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Q1

Ans

Retrograde pyeloureterography :-

Retrograde pyeloureterography is also referred to as retrograde pyeloureterography.

In this study the collecting system is evaluated by directly injecting radiographic contrast through catheter rather than utilizing the excretory phase of contrast after intravenous injection as with a CT urogram (CTU) or intravenous urogram (IVU).

Normally urine is produced in the kidney and travel down the ureter in an ambiguate.

fashion and is then stored in bladder.

2. This test is performed in the hospital radiology department by a urologist and is typically carried out under general anaesthesia.

Indications:-

1. Demonstration of the site length, lower limit and if possible the nature of an obstructive lesion.
 2. Demonstration of the pelvicalyceal system after an unsatisfactory excretion urogram.
 3. Non visualization of ureteral segment on IVP and CTU.
 4. Better characterization of ureteral abnormalities seen on IVP or CTU.
 5. To aid in stent placement.
1. patient who has allergy on iodinated contrast media and have renal insufficiency is indicated for evaluation of retrograde urogram. But because the contrast media is not introduced intravenously the possible reaction is low.

Contraindications:

- Acute urinary tract infection
- pregnancy.
- Recent instrumentation.

Contrast medium:

- HOCM or LOCM 150 - 200 i.e. not too dense to obscure small lesions 10ml.

Equipment

Fluoroscopy unit

patient preparation

As for surgery preliminary film.

Full length supine

AP abdomen when the examination is performed in the x-ray department.

Technique

- After the patient has been anesthetized the patient positioning in the dorsal lithotomy position.
- Once positioning is complete a cystoscopy is performed. The physician use the cystoscope to identify left and right ureteral orifices. The physician use BF or BF open ended cone tipped catheter.
- At this point radiographs are taken to ensure proper placement of the catheter.

Films.

- using undercouch tube
- 1 supine PA of the ureter.
 - 2 both 35° anterior oblique of the ureter.

NB

The catheter may left in the pelvis to avoid pelvoureteric obstruction in this case withdrawal ureterogram are not possible.

After Care:

- 1 post anaesthetic observation
- 2 prophylactic antibiotic may be used.

Complication:

Due to anaesthetic component of general anaesthetics.

Due to technique.

- 1 Introduction of infection
- 2 Mucosal damage to the ureter.
- 3 perforation of the ureter or pelvis by catheter.

Complication

Due to contrast medium.

- 1 Contrast medium can be absorbed from the intact renal pelvis.
- 2 Chemical pyelitis if there is stasis of contrast medium.
- 3 Extravasation ~~are~~ due to overdistention of the pelvis. This is usually asymptomatic, but may result in renal fever and rigors.

Q2

Ans

Intravenous pyelography:

In intravenous pyelography (IUP) also called intravenous urography (IUV) is a radiological procedure used to visualize abnormalities of the urinary system including the kidney (renal parenchyma, pelvicalyceal system), ureter and bladder.

Indication:

- check for normal function of kidney
- check for anatomical variants or congenital anomalies.
- check the course of the ureter.
- Detect and localize a uretic obstruction.
- assess for synchronous upper tract disease in those with bladder transitional cell carcinoma.

Contraindication:

- Contrast allergy.
- Hepato-renal syndrome.
- Thyrotoxicosis
- Raised serum creatinine.

Contrast media

- HOCM or LOCM 370 are acceptable but the following high risk group should receive LOCM.

- 1 infants and small children and the elderly.
- 2 Those with renal or cardiac failure.
- 3 poorly hydrated patient.
- 4 patient with diabetes myelomatosis or sickle cell anaemia.
- 5 patient who have had a previous severe contrast medium reaction with LCM or those with a strong allergic history.

Contrast media

- Adult dose
50 ml
- paediatric dose
1 ml kg⁻¹

patient preparation:

- No food for 8 hours prior to the examination is not necessary and doesn't improve image quality.
- patient should preferably be ambulant for 2h prior to examination to reduce bowel gas.
- The routine administration of bowel preparation fails to improve the diagnostic quality for examination.

preliminary film:

Supine full length AP of the abdomen in inspiration. The lower border of the cassette at the level of symphysis pubis the x-ray beam is centered.

- at the mid line at the level of iliac crest.
- Supine AP of the renal areas in expiration.
- 35% posterior oblique view.
- Tomography of the kidney as the level of fluid of the AP diameter of the patient. (approx 8-11cm) the optimal angle of swing is 25-40°.

Technique:

The medium antecubital vein is the preferred injection site. A 19-G needle is advanced up the vein to reduce risk of a previous injection. Upper arm or shoulder pain may be due to stasis of contrast medium in the vein. This is relieved by abduction of arm.

Films:

Immediate film:

AP of the renal areas. This film is exposed 10-14s aft. injection. (arm to kidney time) its aim to show the nephrogram.

