taste in the mouth, nausea, sneezing, cough and tingling.
- (2) Perineal burning, a desire to empty the bladder.
- (3) Incontinent of urine are more common in women.

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(4) urticaria, Angioneurotic oedema, Rigors, Bronchospasm, Arrhythmias, Hypotension, Abdominal Pain.

(5) Delayed reactions: rashes, headaches, itching and parotid gland swelling.

Symptoms of Chemotoxic reactions

→ Chemotoxic or Physiologic reactions are related to the chemical properties of radiocontrast media and are dependent upon dose and infusion rate.

→ These include seizure, arrhythmias and organs, renal toxicity, vomiting, Hypotension.

→ Delayed reactions :-

→ Delayed ~~se~~ hypersensitivity reactions to contrast media are defined as reactions that appear between 1h ~~and~~ and 7 days after route/administration of the contrast media.

Q4:- What Performing "CT Study of the brain, what effect will moving the patient, chin up or down have?

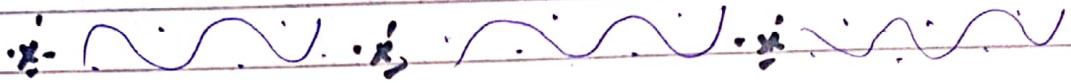
Ans:- A patient is being positioned for a routine scan of the brain.

→ He asked to tuck his chin down (P.f.o)

towards his Chest to reduce the radiation exposure to the lens of the eyes.

→ You must remain very still during the procedure to reduce motion artifacts and do not up and down your chin.

→ Disadvantage of more multi-detector CT system is that they do not allow the gantry to be tilted when in helical mode.



Q5: Describe how a Patient can be positioned so that data can be acquired of the head in the coronal plane?

Ans:-

→ The Planes are used in CT positioning.

→ The coronal Planes are used in sinuses.

→ The acquired coronal images directly by positioning the patient's head vertically in the bore of the CT scan.

→ Changing the image plane from axial to coronal plane.

→ The two methods of getting a coronal plane/position for head scanning.

→ one is to place the patient prone position on the scanning table and demand the to extend the chin forward.

→ An every other approach to place the
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- Patient supine and demand him to drop his head back as far as possible.
- This position often requires a specialized head holder.
 - In position, the slice plane will be coronal.
 - The patient cannot extend the neck fully, the gantry angle to obtain a many coronal plane.
 - The image obtained in either prone or supine coronal position is basically the same.
 - always the images are axial.

Q6. Describe the appearance of intracranial hemorrhage on the CT image?

Ans:-

- CT is the most important used initial examination for imaging of ICH.
- ~~ICH~~ Intracranial hemorrhage is the life threatening diseases.
- The appearance of an ICH will change with the way of time.
- Because the red blood cells within hemorrhages begin to drop within several hours after leaving the vasculature.
- It also called Intraparenchymal hemorrhage.
- ICH will appear on hypodense.

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Appearance

- ① ICH appearance hyperdense to normal brain tissues about 3 days after the duration of time decrease density.
- ② ICH can be generally expected to show hyperdense from to 3 days.
- ③ From 4 to 10 day same to contain hyperdense center surrounded by concentric area of hyperdense and hypodense tissues.
- ④ From 11 days to 6 months it is likely to contain isodense ~~center~~ center surrounded by areas of hypodense tissues.
- ⑤ > 6 months the ICH will be hypodense to brain.

THE END