

# Newborn Infants With Extravasation In Perirenal Space: Two Cases

M Baj, N McCauley, M Hession

## Citation

M Baj, N McCauley, M Hession. *Newborn Infants With Extravasation In Perirenal Space: Two Cases*. The Internet Journal of Radiology. 2001 Volume 2 Number 2.

## Abstract

Extravasation of the urine in the perirenal space presumably occurs after urine has dissected through the renal sinus and renal hilus.

Occasionally urine may directly enter the perirenal space by extravasation from a calyx through the renal parenchyma.

We report two cases of extravasation of urine in the perirenal space in the newborn infants. First case was confirmed as posterior urethral valve while no obvious cause was found in second case.

To the best of our knowledge, no case of extravasation in the perirenal space secondary to posterior urethral valves reported in the literature.

## CASE 1

A day old male infant sent for u/s of the kidneys. The antenatal scan two days prior to birth showed dilated small bowel loops and some dilatation of the renal pelvis bilaterally. Postnatal U/S showed gross hydronephrosis on right side and mild hydronephrosis on the left side. Both the ureters were also dilated up to their terminal ends. There was extravasation of the fluid in perirenal space on the left side (Fig 1).

The infant had passed meconium and urine after birth. Abdomen was soft but slightly distended. PFA did not reveal any abnormality. Temperature, respiration, o<sub>2</sub> saturation and BP were normal. MSU showed 20 pus cells.

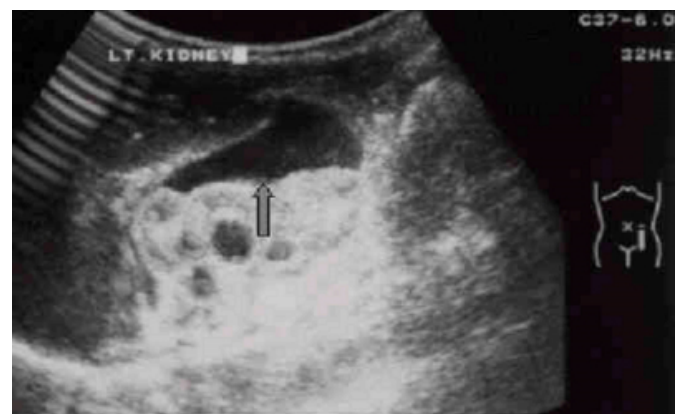
K 5.8(Normal value 4.1-5.6 mmol), Creatinine 155(Normal value 28-53 umol), urate 428(Normal value 120-450umol), Na 139(Normal value 135-140mmol), urea, ca, mg, Hb, TLC and platelet counts were normal.

MCUG showed grade 5-vesicoureteric reflux on the left side. No vesico ureteric reflux noted on the right side. Dilated posterior urethra consistent with posterior urethral valve noted.

Resection of posterior urethral valves carried out with no complications. Repeat sonography of kidneys and MCUG after three months were normal. The perirenal fluid on the left side was absorbed.

## Figure 1

Figure 1: Fluid in the perirenal space( Arrow). The calyces are dilated.



## CASE 2

A female infant did not pass urine after birth for three days. On Examination, Abdomen was soft but bladder was full and

distended. She had a sacral dimple. Mild anal stenosis noted. Urea 5mmol, Na 139mmol, K 5.1mmol, Creatinine 89 umol (Normal value 28-53umol), Total bilirubin 133 which came 40 umol/l later. Hb, TLC, Platelet counts were normal. The infant was referred for x-rays of the abdomen, lumbosacral spines and renal sonography to the Radiology department.

Abdomen and lumbo-sacral spines x-rays were unremarkable. Sonography of the kidneys showed extravasation of fluid in the left perirenal space with mild changes of hydronephrosis (Fig 2). The left ureter up to the terminal end was dilated. Right kidney was normal. The urinary bladder was grossly distended but otherwise unremarkable.

