

(1)

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Submitted To.

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(1)

Q NO: 1

Ans:

If urethral Segment
not visualize on IVC

and CTU, a Retrograde

Pyelogram is an

alternative procedure

to image the

urethral Segment in

better manner.

→ RPOG procedure

is used if there

(2)

~~if there is st~~

If there is still
concern for evaluating
the collecting system
after IVU or CTU.

General Protocol for

RPOG:-

→ Study the collecting
system

→ Contrast is injecting
directly through
catheter.

(3)

→ In procedure the excretory phase is not visualize.

lies CTU and IIV for contrast administration

→ Urine is normally produced in kidney and move down

through ureter in

grade fashion.

→ The retrograd is used in reference

to direction the contrast introduced.

(11)

→ This procedure is performed by urologist in Radiological department in the hospital.

→ usually general anesthesia given to patient.

Indication

→ Demonstrate the site length and nature of obstructive lesion.

(5)

→ Stent placement

→ patient with IV

Contrast Allergy.

→ Can perform RPOG
with low risk.

Contraindication

→ Acute urinary
tract infection

→ Pregnancy.

→ Recently instruments
implemented.

(6)

Contrast Medium

HOEM or LOEM.

10 ml.

Equipment:

fluoroscopy unit.

Patient preparation

patient preparation

as for Surgery.

Preliminary film

when the examination is performed in the

(8) (7)

in the radiologic

department full

length supine AP

film has taking.

Techniques:-

→ when anesthesia

is given to patient

→ procedure start by

positioning the

patient in dorsal

lithotomy position.

8

→ 8

→ cystoscopic procedure is performed after patient positioning.

→ The Doctor via cystoscope to demonstrate left and right orifice of urethra.

→ Doctor use SF or BF open ended or one trip catheter to cannulate the ureter that need to be imaged.

→ To ensure placement of catheter radiograph

(9)

→ Then 5-8 ml
contrast is injected
through catheter to
occlude the ureter and
renal collecting system.

→ After this several
images are taken
by fluoroscopy.

→ In case of pleu-
-retoric junction
obstruction, contrast

in the pelvis aspirated.

(10)

→ Examined the film
of satisfactory with
catheter, 1st 10cm
below the renal pelvis.

→ and lie above
ureteric orifices at
each level 2 ml
contrast injected and
film taken.

Film:-

Supine PA of
the ureter.

→ Both 35 degree anterior

(11)

oblique of ureter.

After Care:-

- prophylactic antibiotic used.
- post anasthetic care.

Complication

- Due to anaesthesia
- Due to techniques.

→ infection, mucosal damage.

→ Due to Contrast

→ Adverse reaction

Chemical Pyelitis
and Extravasation

(12)

Q No:2

The radiological procedure which is commonly performed for assessing congenital anomalies of renal system is intravenous pyelography (IUP).

INTRAVENOUS
pyelography (IUP)

→ It is also called intravenous urography

(13)

(IVU) or Excretory urography
(EU).

- It is a radiological procedure used to visualize the abnormalities of urinary system.
- Including kidney, ureters and bladder.
- IVP use contrast to highlight the urinary tract.

INDICATION:

→ check for Congenital abnormalities

→ check for normal function of kidney.

→ check uretic obstruction

→ check course of ureters.

Contraindication.

→ Hepato-Renal Syndrome.

→ Raise Serum creatinin

→ Thyrotoxicosis

→ Contrast - allergy.

(15)

Contrast Media

→ Contrast media are
HOEM and LOEM.

→ HOEM or LOEM
are acceptable.

→ But high risk
group should be
referred LOEM.

→ The risk which
referred LOEM are
following.

- ① Infants and small children and elderly.
- ② Those who with renal or cardiac failure
- ③ Poorly hydrated patients.

(4) Diabetic, myelomatosis
or sickle-cell anaemia
patient.

(5) The patient who
have previous severe
contrast medium reaction.

(6) → Those who strongly
allergic history.

→ Contrast media for

Adult dose → 50ml.

paediatric dose.

1 ml/kg.

(17)

Patient Preparation

(1) Should not be
give food good
for 5 hr before to
examination.

→ Dehydration is not
necessary

→ does not improve
image quality.

(2) ~~P~~ Doctor you may
asked to take a
mild laxative
(pill or liquid form)
before procedure.

(18)

(3) → you should inform your physician of any medication being taken if there are allergies.

