



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT OF RADIOGRAPHY AND IMAGING TECHNOLOGY

COURSE NAME : CONTRAST AND SPECIAL RADIOGRAPHY PROCEDURES

II YEAR

UNIT : 8

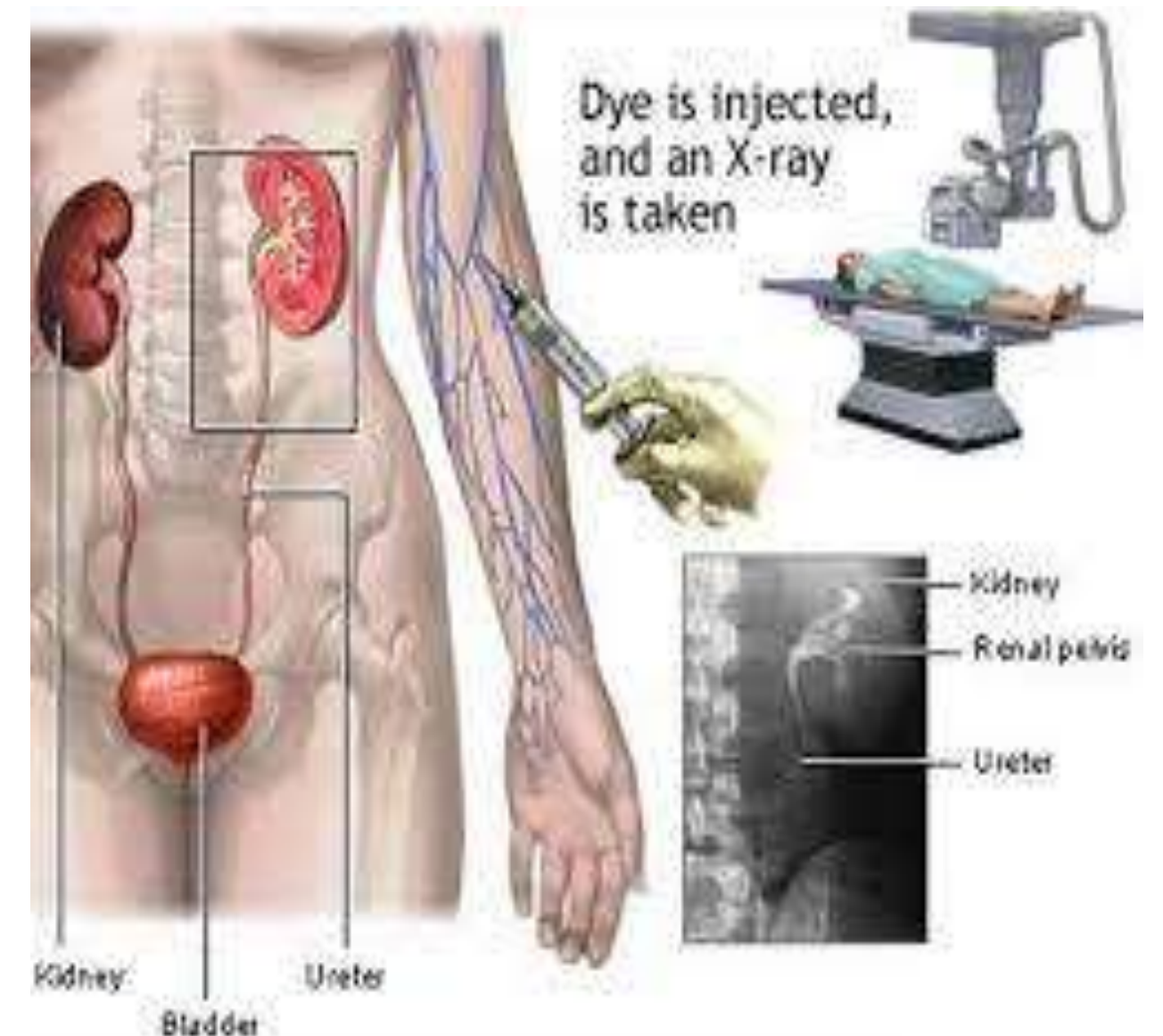
TOPIC : INTRAVENOUS UROGRAM



INTRODUCTION



It is the radiographic examination of urinary tract including renal parenchyma, calyces and pelvis after intravenous injection of contrast media.





