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Q1:- If there is non-visualization of ureteral segment of IVU and CTU of which alternative procedure will you perform?
What is the general protocol for performing that procedure?

Ans:- The procedure procedure we performed know as Retrograde pyeloureterography.

In this study the collecting system is evaluated by directly injecting radiographic contrast through catheters, rather than utilizing the excretory phase of contrast excretion of IVU as with CTU or IVU.

Normally urine produced in kidney and travel down the ureter in an antegrade fashion and is stored in the bladder.

Term retrograde used in the reference to the direction the contrast is introduced.

RPUG:

Test is performed in hospital radiology department by a urologist and is typically carried out under general anesthesia.

Indications:

Demonstrate of the site, length, lower limit and if possible the nature of an obstructive lesion.

Demonstration of the pelvic-lycal system after an unsatisfactory excretion of urogram.

= Non visualization of ureteral segment on IVU and ~~1000~~ CTU.

= Better characterization of ureteral or pelvic/cecal abnormalities seen on ~~1000~~ or IVU or CTU.

= To aid in stent placement.

= patient who has allergy on iodinated contrast media and have renal insufficiency are indicated for evaluation of retrograde uregram

Contraindication:

= Acute UTI

= pregnancy

= Recent instrumentation:

Contrast media:

HOCM or LOCM 150-200 i.p

that is not too dense to

obscure small lesion, 100 ml.

Equipment:

Fluoroscopy unite

Patient preparation:

As for surgery

preliminary film:

Full-length supine AP

abdomen when the examination

is performed in the

x-ray department

Proto

general protocol:

During procedure:

A retrograde pyelogram may be performed on an out patient basis or as a part of your stay in hospital.

Procedure may vary depending on your condition and your doctor's protocol.

Generally the retrograde pyelogram follows this process.

Before procedure:

- ① You will be asked to remove any clothing, jewelry, or other objects that may interfere with the procedure.
- ② You will be given a gown to wear.

Preparation:

- ① An IV line may be inserted in your arm or hand.

② Fast for a few hours before the procedure. you may not be able to eat or drink from 4 to 12 hours before the procedure.

③ Take a laxative; you may be given an oral laxative or an enema to make sure your digestive system is cleaned out.

④ Take some time off work

⑤ Stop taking certain medications.

After procedure:

you will stay in a recovery room until you wake up and your breathing heart rate and BP returns to normal. your doctor will monitor your urine for any blood or signs of complications.

high fever

Call your doctor right away if you notice any of these symptoms.

high fever 101°F or higher
bleeding or swelling around your urethral opening.

Unbearable pain when urinating
blood in your urine
trouble urinating

Q2:- Which Radiological procedure is commonly performed for assessing congenital anomalies of renal system? Explain in detail whole procedure.

Ans:- We performed for assessing congenital anomalies of renal system known as Intravenous pyelography (IVP).

IVP also called excretory urography EU.

Procedure used to visualize abnormalities of urinary system including the kidney, ureter and bladder.

Indications:

= Check for normal function of kidneys

= Check for anatomical variants of congenital anomalies

- = Check the course of ureters.
- = Detect and localize a ureteric obstructions
- = assess for synchronous upper tract disease in those with bladder transitional cell carcinoma. (TCC)

Contraindications:

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

Contrast media:

- = HOCM or LOCM 370 are acceptable but the following high-risk groups should receive LOCM:
 - ① Infact and small children and the old elderly.
 - ② Those with renal and or cardiac failure
 - ③ poorly hydrated patients

(4) Patient with diabetes, myelomatosis or sickle-cell anemia.

(5) Patient who ^{has} had a previous severe contrast media reaction with LCM or those with a strong allergic history

Adult dose

50 ml

paediatric dose

1 ml kg⁻¹

Patient preparation:

(1) No food for 5 hours prior to examination. Dehydration is not ~~more~~ necessary and does not improve image quality.

(2) Patient should, preferably for 2 hours prior to the examination, to reduce bowel gas.

(3) The routine administration of bowel preparation fails to improve the diagnostic quality of the examination and thus we make the examination more unpleasant for the patient.

(4) If the examination is to be performed on a patient who has previously had a severe CM reaction consideration should be given to administering methyl.

Preliminary Image:

(1) Supine: full length AP of the abdomen, in inspiration the lower border of the cassette is at the level of symphysis pubis and the x-ray beam is centred in the midline at the level of iliac crests..