(4) inform your doctor about previous illnesses history.

(6) You will be asked to remove clothes and to wear a gown during exam.

(7) should be inform about pregnancy.

(8) If examination is

(19)

The examination is to be performed on patient who had

previously severe contrast reaction.

Should be give methyl

prednisolone 32 mg orally and 2 lit

prior to injection of contrast medium in addition to ensuring that Loem is used.

(20) Preliminary film

→ Supine full length

AP of abdomen in inspiration.

(20)

→ Two lower border cassette is at level of Symphysis pubis and x-ray beam is centered in middle at level of the iliac crest.

(2) Supine Ap of renal areas in expiration

→ x-ray beam centered at midline at level of costal margin.

3) 35° posterior oblique views.

(21)

(u) Tomography of Kidney
at level of third
of AP diameter of
patient.

→ approx 8-11 cm.

→ angle is 25-40°.

Technique..

→ Median antecubital
vein is preferred
injection site b/c
from cephalic vein

flow is restarted
and as it pierces
the ~~cep~~ clavipectoral
fascia.

→ In IVP exam
an iodine-containing

(22)

Contrast material is
injected through vein
in arm.

→ Contrast material

then collects in
kidney, ureters
and bladders.

→ Sharply defining

their appearance.

in bright white
on x-ray image.

→ x-ray image is
typically stored

as digital image
in electronic archive.

→ upper arm or
shoulder pain may
be due to stasis

(23)

stasis of contrast medium
in vein.

→ This is relieved
by abduction of
arm.

Films:-

(1) Immediate film

→ AP of Renal areas.

→ This film is exposed

10-14 s after injection

→ It shows nephrogram

2) 5-min film

→ AP of Renal areas.

→ This film is taken

to determine if
excretion is symmetrical

(2M)

→ invaluable for assessing the need of modified technique.

→ If there is ~~then~~ poor initial opacification further injection of contrast medium injected.

Compression is

Contraindicated ::

→ After renal trauma.

→ If large abdominal mass

→ when 5-min film show distended calyces.

→ After recent abdominal surgery.

4) Release film

Supine AP abdomen.

→ film show whole urinary tract.

→ If film is satisfactory

The patient is asked to empty

B-ladder.

5) After micturition film

→ It based on clinical medicines and radiological findings on earlier film.

→ Either full-length

of abdominal film or coned view of B-ladder.

(26)

→ Tube angle 15°

Caudad and centred
5cm above the
symphysis pubis.

→ Principle value

of this film is
empty bladder. to

demonstrate a return

to normal of dilated

upper tract with

relief of bladder

pressure.

→ Diagnosis of bladder

tumor to confirm

uterovaginal junction
calculi.

(27)

Additional films

→ 35° posterior oblique
of kidney, ureter
or bladder.

→ prone abdomen

→ delayed films
may necessary for

up to 24 hr after
injection in case
of obstructive uropathy

→ 30° caudal

angulation of tube

for renal areas.

Complications

→ Due to technique
incorrectly apply
abdominal compression
may produce
hypotension.

→ Due to Contrast
medium.



(29)

QNO3

Ans

Procedure Perform
for investigation of
Extrahepatic biliary
obstruction.

⇒

The procedure
which is performed
for investigation of
extrahepatic biliary
obstruction is

(30)

Endoscopic Retrograde

Cholangio pancreatography
(ERCP).

→ The ERCP is

diagnostic procedure

designed to examine

disease of the

liver, bile ducts
and pancreas.

→ ERCP is usually

best performed under

general anesthesia.

→ It may be done
using IV sedation.

(31)

→ The ERCP is
provided important
information that
cannot be obtain
by other diagnostic
examination e.g

a) abdominal ultrasound

CT scan, or MRI.

→ It used to locate
papilla of Vater

Structure with opening
leading to bile-
duct and pancreatic
duct.

(32)

→ to visualize
biopsy and ampullary
lesions:

General protocol

The general protocol
for ERCP are.

Patient preparation

→ For good examination
the stomach must
be empty.

→ Should not be
eating anything
after midnight on

(33)

evening preceding the

exam -

→ Should not be

drunk if the procedure

performing in early

in the morning.

→ Antibiotic cover.

Equipments:

→ Side viewing
endoscope.

→ polythen catheters.

→ fluoroscopic unit

with Spot film.

