



Bilateral Hydronephrosis with Grade 3 To 4 Vesicoureteral Reflux

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

ABSTRACT

Introduction: Bilateral hydronephrosis is the enlargement of the parts of the kidney that collect urine. Bilateral means both sides. Bilateral hydronephrosis occurs when urine is unable to drain from the kidney into the bladder. Hydronephrosis is not itself a disease. It occurs as a result of a problem that prevents urine from draining out of the kidneys, ureters, and bladder. VUR grade 3 is similar to grade 2 where urine travels up the ureter and enters the part of the kidney where urine is collected before it drains to the ureter (renal pelvis). However, in grade 3 the ureters and renal pelvis appear abnormal in size or shape.

Case Presentation: A 3 Years old female child is a known case of bilateral vesicoureteric reflex with bilateral hydroureteronephrosis with the developmental delay with sickle cell anemia came to the hospital for further management. As narrated by mother-child was apparently alright till 6 months of age after the child developed excessive passing of urine and in increased more times.

Conclusion: After taking treatment for the bilateral vesicoureteric reflex with bilateral hydroureteronephrosis patient was hemodynamically stable hence the patient is being discharged.

Keywords: *Bilateral vesicoureteric reflex; bilateral hydrouronephrosis; haemodynamically; sickle cell anemia.*

1. INTRODUCTION

Hydronephrosis is the swelling of a kidney due to a build-up of urine. It happens when urine cannot drain out from the kidney to the bladder from a blockage or obstruction. Hydronephrosis and vesicoureteral reflux can occur in one or both kidneys.

The gradual onset of hydronephrosis is characterized by dull pain and discomfort in the lower abdomen due to the gradual distension of the bladder. Constant obstruction in the flow of urine results in hypertension, sepsis, urinary tract infection, haematuria and ultimately renal failure.[1] The hydronephrotic kidney is a frequent clinical condition, but hydroureteronephrosis with an enlarged trabeculated bladder is an uncommon entity in the adult population. This develops secondary to vesicourethral junction obstruction, bladder carcinoma, prostatic hypertrophy/cancer, urethral strictures and neurogenic bladder. Hydronephrosis also presents as an intra-abdominal mass with renal swelling features. Due to the widespread use of ultrasonography in clinical practice, most cases of hydronephrosis can be diagnosed before the kidney shows any clinical features or signs.[2] This case report presents an uncommon entity of bilateral hydroureteronephrosis with a large trabeculated bladder in a dissection hall cadaver and discusses its causes and clinical presentations, accurate diagnostic tools for early evaluation and clinical outcomes.

Vesicoureteral reflux (VUR) is a condition in which urine flows backward from the bladder to one or both ureters and sometimes to the kidneys. VUR is most common in infants and young children. Most children don't have long-term problems with VUR [3].

Normally, urine flows down the urinary tract, from the kidneys, through the ureters, to the bladder. With VUR, some urine will flow back up or reflux through one or both ureters and may reach the kidneys [4].

2. EPIDEMIOLOGY

2.1 Bilateral Hydronephrosis

The prevalence in the general population is 0.15% to 0.67%. The frequency determined by

antenatal ultrasound is 1 case per 100 to 200 fetuses. The male-to-female ratio is 2:1. The rate of bilateral cases is 10% to 20% [5].

2.2 Vesicoureteral Reflux

VUR affects 1% to 2% of all children, and up to one-third of children with VUR will experience urinary tract infection (UTI) [6].

3. PATIENT AND OBSERVATION

3.1 Patient Information

A 3 Years old female child is a known case of bilateral vesicoureteric reflex with bilateral hydroureteronephrosis with the developmental delay with sickle cell anemia came to the hospital for further management. As a narrated by mother-child was apparently alright till 6 months of the age, after child developed excessive passing of urine and in increased more time 2-3 months child had difficulty while passing urine with above complaints they have near the local private hospital where USG KUB was suggestive of cystitis. Urine findings reveal plenty of pus cells, urine culture sensitivity suggestive of klebsiella, A micturating cystourethrogram suggestive of cystitis, gross bilateral hydroureter and hydronephrosis. Dimercapto succinic acid scan was done suggestive of small right kidney on examination patient is vitally stable. The patient had a continuous episode of fever spike so after taking antibiotic therapy patient is fever-free and the patient was hemodynamically stable hence the patient being discharged.

3.2 Diagnostic Assessment

Renal Cortical Scintigraphy was done with a finding of relatively small right kidney show overall mildly reduced parenchymal function, with suspicious small cortical scar noted involving its upper pole. Normal size left kidney shows well preserved cortical function and parenchymal architecture.