The position of overlying opacities may be further determine by

② Supine AP of the renal area in expiration. The x-ray beam is centered in the mid line at the level of lower costal margin

③ 35% posterior oblique views

④ Tomography of the kidney at the level of a third of the AP diameter of the patient approximately 8-11 cm. The optimal angle of rotation or swing is 25-40.

Technique:

venous access is established. The gauge of the cannula / needle should allow the injection to be given rapidly as a bolus

To maximize the density of the ~~ren~~ nephrogram.

Films:

Immediate film:

AP of the renal areas.

This film is exposed 10-14 after the injection. It aims to show the nephrogram that the renal parenchyma opacified by CM in the renal tubules.

5 mint film: AP of the renal areas. This film is

taken to determine if excretion is symmetrical and is invaluable for assessing the need to modified technique e.g a further injection of CM if there has been poor initial opacification.

The aim is to produce better pelvicalyceal distension

Compression in contraindication:

- (a) after recent abdominal surgery
- (b) after renal trauma
- (c) if there is a large abdominal mass.
- (d) when the 5 min film show already distended calyces.

15 min film:

Ap of the renal area. There is usually adequate distension of the pelvicalyceal system with opaque urine by this time. Compression is released when satisfactory demonstration of pelvicalyceal system has been achieved.

(5) Release film:

- (a) Supine AP abdomen
This film is taken to show the whole urinary tract. If this satisfactory the patient is asked to

empty their bladder.

⑤ After micturition film:-

= Based on clinical finding

= full length abdominal film

= bladder with tube angled 15.

= 5 cm above

= value of the film is to assess

bladder emptying

= demonstrate return to normal

of dilated upper tract.

= relief the bladder to aid

the diagnosis of:

= the bladder tumours

= To confirm UV junction calculi

Additional film:-

= ① 35° posterior oblique of the kidneys, ureter and bladder.

= ② Tomography when there are confusing overlying shadow.

= ③ 30° caudal angulation of the tube for renal area.

= ④ prone abdomen - may provide better visualization of the

ureters by making them dependent.

- (5) Delayed films - necessary for up to 24 hours after injection in cases of obstructive uropathy.

Complications:

- = Due to the contrast media
- = Due to the technique
Incorrectly applied abdominal compressions may produce intolerable discomfort or hypotension.

Q3: Which procedure performed for investigation of extrahepatic biliary obstruction. Discuss general protocol for followed that procedure.

Ans: The procedure used to performed for investigation of extrahepatic biliary obstruction is known as Endoscopic Retrograde Cholangiopancreatography (ERCP). ERCP is a technique that combines the use of endoscopy and fluoroscopy to diagnose and treat certain problems of the biliary or pancreatic ductal system.

Although percutaneous cholangiography (PTC) has higher success rate for demonstrating bile ducts ERCP has three advantages

① The ability to visualize and biopsy ampullary lesions.

② The demonstration of biliary tree and pancreatic duct

③ Greater therapeutic potential ERCP is usually performed by physician or surgeons rather than radiologist.

Common reasons for ERCP
• yellow skin or eyes light
• stool dark urine.

• A lesion or tumor in the pancreas, gallbladder or liver.

Protocol: (ERCP)

Before the procedure:

= you may have diet and/or medication restrictions

the week before ERCP test.

= physician know if you take any type of blood thinning medications.

= Avoid heavy meal for at least 8 hours before the procedure.

= light meals or opaque liquid for 6 hours before

= Plan to take the day off from work.

= procedure perform with general anesthesia. avoid working, driving. for next day.

= physician also know about patient allergy medical condition, current medication.

= Doctor sometime prescribe antibiotic.

Before procedure.

In case when patient need certain therapeutic interventions during an ERCP procedure they may be admitted to the hospital.

After procedure:

= you stay in procedure area 1 or 2 hours after your ERCP. until sedative wear off.

you have someone drive you home.

= want to spend the rest of the relaxing at home.

= you may eat normally

= Take your regular medicines

= you might have sore throat for a day or two.

= you might need spend night at hospital.

Q4: Which radiological procedure is recommended for evaluating the ~~causes~~ cause of female infertility? Explain the procedure in detail?

Ans: The procedure ~~is~~ recommended for evaluating the cause of female infertility known as Hysterosalpingography (HSG).

= HSG also known as uterosalpingography is a fluoroscopic examination of the uterus and the Fallopian tube.