ANATOMY

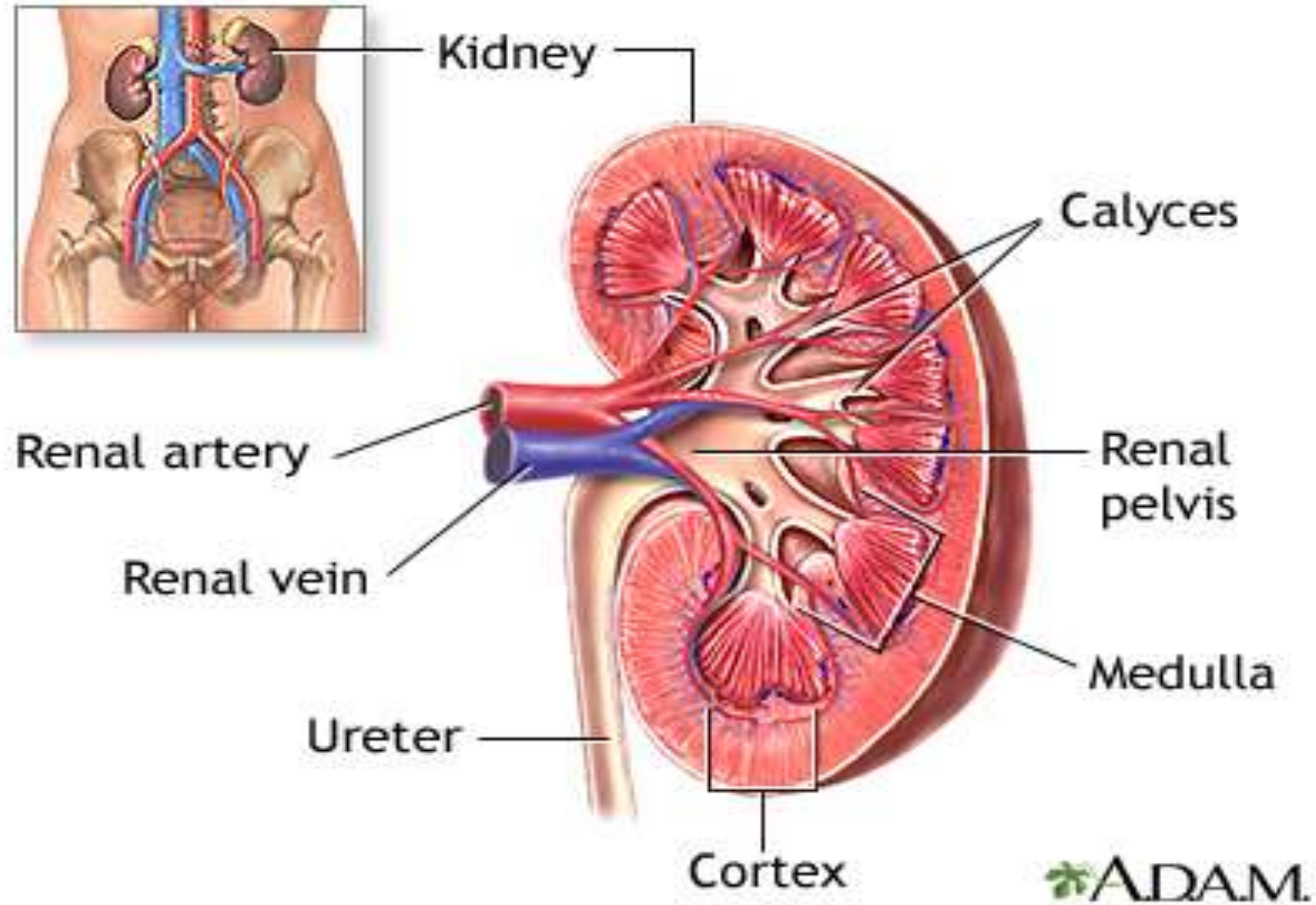


- KIDNEYS:

A pair of bean-shaped organs approximately 12cm long. Then extend from vertebral level T12 TO L3 when the body is in the erect position. The right kidney is positioned slightly lower than the left because of the mass of the liver.