5min - film:

AP of the renal areas. This film is taken to determine if excretion is symmetrical and is

invaluable for assisting the
need of modify technique.

Film:

A compression board is now applied around the patient abdomen and the balloon position midway b/w the anterior superior iliac spine.

Compression is contraindicated.

- after recent abdominal surgery.
- after renal trauma
- if there is a large abdominal mass.
- when the KUB film shows already distended calyces.

Additional films:-

- 35° posterior oblique of the kidney ureter or bladder.
- when there Tomography when there confusing overlapping shadow.
- 30° rounded endgulation of the tube for the renal cistern.
- prone abdomen may provide better visualization for the uterus by making them more dependent.

Complication

Due to contrast medium.
Due to technique incorrectly applied
compression may produce
intolerable discomfort or
hypotension.

- > pyeloureteric junction obstruction show as dilation of Righ renal pelvis and calyces.
- > Dilation of left renal pelvis and calyces above the obstructing calculus.
- > Renal collecting and uterus crossed renal ectopia on the left kidney and absent R-kidney
- > IVP demonstrating a horseshoe kidney Flower vase appearance"
- > Duplex uterus on IUP complete bitered.

Intravenous pyelogram (IUP) demonstrates dilation of the R-renal collecting system and R-ureter consistent with R-ureterovesical stone.

Q4
Ans

Endoscopic Retrograde Cholangio-pancreatography (ERCP) is a technique

that combine the use of endoscopy and fluoroscopy to diagnose and treat certain problems of the biliary or pancreatic ductal system.

Although percutaneous transhepatic cholangiography (PTC) has a higher success rate for demonstrating bile duct:

1. The ability to visualize and biopsy ampullary lesions.
2. The demonstration of biliary tree and pancreatic duct.
3. Greater therapeutic potential.

Indication

- Investigation of extrahepatic positive HIV positive.
- Oesophageal obstruction varices pyloric stenosis.
- previous gastric.
- pancreatic disease.

Contraindications:

1. Absolute contraindication positive HIV positive.
2. Oesophageal obstruction
3. previous gastric surgery.
4. Acute pancreatitis.
5. pancreatic pseudocyst.

6 when glucagon or Buscopan are contraindicated.

7 Severe cardiorespiratory disease.

Contrast Medium

LocM 240

Bile duct

LocM 150 dilute contrast medium ensures that calci will not be absorbed.

Equipment

1 side viewing endoscope

→ polythene catheter

→ Fluoroscopic unit with spot film facilities

→ patient preparation:

→ Nil orally for 4 hours to produce pre-medication:

→ Anticholinergic cover.

preliminary films:-

prone AP and LAO of the upper abdomen to check for opaque gallstone and pancreatic calcification calculi.

Technique:

The pharynx is anaesthetized with 4% xylocaine spray and the patient is given diazepam 5mg min i.v until sedated.

The patient then lies on the left side and the endoscope is introduced.

The ampule of water is located and the patient is turned prone.

Film

prone both posterior oblique.
Bile Ducts

- 1 Early filling film to show culci.
- a prone straight and posterior oblique.
- b supine straight both oblique.
- 1 Film following removal of the endoscope which may obscure the duct.
- 2 Delayed film to assess the gallbladder and emptying of the common bile duct.

After Care:-

- 1 Nil orally until sensation has returned to the pharynx.
- 2 pulse temperature and blood pressure half hourly for 6 hours.
- 3 Maintain antibiotic if there is biliary or pancreatic obstruction.
serum / urinary amylase is checked.

Complications:-

Allergic reaction.
 Acute pancreatitis.
 Due to the technique.
 Damage by the endoscope
 structure of the esophagus
 Damaged to the ampulla
 proximal pancreatic duct and
 distal common duct.

Distant

Bacteremia, septicemia, aspiration
 pneumonia, hyperamylasaemia,
 (Cefprozil 70%) Acute pancreatitis 0.7-7%

Q4

Ans Hysterosalpingography.

Also known
 uterosalpingography. is a
 fluoroscopic examination of the
 uterus and fallopian tube.
 It is performed to investigate
 the shape of uterine cavity
 and shape and patency
 of fallopian tube.

Hystero mean uterus

salping mean fallopian tube.

Graph mean to draw.

Indication:

- 1 Infertility.
- 2 Recurrent miscarriages.
- 3 Following tubal surgery.
- 4 Assessment of the integrity of a caesarean uterine scar.

Contraindication:

- a Pregnancy.
- b A purulent discharge on inspection of the vulva or cervix.
- c Recent dilation and curettage or abortion or immediately post-menstruation.
- d Contrast sensitivity.