= It is performed to investigate the shape of uterine cavity and the patency of fallopian tubes.

Hystero means uterus

= Salpingo means fallopian tubes.

= Graphy means to draw

procedureIndications:

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

Contraindications:

- = Pregnancy
- = A purulent discharge on inspection of the vulva or cervix or diagnosed PID in the preceding 6 months.
- = Recent dilation and inspection of the cervix curettage or abortion or immediately post-menstruation. This applies only to oily contrast media because of the risk of intravasation.
- (a) Contrast sensitivity.

Contrast medium:

- oily contrast medium is no longer recommended
- HOCM or LOCM 300.
- Volume 10-20 ml
- LOCM have no advantage with regard to image quality or side effects but the nonionic dimer, iotrolam is associated with a lower incidence or decreased severity of delayed pain.

Equipment:-

- (1) Fluoroscopy unit with spot film device.
- (2) Vaginal speculum
- (3) Vulsellum: forceps
- (4) Uterine cannula, rack

Patient preparation:

① Patient should abstain from intercourse between booking the appointment and the time of examination ~~can be booked between the fourth and~~ Unless she uses a reliable method of contraception at the examination.

Can be booked between the fourth and tenth days in a patient with a regular 28 days cycle.

② Apprehensive patient may need premedication.

Preliminary film

Coneal PA view of the pelvic cavity

Techniques-

- ① The patient lies supine on the table with knees flexed, legs abducted and heels to gather.
- ② Using aseptic technique the operator inserts a speculum and clean the vagina and cervix with chlorhexidine.
- ③ The anterior lip of the cervix is steadied with Wood Vulsellum forceps and the cannula is inserted into the cervical canal.
- ④ Care must be taken to expel all air bubbles from the syringe and cannula, CM is injected slowly under intermidiate fluoroscopic control.
- ⑤ Spasm of the uterine cervix may be revealed by its glow.

NB opiates increase pain by stimulating smooth muscle contraction.

Films:

Using the ~~undercoat~~ underouch tube.

- ① As the tubes begin to fill
- ② When ~~per~~ peritoneal spill has occurred with all the instrument removed.

Aftercare:

- ① It must be ensured that the patient is in no serious discomfort nor has significant bleeding before she leaves.

- ② The patient must be advised that she may have bleeding per vagina for 1-2 days and pain may persist up to 2 weeks.

Complications:

① Due to contrast media:

= Allergic phenomena especially if contrast medium is forced into the circulation.

② Due to technique:

- (A) pain may occur
- (1) using the vulsellum forceps
- (a) During insertion of cannula
- (3) Tubal distension of proximal
 - to a block.
- (4) distension of uterus if there is tubal spasm.
- (5) peritoneal irritation during 2 weeks.
- (b) Bleeding from trauma to the uterus or cervix
- (c) Transient nausea, vomiting and headache.
- (d) Abortion: Operator must ensure that the patient is not pregnant.

Detaltable pathology:

Uterine pathologies:

- = Uterine congenital anomalies
- = Submucosal uterine fibroids
- = Uterine malignancy
- = adenomyosis
- = intrauterine adhesions
- = uterine (endometrial) polyps.

Tubal pathologies:

- = Tubal malignancy
- = Hydrosalpinx
- = Salpingectomy
- = tubal polyps.

Q5:- Explain in detail CRP used for diagnosing the disorder of joints, ligaments, & tendons.

Indication:-

- = joint capsule torn
- = joint cavity
- = synovial membrane
- = • Articular cartilage, labrum
- = ligaments
- = tendons
- = loose body within joints
- = prosthesis assessment.

Contraindications:-

- = Active arthritis
- = Joint infections
- = Bleeding problems
- = previous sensitivity to contrast media

Equipments:

Fluoroscopy with spot film devices.

preliminary film:

- = Routine plain film radiograph
- = Ap and true lateral of the joint of interest
- = Axial in shoulder and oblique view in ankle.
- = Radial and ulnar deviation in wrist joint.

Aftercare:

- Avoid driving for two days
- = joint pain may occur

Complications:

- = Allergic reaction
- = Synovitis
- = pain capsular rupture
- = Trauma to adjacent structure
e.g. nerves and vessels.

Method:

- Single contrast
- Double contrast.

An arthrography is a type of imaging test used to look at joints such as the shoulder, knee, or hip. It may be done if standard x-ray don't show the needed details of the joint structure and functions.