- INTERNAL STRUCTURE:

Within the dense, connective tissue of the renal capsule, the kidney substance is divided into an outer cortex and an inner medulla.





INDICATIONS



- IN ADULTS

1. Screening of entire urinary tract especially in cases of haematuria or pyuria.
2. Differentiation of function of both kidneys.
3. Abnormalities of ureter.
4. Obstructive uropathy.
5. TB of the urinary tract.
6. Calculus disease.
7. Renal colic or flank pain.



Contd....

- IN CHILDREN

- 1.VATER anomalies.
- 2.Malformation.
- 3.Neurological disorders affecting urinary tract.
- 4.Recurrent urinary tract infection.
- 5.Anorectal anomalies.



CONTRAINDICATIONS



- Iodine sensitivity
- Pregnancy
- Severe history of anaphylaxis previously carries 30% risk of similar reaction on a subsequent occasion. The risk is lower with low osmolar contrast media.



CONTRAST MEDIA



Doses:

Non-ionic contrast media

Iohexol - Omnipaque

300 mg I/ml – 40 – 80 ml

or

350 mg I/ml – 40 – 80 ml

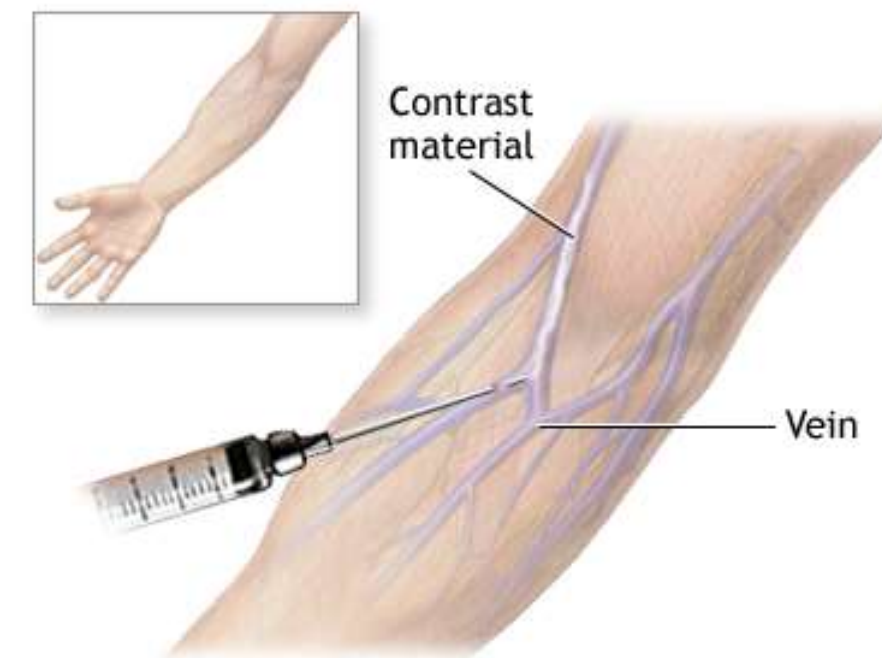




MODE OF INJECTION



Contrast media is usually given as i.v. bolus injection within 30-60 seconds. The density of the nephrogram is directly proportional to the plasma concentration of contrast media. More iodine increases the density of the nephrogram. Large doses of contrast media increase diuresis which distends the collecting system thus increasing the diagnostic information from the urogram.



ADAM.



PREPARATION



For adults

1. Ask for any history of Diabetes mellitus, Pheochromocytoma, renal disease or allergic to drugs and any specific foods.
2. Fasting for 4 hours.
3. Do not dehydrate the patient.

For children

1. No paediatric patient should ever be purposely dehydrated as it is hazardous to do so.
2. Colon should be empty for IVU.
3. The child posted for urography must not have a full stomach to avoid vomiting. So the child should not be given anything by mouth for 3-4 hours prior to the procedure.



PROCEDURE



In adults

- Patient is placed in supine position with pelvis at the cathode side of the tube.
- A support is placed under the patients knees to reduce lordotic curvature of lumbosacral spine and provide comfort.
- A scout film is taken including the kidneys, ureters, bladder and urethral regions on a large size film.
- CM is injected IV into a prominent vein in the arm. The contrast is rapidly injected within 30-60 secs.



