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Case Report

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BILATERAL HIGH GRADE VESICOURETERIC REFLUX: A CASE REPORT

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ABSTRACT

Background: Vesicoureteral reflux (VUR) is defined as the retrograde flow of urine from the bladder to the ureter and the upper urinary tract. **Materials and Method:** We report a case of a 1.5yr old female child, presenting to our hospital with recurrent UTI. The patient was subjected to urine microscopy and culture and imaging was done using ultrasound, mcu and dmsa.Ultrasonography of KUB was followed by mcu which showed grade V VUR bilaterally. This was followed by DMSA scanning to assess the level of renal scarring. In this study, we provide the role of the above modalities in diagnosis of VUR. **Results:** The child was diagnosed with b/l grade 5 vur and was treated with uretral implant. **Conclusion:** A combination of Renal Ultrasonography, MCU and DMSA provides an excellent approach in the diagnostic assessment of High grade b/l VUR.

KEYWORDS: Vesicoureteral reflux (VUR), urinary tract infection (UTI), Ultrasonography.

INTRODUCATION

Vesicoureteral reflux (VUR) is defined as the retrograde flow of urine from the bladder to the ureter and the upper urinary tract. In the majority of cases it occurs as a result of a primary maturation abnormality of the vesicoureteral junction. Less frequently, it can be secondary to other congenital anomalies, such as posterior urethral valve or complete duplication of the urinary tract. The majority of patients who develop renal scars after urinary tract infection in childhood have VUR, and higher grades of VUR are associated with an increased likelihood of developing scar. Reflux nephropathy is responsible for 30%–50% of end-stage renal disease in pediatric patients and for 20% in adults.

MATERIALS AND METHODS

We report a case of a 1.5yr old female child, presenting to our hospital with recurrent urinary tract infection. The patient was subjected to routine urine microscopy and culture and subsequent imaging was done using ultrasound, micturating Cystourethrography and DMSA (dimercaptosuccinic acid).

Ultrasonography of KUB (kidney, ureter and bladder) was followed by micturating Cystourethrography which showed grade V vesico-ureteric reflux bilaterally. This was followed by DMSA (dimercaptosuccinic acid) scanning to assess the degree of renal scarring.

In this study, we provide the role of the above modalities in diagnosis of vesico-ureteric reflux.

RESULTS AND DISCUSSION

Radiographic features

The primary diagnostic procedure for evaluation of vesicoureteric reflux is a voiding cystourethrogram (VCUG), which however requires bladder catheterisation and distention of the bladder. This typically causes significant discomfort to the patient, requiring immobilisation of one form or another. In addition as it is a fluoroscopic examination it requires ionizing radiation, the dose of which varies greatly depending on the equipment and technique used.

As such other methods for assessing vesicoureteric reflux are being evaluated including ultrasound.

Voiding cystourethrogram (VCUG)

Voiding cystourethrogram (also known as micturating cystourethrogram - MCU) should be performed after the first well-documented urinary tract infection up to the age of 6 years. VCUG should evaluate:

1. presence and grade of VUR
2. whether reflux occurs during micturition or during bladder filling
3. presence of associated anatomical anomalies

Ultrasound and DMSA Scan

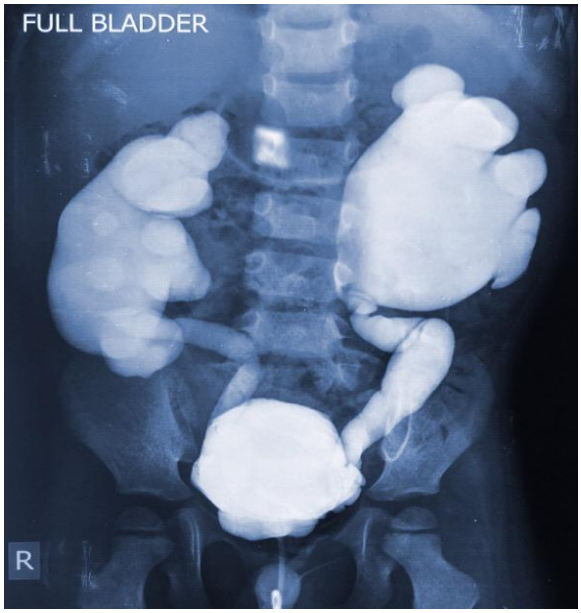
Routine ultrasound is usually also performed (in addition to VCUG) to assess the renal parenchyma for evidence of scarring or anatomic anomalies.

Additionally ultrasound has been investigated as a replacement for traditional fluoroscopic voiding cystourethrogram, by assessing the distal ureters during bladder filling, using micro-bubbles.

A dimercaptosuccinic acid (DMSA) renal scan is used to evaluate for any renal abnormalities.

