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Answer No 1

Part A,

∴ When the structures have no proper visualization by performing both IVP and CTU then one of the best alternative procedures which can be used for the same work is Retrograde Pyelography (RPG)

RPG:

∴ RETROGRADE PYELOGRAPHY

A procedure used to visualize the kidney and ureter by injection contrast media and used to identify the pathology like stone/tumors

Protocol

After the patient has been anesthetized. The position start by ensuring proper positioning of the patient in the dorsal lithotomy position.

Once the position is complete a cystoscopy is performed. The physician uses the cystoscope to identify the left and right ureteral orifices.

The physician then uses a SF or Fb open-ended or cone-tipped catheter or cannulate the ureter that needs to be imaged.

At this point radiographs are taken to ensure the proper placement of the catheter.

If once the placement is confirmed, the physician may inject the contrast through the catheter typically 5-8 ml of contrast is needed to

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completely specify the ureters and renal collecting system. As the contrast begin injected several image are taken using Fluoroscopy.

if there is pelvoureteric junction obstruction. The contrast media in the pelvis is aspirated the film and ~~examined~~ examined and satisfactory. The catheter is withdrawn first 10 cm below the renal pelvis and then to lie just above the ureteric orifice about 2ml of contrast medium are injected at each of these level and film taken.

Film:

Using the undercouch table

supine PA view of the ureter

NB: The catheter may be left in the pelvis to obtain a pelvoureteric obstruction. in this case withdrawal ureterogram are not possible.

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Answer No: 2:

Intravenous pyelography [IVP]

A intravenous pyelography (IVP) is also called intravenous urography (IVU) or excretory urography (EU) is a radiological procedure used to visualize abnormalities of the urine system, including the kidney, ureters and bladder.

Indication:

• Check the normal function of kidney.
• Check the course of ureters
• Localize the ureteric obstruction.

Contraindication:

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

Contrast Media:

• Iom and Iocim 370 are acceptable following high.

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risk group should received
locm.

poorly hydrated patient.
These which renal and cardiac
Failure patient with diabetes
sickle cell anaemia.
in infants small children and
the elderly.
Adult dose 50 ml.
children dose 1 ml/kg - 1

Patient Preparation:

No food for five hours
to the examination. Dehydration
is not necessary and
does not improve image
quality and the routine
administration of bowel preparation
fail to improve the diagnostic
quality of the examination
and its use make the
examination more unpleasant
for the patient

PRELIMINARY Film

Supine, full-length AP of the
abdomine in inspiration

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The lower border of cassette is at the level of the symphysis pubis and x-ray beam centred in the midline at the level of the iliac crests.

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

A tomography of the kidney at the level of third of the AP diameter of the patient. The optimal angle of swing is $25-40^\circ$.

Technique :-

The median antecubital vein is the form of preferred injection site because flow is retarded in the cephalic vein as it clasp the fascia. A 19 G-needle is advanced up the vein to reduce the risk of perivascular injection and the injection is given rapidly as a bolus to maximize the density of the nephrogram.

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upper arm of the shoulder is pain may due to stasis of contrast medium in the vein. This is relieved abduction of the arm.

Films:

∴

1) Immediate film:

∴ AP of the renal areas. This film is exposed 10-14 s after the injection (arm-to- (kidney) time). It aims to show the nephrogram i.e. the renal parenchyma opacified by contrast medium is the renal tubules.

2) 5-min film:

∴ AP view of the renal area. This film is taken determine if excretion is symmetrical and in invaluable for assessing the need to modify technique e.g. Fultube injection of contrast medium if there has been poor initial opacification.

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The aim is to produce better pelvicalyceal distension.

Completion is contraindicated, After renal abdominal surgery, After renal trauma, if these large abdominal mass.

When the 5 min film show already distended calyces

15-min Film:

∴ AP of the renal areas. There is usually adequate distension of the pelvicalyceal system with has been achieved.

Release Film:

∴ Supine AP Abdomen. The film is taken to show the whole urine tract if this film is satisfactory. The patient asked to empty their bladder.

After micturition Film:

Based on the clinical and the radiological

(a)

Findings on the earlier films.
This will be either a
Full length film or a
coned view of the bladder
with the tube angled 15°
caudad and centred 5 cm
above the symphysis pubis

ADDITIONAL Films:-

35° posterior obliques of the
kidney, ureters or bladder
 30° caudad angulation of the
tube for the renal area.
 prone abdomen - may provide
better visualization of the
ureters by making them
more dependent.
Delayed film - may be necessary
for up to 24 h
after injection in case of
obstructive uropathy.

Complication:-

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

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pyeloureteric junction obstruction
shows as dilatation of
Right Renal pelvis and
calyces

Dilatation of left Renal pelvis
and calyces above the
obstructing calculus

Renal collecting system and
ureters crossed Renal ectopia
on the left kidney and
absent Right kidney

IUP demonstrating a horseshoe
kidney
"flared base appearance"

Duplex ureters on IUP.
complete bilateral

intravenous pyelogram (IUP)
demonstrating dilatation of
the right renal collecting
system and right ureters
consistent with right uretero-
vesical stone.