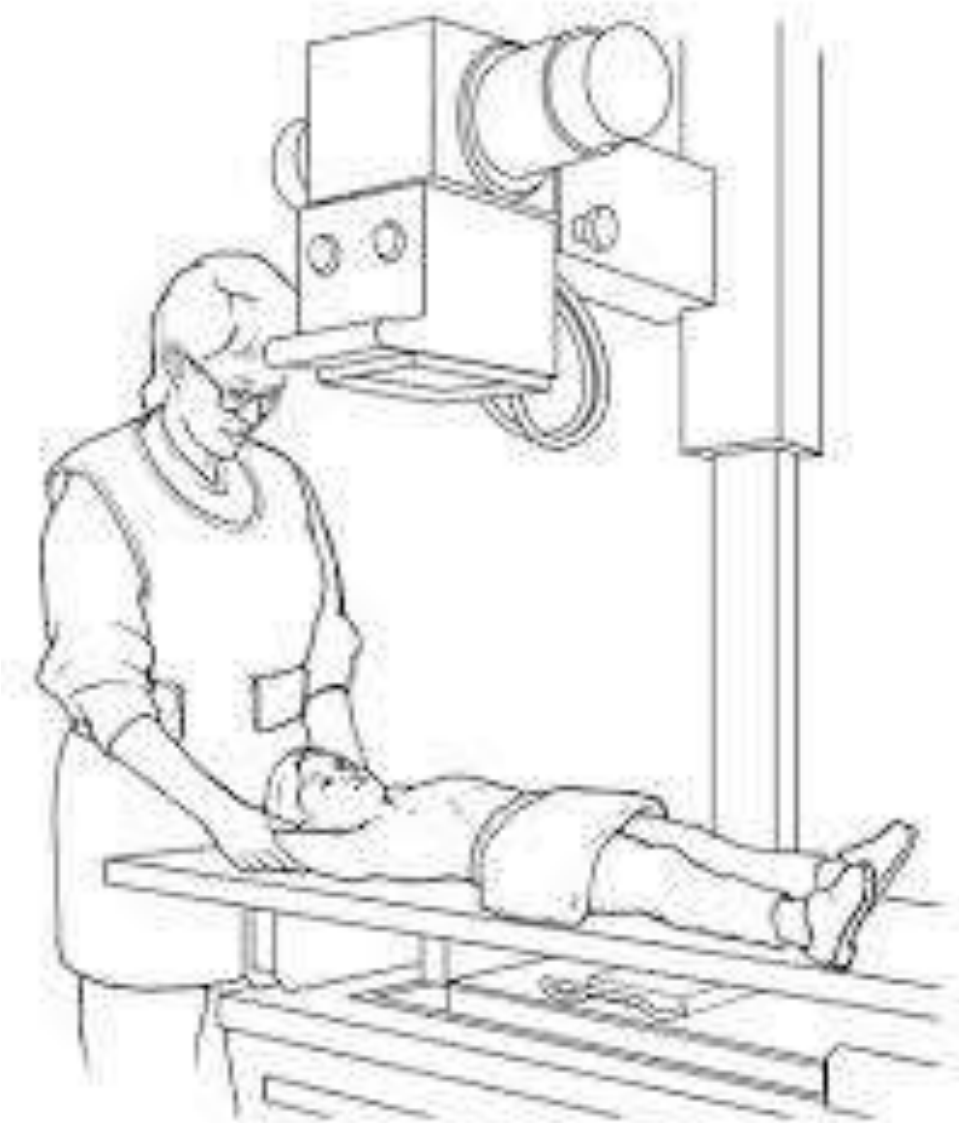


Contd...



In children

- Equipment should be capable of short exposure to avoid motion blurring.
- Moving grid is used.
- SID 40inches or 1m.
- Contrast – nonionic.
- Dose:1 to 2ml per kg.
- Filming:First film is taken 15 mins after.