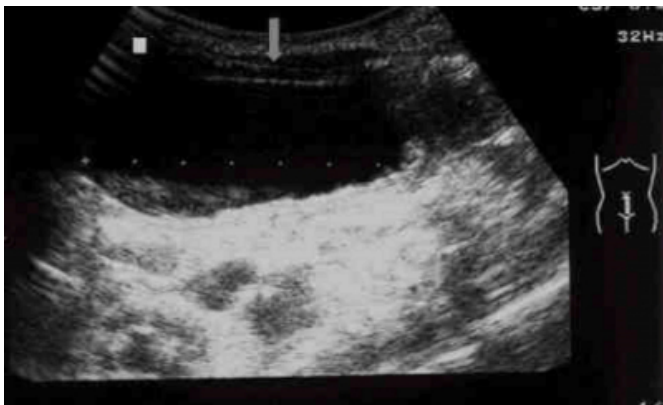
The infant passed urine spontaneously after three hours of sonography.

Ultrasonography of the bladder, MCUG and cystoscopy were carried out which were unremarkable. No cause of the obstruction was found. Hypothetically, probably a small calculus was the cause of obstruction, which must have been passed spontaneously.

Three months follow up renal sonography was unremarkable.

### Figure 2

Figure 2: Fluid in the perirenal space marked with arrow. The calyces are mildly dilated.



### DISCUSSION

Extravasation is usually associated with acute obstruction and occurs as the result of increased hydrostatic pressure in the renal sinus. Acute or sub acute obstruction results in

increased hydrostatic pressure and dilation of the renal collecting system. Decompression of the obstructed system may occur by rupture of the renal calyx at its fornix. Microruptures or tears occur at the calyceal fornix. The extravasating urine may dissect in the renal sinus. Usually there is communication between the renal sinus and the perirenal spaces at the renal hilus but anatomic variation are not uncommon. Once extravasating urine extends from the peripelvic tissues into the perirenal space, it becomes easily visualised by ultrasound as perirenal fluid collection. The ultrasound findings of perirenal fluid are non-specific and can represent extravasated urine, blood, pus, or lymphocele or even pancreatic pseudocyst.

Spontaneous peripelvic extravasation is relatively uncommon. Most of the cases are secondary to urinary calculi, tumours of the ureter or invasion by tumours of the adjacent structures. The spontaneous extravasation of urine can be diagnosed by Intravenous urography or Ultrasound. The ultrasound appears more sensitive to our knowledge.

In our case no.1, there was bilateral hydronephrosis with perirenal collection on the left side. Once the posterior urethral valves were repaired, no hydronephrosis was evident but absorption of the perirenal fluid on the left side took some time. In case no. 2, no obvious cause of the extravasation in the perirenal space was found. Presumably, there was a tiny stone at the distal end of the left ureter passed spontaneously.

### CORRESPONDENCE TO

Dr. Mahesh Baj Email: Maheshbaj@yahoo.com

### References

1. Hinman, F.Jr.: Peripelvic extravasation during intravenous urography. Evidence for an additional route for backflow after ureteral obstruction. *J.Urol* 1961; 85:385-395.
2. Friedenbergrm RM, Moorehouse H, Gade M Urinomas secondary to pyelosis backflow. *Urol Radiol* 1985; 5:23
3. Genes DM, Vachon L: ultrasound finding of peripelvic urine extravasation in ureteropelvic junction obstruction. *Pediatr Radiol* 1989; 20:122-123
4. Koga S, Y.Arakaki, Matsuoka M, Ohyama C. Spontaneous Peripelvic Extravasation of Urine. *Inter.Urol & Nephrology* 1992, 24(5):465-469
5. Okada K, Takahashi S, Nagura Y, Hatano M. Two cases with mild spontaneous peripelvic extravasation, Letter to editor; *Clin Nephrol* 1991 Dec; 36(6): 305-6.

**Author Information**

**Mahesh Baj, MD, FRCR**

Radiology, Mayo General Hospital

**Noreen McCauley, DMU**

Radiology, Mayo General Hospital

**Margaret Hession, H.Dip.Ultra**

Radiology, Mayo General Hospital