

SUITABILITY AND OUTCOMES OF MICTURATING CYSTOGRAMS IN ANEURIN BEVAN UNIVERSITY HEALTH BOARD

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Background

- Micturating cystourethrogram (MCUG) is a fluoroscopic study of the lower urinary tract in which contrast is introduced into the bladder via a catheter.
- The purpose of the examination is to assess the bladder, urethra, postoperative anatomy and micturition in order to assess for bladder and urethral abnormalities, including vesicoureteric reflux (VUR). (fig.1)
- NICE Guidelines state that MCUG should be conducted on all patients up to 6 months old with a history of atypical or recurrent UTI. (1) It is also conducted in our centre in cases of antenatally detected renal conditions such as hydronephrosis, single kidney and renal ectopia. (2)
- Owing to the small risk of infection following the procedure, NICE guidance recommends a 3-day course of antibiotic prophylaxis, with the MCUG occurring on the second day.

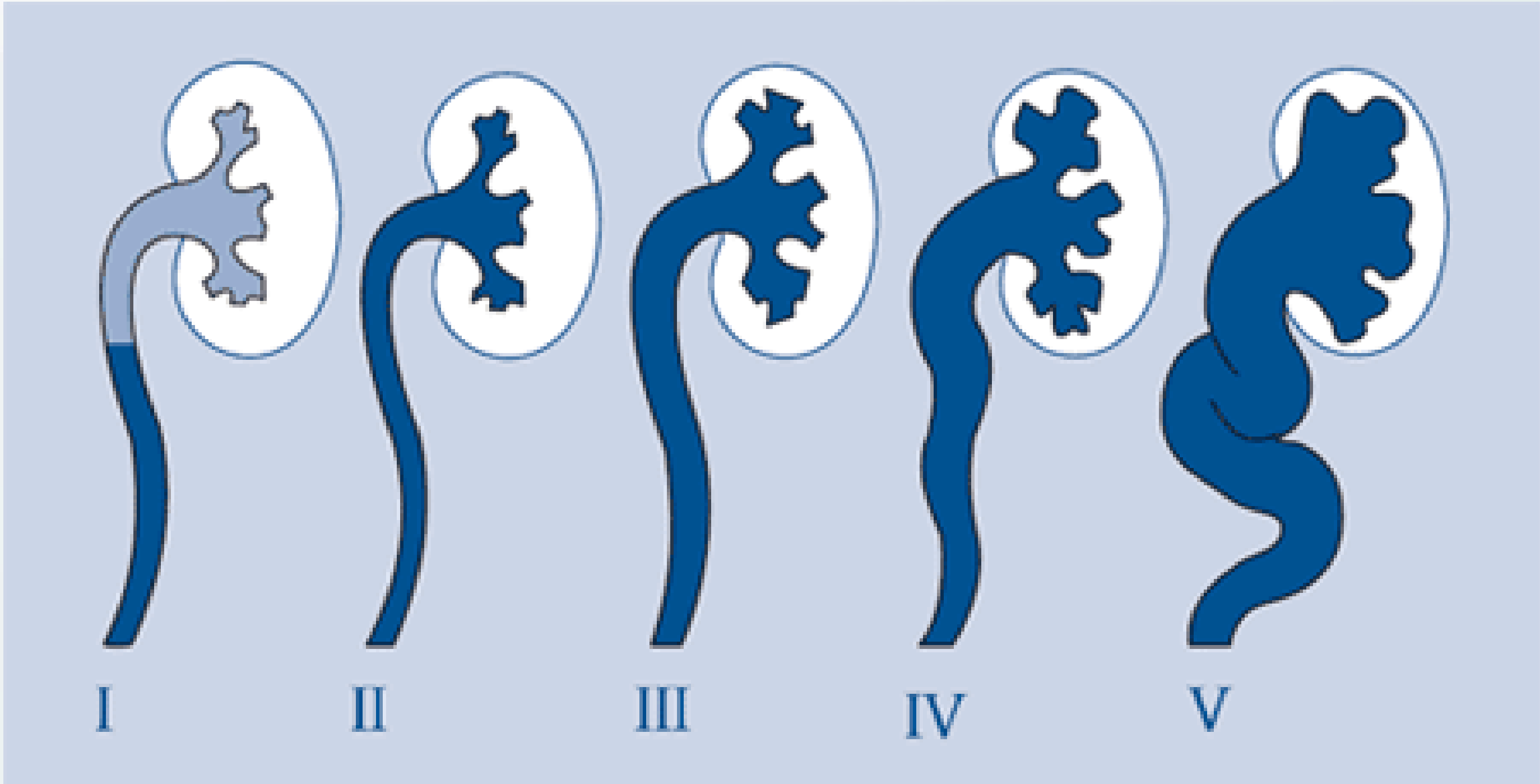


Fig 1: Depiction of the changes seen in vesicoureteric reflux; Grade I: reflux limited to the ureter; Grade II: reflux up to the renal pelvis; Grade III: mild dilatation of ureter and pelvicalyceal system; Grade IV: tortuous ureter with moderate dilatation and blunting of fornices but preserved papillary impressions; Grade V: tortuous ureter with severe dilatation of ureter and pelvicalyceal system & loss of fornices and papillary impressions