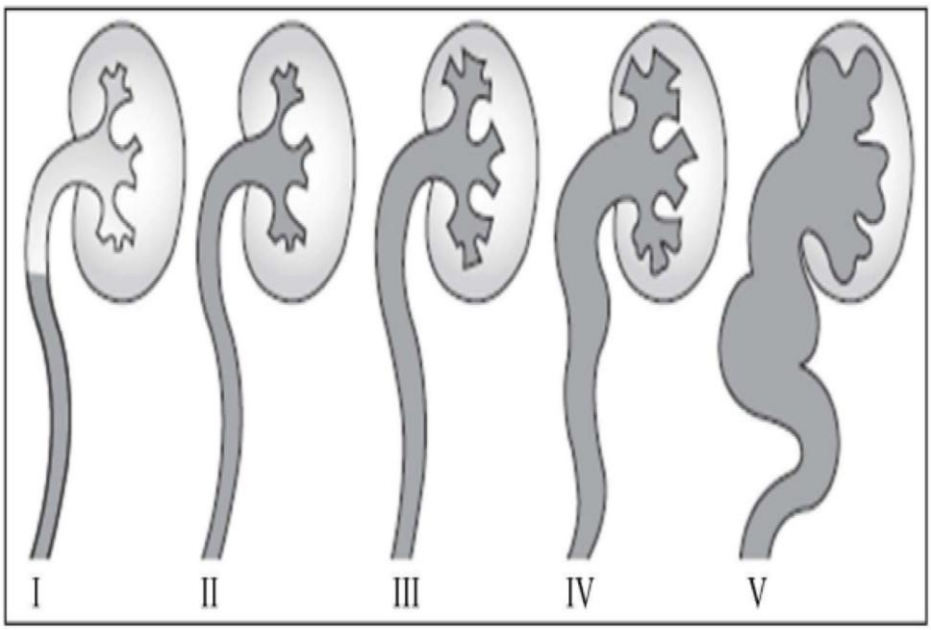
DMSA renal scan is a noninvasive test that allows for cortical imaging; main indication is scarring from urinary tract infections because of its high sensitivity for detection of renal parenchymal injury.

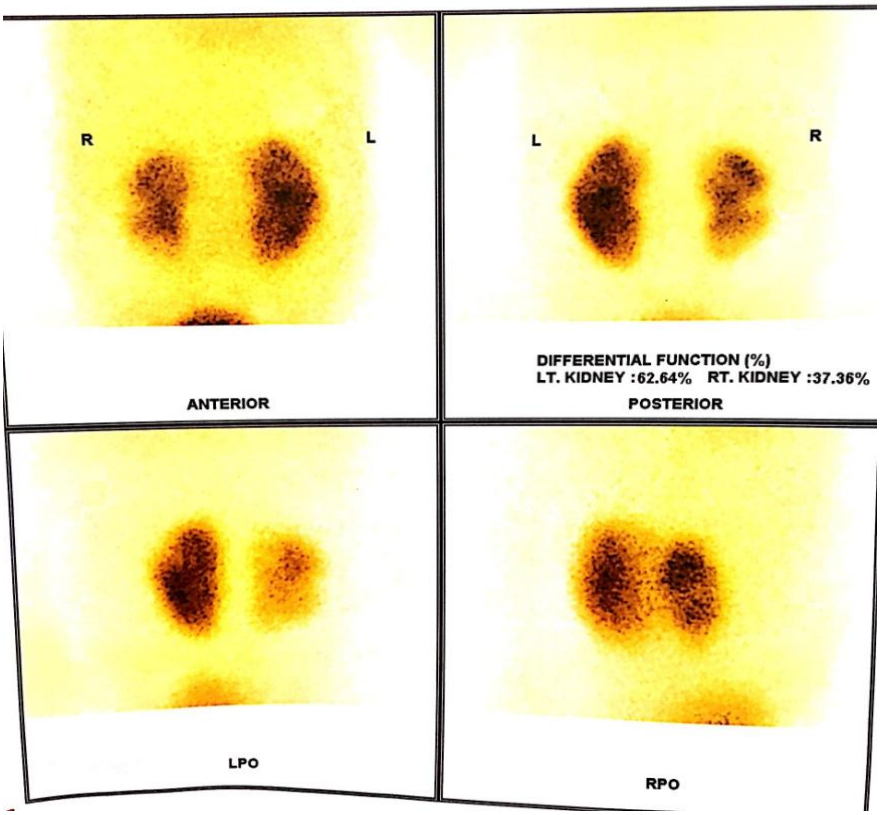
Dimercaptosuccinic acid is a radioactive substance that is injected intravenously and the patient scanned 3 hours post injection.



Micturating Cystourethrography showed grade V vesico-ureteric reflux bilaterally.

Grade	Characteristics
I	Reflux into non-dilated ureter
II	Reflux into the renal pelvis and calyces without dilatation
III	Mild/moderate dilatation of the ureter, renal pelvis and calyces with minimal blunting of the fornices.
IV	Dilation of the renal pelvis and calyces with moderate ureteral tortuosity.
V	Gross dilatation of the ureter, pelvis and calyces; ureteral tortuosity; loss of papillary impressions





DMSA Scan of patient showing evidence of renal scarring.

Renal ultrasound showing hydroureteronephrosis.

CONCLUSION

A combination of Renal Ultrasonography, MCU and DMSA provides an excellent approach in the diagnostic assessment of High grade b/l VUR.

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