Contrast Medium:-

- Only contrast medium is no longer recommended.
- Iodine or LOCM 300 volume 10-20 ml.
- LOCM have no advantage with regard to the image quality or side effect but the non-ionic dimer.

Equipment:-

- 1 Fluoroscopy with spot film device.
- 2 vaginal speculum.
- 3 Valsellum forceps.
- 4 uterine cannula Leach Willenson cannula olive or 8F paediatric catheter.

patient preparation:

The patient should abstain from intercourse b/w booking the appointment and the time of examination. Can be booked b/w the 10th and 15th days in a patient with a regular 28 days cycle.

apprehensive patients may need premedication.

preliminary Film:

Coned PA view of the pelvic cavity.

Technique:

- 1 The patient lies supine on the table with knees flexed legs abducted and heels together.
- 2 using aseptic technique the operator insert a speculum and clean the vagina & cervix with chlorhexidine.
- 3 The inferior lip of the cervix is steadied with vulsellum forceps and the cannula is inserted into the cervical canal Foley catheter. There is usually no need to grasp the cervix with the vulsellum forceps.

Films:

- 1 using undecouch tube
- 2 is the tube begins to fill.
- 3 when perforated spill has occurred end with all the instrument removed.

After care:

- a It must be ensured that the patient is in no serious discomfort nor has significant bleeding before she leaves.
- B The patient must be advised that she may have bleeding per vagina for 1-2 days and pain may persist for up to 2 weeks.

Complications:

Due to technique:

- a use the vulsellum forceps.
- B During insertion of cannula.
- c with tubal distension proximal to back.
- d with distention of the uterus if there is no tubal spasm.

Bleeding from trauma to the uterus or cervix.

Tremor, nausea, vomiting and headache.

Complication:

- > Infection which may be delayed occurs in up to 2% of patient and more likely when there is a previous history of pelvic infection.
- > Abortion -> The operator must ensure that the patient is not pregnant.
- > Due to contrast medium: Allergic phenomena, especially if contrast medium is forced into the circulation.

Detectable pathology

condition which may be detected with HSG include.

Uterine pathologies:

- uterine congenital anomalies.
- submucosal uterine fibroid.
- uterine malperforation.
- adenomyosis.
- intrauterine adhesion.
- uterine polyps.

Tubal pathologies:

- Tubal polyps
- Tubal malignancy
- Hydro-salpinx
- salpingitis isthmica nodosa (SIN)
- tubal spasm -> can be physiologic
- Salpingectomy.

X

X

Q5

Ans.

Arthrography:-**Method:-**

- single contrast (contrast)
- Double contrast (air)

Indication:-

- joints capsule torn.
- joint cavity.
- synovial membrane.
- Articular cartilage lesion.
- Ligaments
- Tendons
- Loose bodies within joints
- prosthesis assessment.

Contraindication:-

- Active arthritis
- joint infection
- Bleeding problems.
- previous sensitivity to contrast media

Equipment:-

- Fluoroscopy with spot film device.

Preliminary Film:-

- Routine plain film Radiograph
- AP and true lateral of joint.
- Axial in shoulder and oblique view inversion/eversion ankle.
- Radial and ulnar deviation

in wrist joint

Agrey cone

- > Avoid driving for two days.
- > joint pain may occur.

Complication:-

- > Allergic reaction
- > synovitis
- > pain capsular rupture
- > Trauma to adjacent structure.

Knee joint Arthrography:-

- > The patient is lying supine
- > using sterile technique the skin and underlying soft tissue are anesthetized posteriorly to mid point of patella.
- > 21 g needle is inserted into the joint space.
- > An effusion is aspirated and small dose of contrast is injected ensure the correct positioning of the needle.
- > Then full volume of contrast medium (4ml) is injected followed by 40 ml of air for double contrast
- > The needle is then removed and the limb is exercised for uniform distribution of contrast.

Hip Arthrography:

- The patient is lying supine with the legs internally rotated so that entire length of femoral neck is visualised.
- The position of femoral vessels are visualised to avoid puncture.
- The skin is clean using aseptic technique.
- A point marker is placed at the site of entry and should be parallel to inter trochanter line.
- Test injection of contrast will demonstrate correct positioning of the needle.
- Any fluid in joint is aspirated and sent for examination.
- Inject 6 to 8ml of contrast under fluoroscopic control.
- The needle is then removed and joint is exercised for equal distribution of contrast within joints.

Shoulder arthrography:

- The patient is lying supine with arm of side under examination close to the body external rotation.
- Using sterile technique the skin and soft tissue are anaesthetized 1cm inferior and 1cm lateral to the coracoid process a spinal needle 21g. is inserted vertically in to the joint space under fluoroscopy guidance and test dose of contrast is injected followed by full injection 15ml for single contrast or 22ml for (Double contrast)
- The needle is then removed and joint is exercised for uniform distribution of contrast medium.