



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 : MICTURATING CYSTOURETHROGRAM (MCU)



INTRODUCTION



Voiding cystourethrogram demonstrates the lower urinary tract and helps to detect the existence of any vesico-ureteral reflux, bladder pathology and congenital or acquired anomalies of bladder outflow tract.





INDICATION



In children

- UTI – Usually done after some weeks after acute stage or may be done under antibiotic coverage. MCU is indicated after the 1st occurrence of UTI in boys or girls.
- Voiding difficulties.
- Vesico ureteric reflux.
- Congenital anomalies.
- Pelvic trauma

In adults

- Trauma to urethra.
- Urethral stricture.
- Suspected urethral diverticula.



CONTRAINDICATION



- Active clinical urinary tract infection (UTI).
- Pregnancy.
- Allergy or sensitivity to contrast medium.



PATIENT PREPARATION



For children

- No paediatric patient should ever be purposely dehydrated as it is hazardous to do so.

For adults

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





CONTRAST MEDIA



Doses:

Water soluble contrast media

Urograffin 60%

Conray 280

Trivideo 400 mg.

Volume : 1:3 ratio.





PROCEDURE



- Using sterile technique, a catheter is introduced into the bladder. A 5F feeding tube with side holes are used for children and in older children 8F or 10F polyethylene or soft rubber catheters with end holes are suitable.
- In girls after an initial inspection of the perineum to identify any local genital abnormalities the urethral catheter is inserted.
- When it enters the bladder a varying amount of urine will flow through it.
- If there is no flow the catheter is advanced until urine is obtained.
- Suprapubic pressure is sometimes helpful in expressing a small amount of urine in the near empty bladder.
- If no urine is obtained the catheter may have been inserted into the vagina.
- In males, the foreskin is retracted and catheter is introduced.

- The catheter should be lubricated with an anaesthetic jelly and inserted slowly and gentle into the urethra holding the penis in a vertical position.
- The normal bladder capacity in children is estimated in ounces.
- Adequate capacity is reached when the patient becomes uncomfortable and begins to voiding around the catheter.



Figure 5: MCU study of a female child demonstrates right sided grade V VUR with sided duplex system (arrow a) and left sided grade IV VUR (arrow b).





FILMING



In children

- In children upto the age of 2yrs bladder is filled by hand injection.
- For older children contrast medium is instilled from a bottled elevated one metre above examination table.
- During filling, the child is turned oblique on both sides to ensure that minimal reflux is not overlooked.
- If reflux appears, films are taken in the appropriate oblique projection. If the bladder appears normal, one film is taken in the frontal projection at the end of the filling.

In adult male

- Bladder is filled in the usual way as in a older child and voiding filming is done in both oblique projection.



Contd.,



In adult female

- The procedure is essentially the same as in girls.
- In addition to the standard exposures, a double exposed film taken at rest and during straining demonstrates the degree of bladder descent if any.





COMPLICATIONS



- Danger of attendant infection due to catheterization of bladder.
- Adverse reactions may result from absorption of contrast medium by bladder mucosa.
- Due to technique:
 - * Acute UTI.
 - * Catheter trauma causing dysuria, frequency hematuria and urinary retention.
 - * Retention of a Foley's catheter.
- Autonomic dysreflexia.







THANK YOU