Aims

- Review the NICE Guidelines for UTI under 16s
- Compare the indications for MCUG based on the guidelines with those requested
- Determine efficiency of appointments with regard minimising cancellations
- Assess outcomes of the MCUG including short term complications

Standards

- 100% appropriate referral criteria for MCUG
- 100% of patient have a prior USS
- 0% cancellations
- 0% post-procedural UTI

Results

- There were 65 visits in total with 62 MCUG studies conducted 100% of patient had an ultrasound study prior to MCUG
- 100% of the referrals made were appropriate, with 32 studies relating to paediatric UTI and 31 to underlying renal conditions(fig.2)
- 3/65 (4.6%) of visits were cancelled due to inadequate staffing
- There were a total of 3 (5%) readmissions within 7 days of the procedure with only 1 (1.6%) admitted with post-procedural UTI

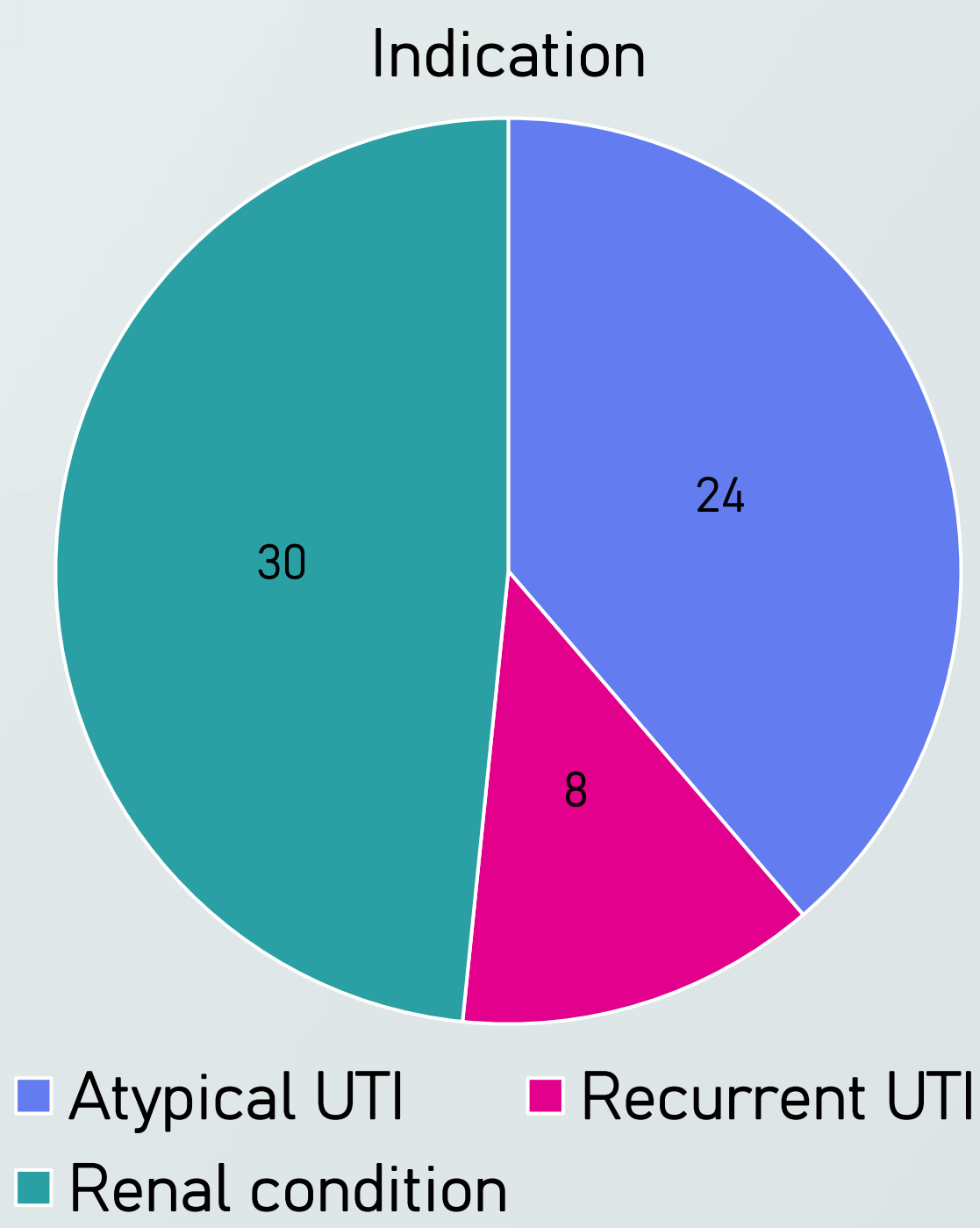


Fig 2: Breakdown of indications for MCUG

- Additional datapoints were collected on analysing the data, for example:
 - Recurrent UTI indication gave 0% yield of positive MCUG
 - 9/24 (38%) of studies for atypical UTI has positive MCUG findings
 - Sepsis indication gave high yield of positive MCUG (40%)
 - Of the positive MCUG findings, only 1 was managed surgically

Discussion

- There is good adherence to the referral pathway for MCUG in Aneurin Bevan University Health Board.
- Appointment cancellation dropped from 16% to 5%.
- In this cycle, these were all due to lack of available staff whereas previously, all were due to a lack of appropriate antibiotic prophylaxis.
- Following the previous audit cycle, changes were implemented to ensure the patient's parents were contacted a short time in advance of the appointment to ensure antibiotics had been prescribed
- Adherence to antibiotic prophylaxis and aseptic technique led to a reduction in readmissions
- Given the low rate of positivity in normal US, the paediatric team posited that we could consider omitting MCUG in cases that had normal USS
- However, this is a small cohort and not a radiological recommendation. We consider continued referral as per NICE guidelines as gold standard
- Cases have been noted previously and in other health boards whereby the ultrasound has a normal appearance, but he subsequent MCUG is abnormal (fig 3)

