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Q2 How is venography performed? Explain

VENOGRAPHY:

INDICATION:

- Deep venous thrombosis (DVT)
- Congenital abnormality of venous system
- Oedema of unknown cause.

Contraindication:

- Local Sepsis.
- Allergic to iodinated contrast agents.
- previous severe contrast medium reaction.
- Impaired renal function test.

Contrast medium:

- Low osmolar contrast medium.
- High osmolar contrast medium.

Equipment:

- Fluoroscopy with spot film's devices.
- Tilting radiography table.

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Patient preparation:

- The leg should be elevated overnight to lessen oedema if the leg swelling is severe.

Technique:

- The patient is lying supine with head tilted up to 40 degree to delay the transit time of contrast medium.
- A tourniquet is applied above the ankle joint to occlude the superficial, anterior tibia vein.
- A 19g butterfly needle is inserted into vein of dorsum of foot.
- 4ml of contrast is injected by hand and spot film if the selected area are taken.
- Further 2ml bolus contrast is injected while compression is applied to delay the transit time of contrast into the upper thigh and pelvic veins. The compression is released over the femoral vein with patient head side down and spot films are taken after 2 seconds.
- The needle should be flushed with normal saline to reduce the chance of phlebitis due to contrast medium.

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Films:

- AP of the calf.
- Both of calf. (foot internally & externally rotated).
- AP of the popliteal, common femoral and iliac veins.

After care:

- The limb should be exercised.

Complications:

- Allergic reaction, hypersensitivity of iodine.
- Thrombophlebitis.
- Extravasations of contrast medium.
- Haematoma.

Q3 What is Loopogram? Explain.

Loopogram:

This is a test to show the loop of bowel (conduit) that has been used as a substitute for your urinary bladder.

Procedure:

- Fluoroscopic imaging is done with a contrast called X-ray Dye.
1. Patient lies supine on the examination table.
 2. The stoma bag will be removed.
 3. The radiologist will clean the Urostomy stoma and insert a catheter.

- 4 Contrast will be injected through the catheter and several images will be taken.
- 5 This exam usually takes about 30 min to 1 hour.

Benefits:

- This examination will help your doctor to make a correct diagnosis or decision about your treatment.

Associated Risks:

- It is an x-ray procedure, so there are some risks associated with radiation but the radiation should be kept at a minimum as possible.

Role of loopogram in Bladder Cancer:

- 1 Surgery for bladder cancer involves a laparoscopic radical cystectomy.
- 2 In this procedure, the bladder is removed.
- 3 To restore urinary flow, surgeons then have a number of options to divert the flow of urine.
- 4 For this, they reposition a section of bowel from small intestine & connect the ureters to it which helps urine to flow through stoma.
- 5 A loopogram tests the new conduit to see if it is functioning as it should.

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Q4 What is the role of Radiologic Technologists in performing fluoroscopic procedure?

The radiologic technologists who use fluoroscopy should be properly trained in its use.

- Following recommendations can be applied to all fluoroscopy procedures by the radiologic technologists they include.
- Assuring that all operators of the system radiologic technologists are trained so that they understand the operation of the fluoroscopic system, including the implications for radiation exposure from each mode of operation.
- The radiologic technologists reviewing the patient clinical history to ensure the proper imaging procedure has been ordered.
- Preparing the patient for the procedure.
- Selecting the proper imaging equipment and associated accessories.
- Positioning patients to best demonstrate the anatomy of interest.
- Immobilizing patients as necessary.
- Preparing and administering medications such as contrast agents, prescribed by

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a licensed practitioner.

- Determining the radiographic exposure technique, while applying principles of radiation protection to the patient and staff.
- At the end the radio technologists discuss the procedure with the doctor to take further steps.

Q1 What is catheters and guide wires? Why and how they are used? write their types?

GUIDE WIRES:

They are the stainless steel metallic structures that guides the catheter through the blood vessel for placement. Guide wires are used for both cardiology and radiology angiographic procedures.

Use:

Tiny guide wires are designed to navigate vessels to reach a lesion or vessel segment. once the tip of the device arrives at its destination, it acts as a guide that larger catheters can rapidly follow for easier delivery to the treatment site.

Types:

There are three types of guidewires.

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- Solid core wire: The central wire is encased by a metal 'spring' coil.
- Mandrel wire: The outer spring coil is at one end.
- Ribbon wire: The spring coil encases both the core wire and a ribbon wire.

Catheter:

A catheter is a tube that is inserted into your bladder, allowing your urine to drain freely. The most common reasons for using a catheter are: to rest the bladder following an episode of urinary retention, to rest the bladder after surgery - most commonly bladder, bowel or urinary tract surgery.

How catheter used:

Most often, the catheter is inserted through the urethra. This is the tube that carries urine from the bladder to the outside of the body. Sometimes the provider will insert a catheter into your bladder through a small hole in your belly. This is done at a hospital or provider office.

Types:

There are three main types of catheters.

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- Indwelling Catheters: (Urethral or Suprapubic Catheters) An indwelling catheter is a catheter that resides in the bladder.
- External Catheters: (Condom Catheters).
- Short-term Catheters: (Intermittent Catheters).

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Q7] Which contrast is ideal for IV administration
What are the favorable characteristics
to be used as IV contrast?

IODINATED) CONTRAST AGENTS:

The non-ionic dimers are the most ideal contrast agent used for intravenous administration. As they are very less toxic and delivers more iodine with the least effect on osmolality.

- Using these compound that are iodine containing are related with low toxicity and have great radio-opacity.

- It is a form of intravenous contrast media which contains iodine and enhances the visibility of the vascular organs and structures during radiographic examination. There are some pathologies which have improved visibility upon using an iodinated contrast such as "cancer".

Iodine contrast media are differentiated in:

- Ionic contrast agents:

- 1 Ionic dimer.
- 2 Ionic monomer.

- Non-ionic contrast agents:

- 1 Non-ionic dimer (low or iso-osmolar media)
- 2 Non-ionic monomer (low-osmolar contrast media)

CHARACTERISTICS:

It is given by intravenous route because of the following characteristics:

- It highlights blood vessels.
- It enhances the tissue structure of organs.
- It spreads throughout the body easily.
- Immediately after injection, the contrast agent begins to diffuse directly into the water and extravascular space.
- Once it is injected into the blood stream through IV route, the contrast media then circulates through the heart and passes into the arteries then the body capillaries and then passes into the veins and back to the heart.
- Adverse effects of these contrast media are usually mild or self-limiting.
- Maximizing the clinical benefit.
- Intravenously contrast media are commercially available at a wide range.
- There is no barrier for contrast media if injected through IV.