Ultrasound of kidney urethra bladder suggested completer bilateral hydro-ureter. The urinary bladder is distended. It shows a thickened wall with a low level of moving internal echoes within suggestive of chronic cystitis.

A culture report of urine is suggested plenty of pus cells/hpf. 2-3 Epi cell/hpf.

Magnetic resonance imaging there is evidenced of examination of CSF intensity in the retro cerebellar area of size 27x 22 x 23 mm (CC x Trans x Ap) with mild scalloping of occipital bone- Possibility of prominent cisterna magna over the arachnoid cyst.

A micturating cystourethrogram suggestive of cystitis, gross bilateral hydroureter and hydronephrosis. Cysto-Urethrogram reveals evidence of grade 3-4 vesicoureteral reflux.

3.3 Therapeutic Intervention

Medical Management was given to the patient as follow:

The medication was given to the patient Syp. Nitrofurantoin 5MI BD [5Mg/Kg/Day], Syp. MVBC 5MI BD, Syp. Calcimax 5MI BD, Syp. Orofer XT 5MI BD [3Mg/Kg/Day], Syp. Duphalac 7.5MI HS.

4. DISCUSSION

Patients with hydroureteronephrosis are seen on a regular basis by urologists, emergency medical specialists, and general practitioners. It might be either physiological or pathological, acute or chronic, unilateral or bilateral, and unilateral or bilateral. It is always secondary to urinary tract obstruction, but it can also be present without obstruction. Adults have hydroureteronephrosis for various reasons and in a different way than newborns and infants. In older adults, the most common primary causes are BPH or carcinoma, bladder stones, retroperitoneal or pelvic neoplasms, neurogenic bladder, bladder neck obstruction, and urethral stricture; fewer common causes include cystocele, foreign objects, posterior urethral valves, urethral spasms, and urethral diverticula. Calculi, on the other hand, are the most common source of disease in young people. Abdominal pain, a continual sense of a full bladder, frequent urination, acute urinary retention, dysuria, urine hesitancy, sluggish urine flow, urinary intermittency, nocturia, haematuria, urinary tract infections with burning micturition, and eventually the signs and symptoms of kidney failure such as nausea, exhaustion, and fluid retention are all symptoms of bilateral hydronephrosis, depending on the underlying reason [7,8].

Approximately 30% of patients with hydronephrosis have PUJ blockage. The most common symptoms are dull aching pain in the lumbar area, increased frequency of micturition,

haematuria, and painful micturition. BPH is the most prevalent cause of hydroureteronephrosis in persons over the age of 60, accounting for 70% of cases. Nocturia is the most irritating symptom, followed by urgency and scorching micturition. The gold standard surgical method for blocking BPH is transurethral resection of the prostate, which has gained appeal among urologists due to its high success rate. [9] Another key element that appears to be causing hydroureteronephrosis is urethral stricture. Excision with primary anastomosis is used to treat patients with urethral stricture, and a high success rate of 98.8 % has been found. There are only a few issues, and they are self-limiting and short-lived. Intermittent dilatations, urethral reconstructions, and anastomosis urethroplasty are required in some individuals with recurrent stricture [9,10].

Mild hydronephrosis in pregnancy is a common occurrence, occurring in 90% of pregnancies. After the second trimester, it is common in the right kidney of primigravida. This is because of progesterone's actions, as well as mechanical compression of the ureters at the pelvic brim. In one study, spontaneous regression was observed in all instances after 6–12 weeks in the postpartum period.[11] Furthermore, a retroperitoneal mass can sometimes cause ureteral compression, leading to the development of hydronephrosis and hydroureter as the condition advances. Pelvic inflammatory illnesses such as tuboovarian abscess, uterine fibroids, and other benign gynaecological neoplasms can cause ureteral blockage and hydronephrosis. In some situations, complete surgical excision has been recommended, and a great long-term prognosis has been recorded.[12] Another aetiological reason for hydronephrosis is a neurogenic bladder. Intermittent catheterization and bladder relaxants have been used to treat patients with neurogenic incontinence [13].

5. CONCLUSION

In conclusion, giant hydronephrosis is a rare condition that must be considered upon the occurrence of cystic abdominal masses and the absence of one or both kidneys. In this patient after taking management in-hospital patient was alright and hemodynamically stable.

CONSENT

The authors certify that they have obtained all appropriate patient consent forms. In the form,

the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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