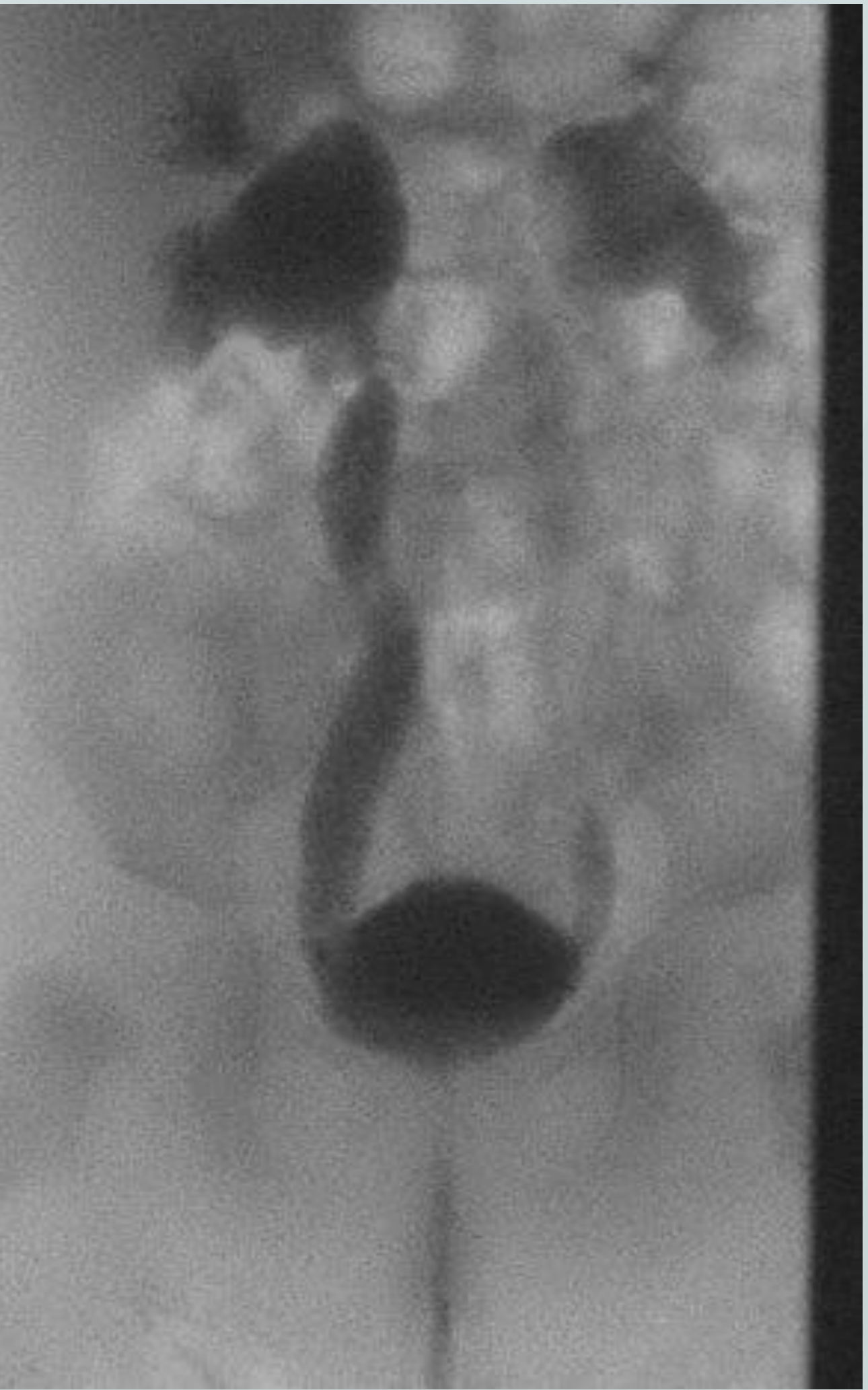
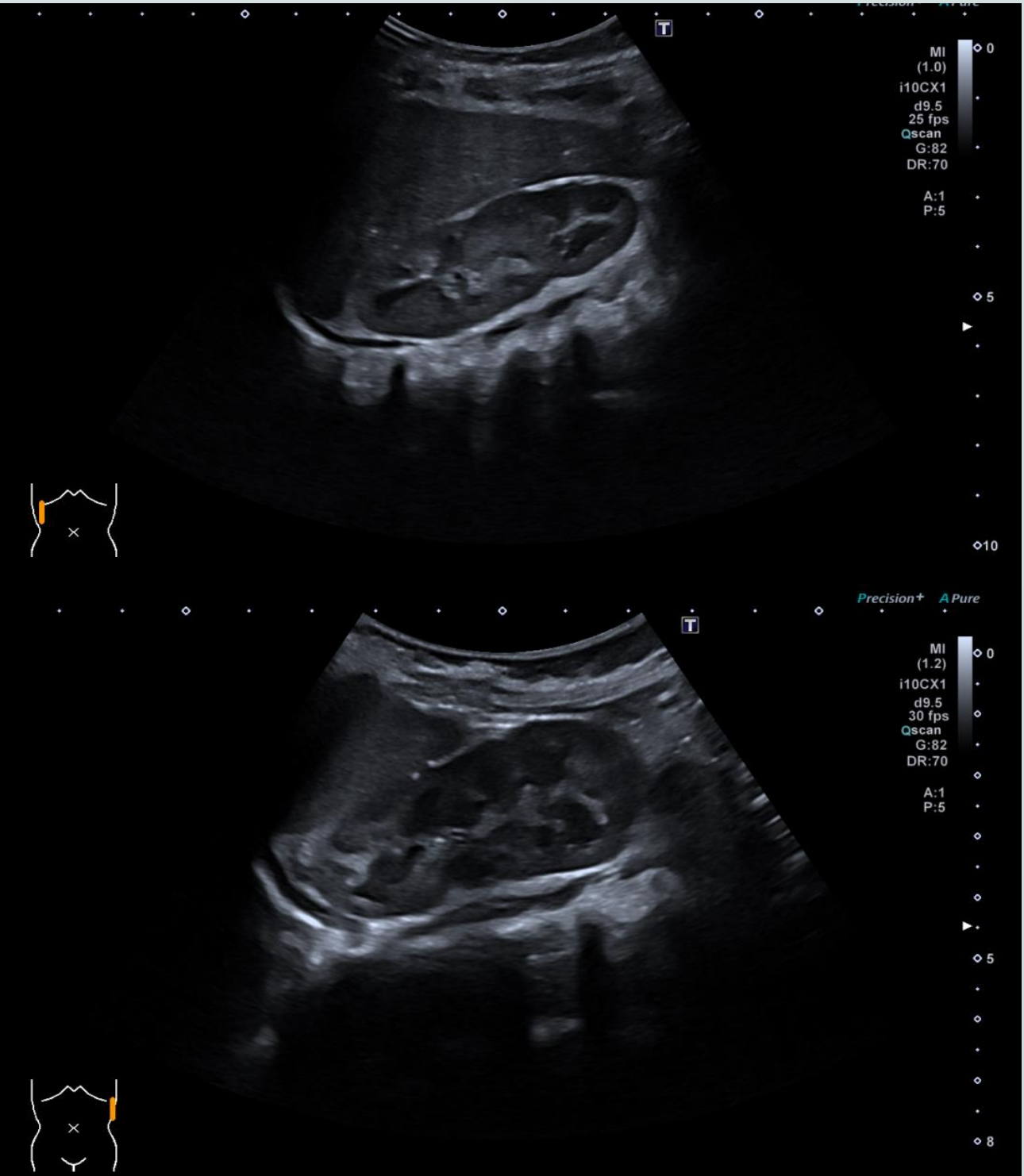


Fig 3. Above: Normal renal ultrasound for atypical UTI. Below: Subsequent MCUG showed bilateral grade 4 VUR, indicating the transient nature of these findings.