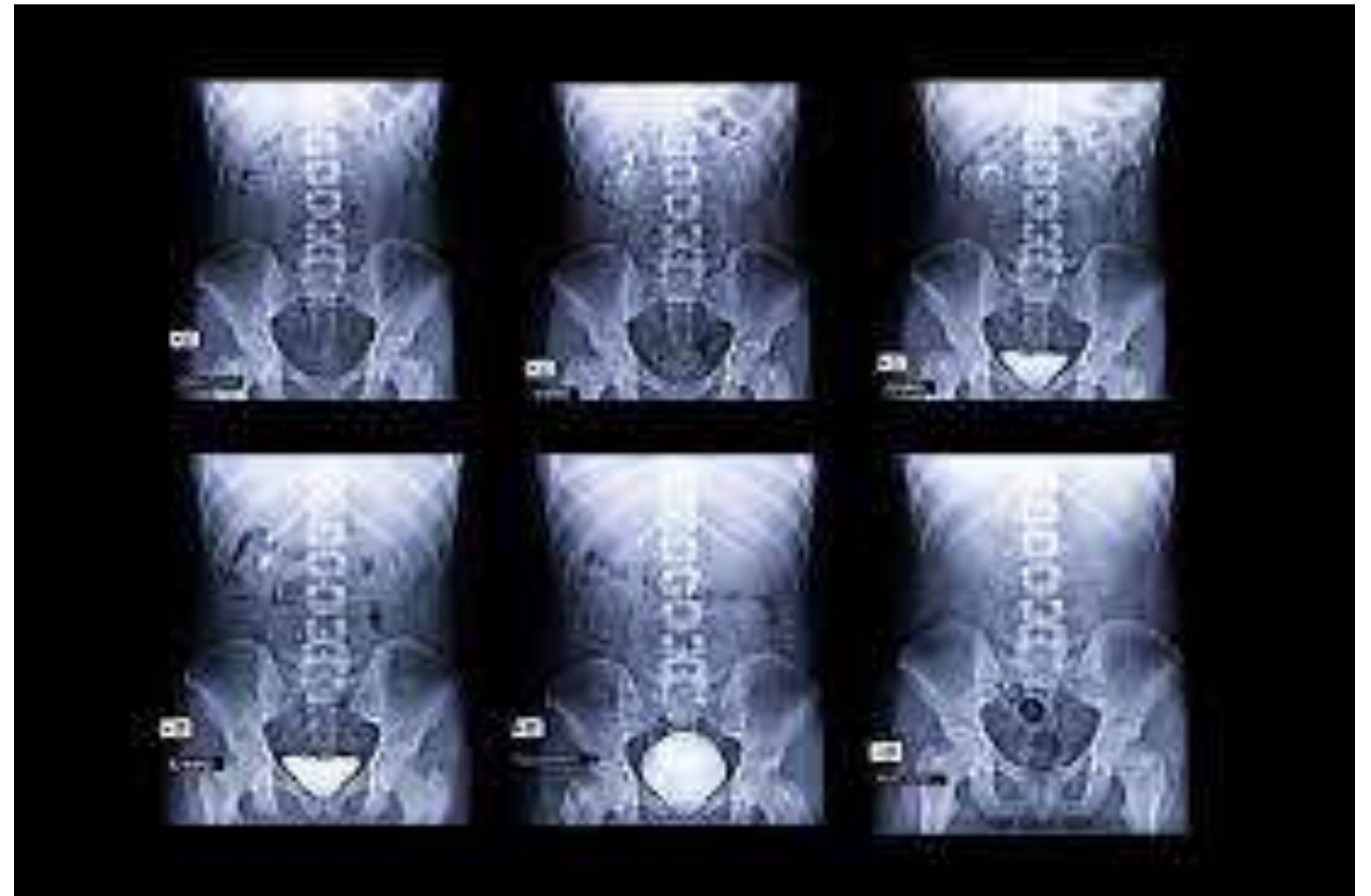
FILMING TECHNIQUE



Low kVp (65-75) high mA (600-1000)

STANDARD FILMS TAKEN:

- Plain Xray KUB 14"x17" film
- 1 min film 10"x12" film
- 5 min film 10"x12" film
- 10 min film 15"x12" film
- 15 min film 15"x12" film
- 35 min film 14"x17" film
- Post void film 10"x8" film





COMPLICATIONS



- Cardiac failure
- Dehydration
- Diabetes
- Previous allergic reaction



AFTER CARE



- Observation for 6 hours.
- Prevention of dehydration.
- Watch for late contrast reaction.
- In high risk patients renal function test should be done to watch for deterioration.







THANK YOU