345

Preliminary film

→ To check for

opaque gallstone

and pancreatic

Calcification, Calculi

→ The prone AP

and LAO of the

upper abdomen

should be taken.

7)

(35)

Technique:-

→ The pattern will be given same

local anesthetic to

decrease the gag reflex.

→ Will be given

medication to patient

through vein to

cause relaxation and sleepness.

→ Some physician

do not use anesthesia

(36)

and refer to given
patient more intravenous
medication for
Sedation.

→ lullen person is

Allergic to xylocaine

→ patient lying on
left side on
x-ray table.

→ Intravenous medication
is given

→ Then insert the
instruments through
mouth into
duodenum.

(37)

→ Instruments advance

Through food pipe
not air pipe.

→ Ampulla of Vater

is located and

patient turned
Prone.

→ Small plastic
catheter is passed
through an open

channel of endoscope

into bile ducts or

pancreatic ducts.

2)

(38)

→ Contrast material injected

→ x-ray taking
of bile duct and
pancreatic duct.

→ other open channel
in an endoscopy

allows the other
instruments to be

passed through in

order to perform

biopsy.

→ insert plastic or
metal stents or
tubing to relieve

(11)

(39)

obstruction of bile
or pancreatic duct.

→ The procedure
can last anywhere

from fifteen to one

hour depend upon
the skill of

physician.

→ ERCP also may

performed under

high general anesthesia.

→ A ~~sample~~ sample

of bile should be
sent for culture

and sensitivity.

(40)

1b) there is evidence
of biliary obstruction
films.

Permease using the
film of focal spot
prone for both
posterior oblique

→ To show calculi
early film will
be taken.

Bile duct:

Prone → straight and
posterior oblique.

(41)

Supine \rightarrow straight
both oblique

After Care:-

\rightarrow The patient should

be observed in

the recovery area.

until most of effect

of medication have

worn off.

\rightarrow Patient should be
stay home.

\rightarrow Antibiotic should
be maintain if
there bilious obstruction

\rightarrow BP and temperature half
hourly for 6 hrs.

(112)

Q No: 4

The radiological procedure which is recommended for evaluating the cure of female infertility is hysterosalpingography.

→ It is a fluoroscopic examination of the uterus and fallopian tube.

Hysterosalpingo

Graphy...

HSG is an x-ray

exam of uterus

and fallopian tube.

→ It is also called

uterosalpin graphy.

→ It use to
investigate the

Shape of uterine

cavity and shape

of potency of
fallopian tube.

(44)

Indication

Infertility to assess

uterine tube patency.

→ Recurrent miscarriage.

→ following tubal
surgery.

Equipment:

→ fluoroscopic unit
with spot film

→ vaginal speculum.

→ ~~the~~ vulsellum forceps

→ uterine cannula.

1

(45)

Patient preparation

→ Patient should be quite intercourse

as the time of booking the appointment.

→ ~~time~~ time of

examination she use

a reliable method

of contraception

→ book b/w with and both days

→ patient regular

28-days cycle.

(46)

→ Apprehensive
patient may

Permidication.

Contraindication

→ Pregnancy.

→ active pelvic
infection.

→ tubal surgery.

→ contrast sensitivity

Contrast medium

→ HOCM or LOCM
300 volume 10-20ml.

→ oily contrast not
recommended.

(47)

Technique:-

→ Patient will
lying in supine
position on table.

→ Knee flexed.
Leg abducted and
heels together.

→ Operator will
insert Speculum
and clean the vagina
and cervix with
the chlorhexidine.

(48)

→ Anterior lip of
Cervix is steadied

with vulsellum
forceps

→ Cannula is inserted
to cervical canal.

→ Foley Catheter
should be used.

→ No need to
grasp the Cervix

with the vulsellum
forceps.

→ Contrast medium
is slowly slowly
injected.

(49)

→ usually completed
in about 3-5 ~~min~~ min.

→ installing radio opaque
contrast into uterine
cavity.

→ using fluoroscopy
with intermittent
still image for
documentation.

→ Spasm of uterine
cornu may be
relieved i.v glucagon

(50)

→ Proper technique
is important to
enhance patient

comfort or

→ ensure the highest
quality image.

Films:-

→ Using undercouch
tube.

* → As tube begins
to fill.

(*) → When peritoneal
Spill has occurred
and with all
instruments removed.