Answer No 4:

Hysterosalpingography (HSG)

HSG is also known as hysterosalpingography. It is a fluoroscopic examination of the uterus and the fallopian tubes.

It is performed by investigating the shape and the uterine cavity and the shape and patency of the fallopian tube.

Hystero mean uterus.

Salpingo mean fallopian tube.

Graphy mean to draw.

Indications:

- :- Infertility
- :- Recurrent miscarriage.
- :- Following tube surgery
- :- Assessment of the integrity of a caesarean uterine scar.

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CONTRAINDICATIONS:-

Pregnancy.

Contrast Sensitive

Recent dilation and curettage or abortion or immediately post-menstruation. The only contrast medium of the risk of extravasation. applies only to because

- A purulent discharge on inspection of the vulva or cervix or diagnosed PID in the preceding 6 months

Contrast MEDIUM:-

Hiom or LOCM 300. Volume
10-20 ml

Locm. have no advantage with regard to image quality or side effect but the nonionic dimer is associated with a lower incidence and decrease severity of delayed pain

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EQUIPMENT:-

- = Fluoroscopy
- = Vaginal speculum
- = Vulvum forceps
- = Uterine cannula, Leech-Willerson
cannula, oliva or K-F
paediatric Foley catheter.

Patient PREPARATION:-

The patient should abstain from intercourse between booking the appointment and the time of the examination unless she use a reliable method of contraception

Apprehensive patients may need premedication

TECHNIQUE:-

The patient lie on the supine position and the knee flexed. legs abducted and heels together

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The anti lip of the cervix
is steadied with the vulva
Forceps and cannula is
inserted into cervical canal

Spasm of the uterine cornu
may be relieved by I.V
glucagon.

Contract medium is injected
slowly under intermittent
fluoroscopic control

Films:

As the tube begin to fill

When peritoneal spill has
occurred and with all the
instrument removed.

Complications:

pain occurs. of some kind
bleeding from trauma to the
uterus or cervix
Transient nausea vomiting and
Headache
intravasation of contrast medium

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infection occurs

subscription. The operators must ensure that the patient not pregnant.

Answer NO 3

Part A:

∴ For the investigation of extrahepatic biliary obstruction. The procedure is usually performed is "Endoscopic Retrograde Cholangio-pancreatography."

ERCP:-

∴ It is a type of examination by which the doctor gets able to see the every small tube inside the body named bile ducts and pancreatic duct.

These tube are located near the stomach, their function is to play a role of transpiration the bile or digestive juice from pancreas the

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digestive track.

This procedure uses a very flexible light tube called endoscope. This procedure use Fluoroscopy and endoscopy to locate and treat the digest problems.

Equipment:

The equipment required from the procedure are:
polythene catheters
side-view catheters
Fluoroscopy unit which has the ability to capture spot film.

Part B:

General Protocol:

1) The patient will be asked to remove eye glasses and dentures

2) A Gown will be given to wear to the patient.

3) Doctor will explain all the steps of procedure to the patient

The whole will performed by the gastroenterologists where duration will last one to two hours.

5) An anesthetic is applied or given to the back of the throat of the patient

6) Mouth piece is introduced and it placed in the patient from breathing.

7) The endoscope will insert the patient through that mouth.

8) The endoscope will travel to small intestine by passing the esophagus and stomach

9) Endoscope does not interfere with breathing

10) The catheter is now inserted into ampulla of Vater after confirming it that all the air bubbles are gone.

11) Now confirm the position of cannula
 small amount of contrast
 is injected with fluoroscopic
 control

12) Now the pancreatic duct
 and biliary tree are
 filled with the contrast
 (avoiding over filling)

13) Image are taken

14) Bile sample can
 be sent for culturing
 if there suspected biliary
 obstruction

15) Film which are

taken are

i) posterior oblique for the pancreas

ii) posterior oblique for bile duct
 in prone position

iii) straight oblique, T1 endobiliary

iv) Early image for
 cannula position and
 some other films.

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Medication
to patient
sore throat
care given
may feel
for some days.

Answer No. 5:

~~procedure~~

For diagnosis of the disorders of tendons and ligaments the procedure is Arthrography.

Arthrography:

Arthrography is a type of imaging test used to joint such as shoulder knee

in arthrography a long thin tendon needles is used to put contrast dye right into the joint.

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and a series of x-ray
taken with the joint
in various positions.

Arthrography is very effective
at detecting disease with
the ligament tendons and
cartilage.

Method:

Single contrast

Double contrast

Indication:

Joint Capsule tear

Joint cavity

Synovial membrane

Articular cartilage

Ligament
Tendon

loose bodies within joint

Prosthesis assessment.

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Contraindication:

Active activities

joint infection

Bleeding problem

previous sensitive contrast

Equipment

Fluoroscopy devices with spot film

Preliminary Film:

* Routine plain film radiography

* AP and true lateral of the joint of interest.

* Axial in shoulder and oblique view in elbow/wrist

* Radial and ulnar deviation

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in wrist joint

After Cast

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

Complication:

:-

- * Allergic reaction
- * synovitis (inflammation of synovial membrane)
- * Pain capsule rupture
- * Trauma to adjacent structures
e.g. nerve and vessels.