(51)

Aptercate:

- Must ensure that patient is in series discomfort not has significant bleeding before she leaves.
- patient must be advised that may bleeding per vagina for 12^o days
- pain may persist for up to 2-weeks

Complication:

Due to technique

① pain occur at

following times.

→ using ~~that~~ vulsellium forceps.

→ During insertion of canula.

→ with tube distension.

→ peritoneal irritation during following day or up to 2-weeks.

② Bleeding from trauma.

(53)

③ Vomiting, headache
and nausea.

④ Intravasation of contrast
medium into venous
system of uterus
result in fine lace-

like pattern within
uterine wall.

→ more extensive.

→ intravasation outline
large veins.

following factors

predispose to intravasation

① Direct trauma to
the endometrium.

(54)

(b) → timing of procedure
near to menstruation.

① timing of procedure
within a few days
after luteal phase.

⑤ infection

⑥ Abortion.

Due to contrast
medium

→ Allergic phenomena

→ Condition may
be detected with HSG
include

Uterine pathologies

→ uterine congenital

(55)

anomalies.

→ Submucosal
uterine fibroids

→ adenomyosis

→ uterine.

Detectable Pathology

Tubal pathologies

→ tubal polyps.

→ Tubal malignancy

→ hydrosalpinx.

→ Salpingectomy.

xx

(56)

Q No 5

Ans:

Conventional Radiological procedure used for

diagnosis the disorder

of Joint, ligament

and tendon is

Arthrography.

⇒ Arthrography..

It is a technique used to diagnose.

the disorder of

→ Joints

→ Ligaments

→ Tendon.

(57)

Method:

The method is

- It single contrast
- Double contrast.

Indication:

Following are the indications of arthrography

- Joint capsule torn
- Joint cavity
- Synovial membrane.
- Ligament.
- Tendon.
- Articular cartilage.
- Labrum
- loose bodies within joint.

(58)

Contraindication

- Gonias infection
- Active arthritis
- Bleeding problem.

Equipment.

- Fluoroscopy with
Spot film devices.
- Radiographic table
- one or two
x-ray tubes.
- and television like
monitor.

(59)

Preliminary film

→ Routine plain with film radiograph

→ Ap and true lateral of joint of interest

→ Radial and ulnar deviation in wrist

Joint

→ Axial in shoulder and oblique view

inversion or eversion in ankle

(60)

After Care:

→ Should be rested
approximately for
12 hrs.

→ instruction of
care and changing
of bandage.

→ Avoid driving
for two days.

→ Joint pain may
be occur.

(61)

Complication

- Allergic reaction.
- synovial membrane inflammation
- Seizures.
- Laryngeal edema
- Sterile chemical synovitis.
- Severe pain after procedure.
- Trauma to adjacent structure. i.e. nerves and vessels.

(62)

(*) Knee Joint Arthrography:

- The position of patient is supine
- using sterile technique the skin and underlying soft tissue are anaesthetised posterior to mid of patella.
- Prepare the buffered lidocaine anesthetic solution.
- Advance the needle

(63)

(22 or 25 gauge) into

patello femoral compartment.

with slightly subluxing
the patella.

→ If there is suspected

Joint effusion,

Consider syringe
aspiration of fluid
avoid overdilution of

Contrast

→ full volume of

contrast medium is

injected follow by

(b/w)

nomel of air for
double contrast.

→ Needle is removed
and limb is exercised
for uniform distribution
of contrast.

HIP Arthrography

- patient lying
Supine.
- leg internally
rotated.
- femoral neck
is visualized.

(65)

→ position of femoral
wires are visualized.

To avoid puncture.

→ Marker should be
parallel to inter
trochanter. and
place at site of
entry.

→ local anesthesia
20 or 22g needle
and advanced in
femoral neck.

→ inject 8 ml of
contrast under
fluoroscopic control.

→ Needle is removed.

→ Joint exercise
equal distribution
of contrast within joint

Shoulder Arthrography

- Patient lying supine
- arm at side.
- Examination close to body external rotation.
- Bicep head is out of path of needle.
- using sterile technique.
- Skin and soft tissue are anaesthetised 1cm anterior and 1cm lateral to coracoid process.
- Spinal needle 21g is inserted vertically

(67)

→ 15 ml for single
contrast or air
(12ml) to distend

the synovial Sac.

→ Needle is remove

→ Joint is exercise

for uniform distribution
of contrast medium.

== xx ==