

Acute Urinary Retention in Children: A Retrospective Study Done in Tertiary Care Government General Hospital**G. Manohar¹, P Indira², Kunche Satya Kumari³, Dinendraram Ketireddi^{4*}, G Manogna⁵, K Madhavi⁶, S Jyotsna⁷**¹Associate Professor of Urology, Guntur Medical College²Professor of Paediatrics, Department of Paediatrics, Siddhartha Medical College, Vijayawada³Associate Professor, Department of Paediatrics, Andhra Medical College, Visakhapatnam^{4*}Assistant Professor, Department of Paediatrics, Government Medical College, Srikakulam⁵Resident Doctor, Government Medical College, Srikakulam⁶Assistant Professor, Department of Paediatrics, Government Medical College, Srikakulam⁷Assistant Professor, Department of Paediatrics, Government Medical College, Srikakulam

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Conflict of interest: Nil

Abstract:**Introduction:** In childhood urinary retention is a rare entity with only sparse literature on the etiology.**Materials and Methods:** In a retrospective study, we reviewed the hospital records of all of the children younger than 12 years old who presented with AUR (Acute urinary retention). Data on the cases referred between 2021 and 2023 were collected from Guntur Medical College & few other Government medical colleges in Andhra Pradesh.**Results:** This study included 42 children 28 boys (66.7%) one year to 12 years (median age 4.5 years) and 14 girls (33.3%) one year to 12 years (median age 4.2 years). The most common cause in our study was mechanical obstruction in 21 children (50%). Infections were documented in 10 children (23.8%). Fecal impaction was seen in 6 patients. Neurological causes were seen in 1 case. No cause was found in 3 patients.**Conclusion:** The most common cause of acute urinary retention was lower urinary tract stones in our pediatric cases. Urinary retention in children has various etiologies. Timely diagnosis and prompt treatment are needed because it is often associated with severe underlying disorders.**Keywords:** Urinary retention, children, urinary stone.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Urinary retention in children is due to a variety of causes. Acute urinary retention (AUR) always requires timely evaluation, management, and occasionally, hospitalization. Otherwise, it would lead to damage to the kidney and urinary tract.

In the adult male population, acute urinary retention is usually due to prostatic enlargement and is common in ageing males. [1] But in women and especially in children, it is rare, and as a result, it is not well studied in these populations. In children, this condition is relatively rare and has been described mainly through case reports with a variety of causes. Only a few studies on the aetiology and treatment of pediatric AUR have been published in the last few years [2,3].

Since AUR in children can be a symptom of a wide variety of underlying conditions a better understanding of etiology and treatment is warranted. The aim of this study was therefore to

assess the etiology and treatment strategies of AUR in children and to investigate age and sex distribution.

Materials and Methods:

In a retrospective study, we reviewed the hospital records of all of the children younger than 12 years old who presented with AUR (Acute urinary retention). Data on the cases referred between 2021 and 2023 were collected from Guntur Medical College & few other Government medical colleges in Andhra Pradesh. Acute urinary retention was defined as the inability to void and associated suprapubic pain and agitation that lasts more than 12 hours; or distended palpable bladder associated with pain. In all the patients, AUR had been relieved with urethral catheterization or suprapubic cystostomy, and then they had undergone history taking, physical examination, laboratory tests and imaging modalities. If necessary,

cystourethroscopy and urodynamic studies had also been done. Patients with secondary urinary retention were excluded from the study, according to the exclusion criteria including surgical history, immobility or chronic neurological disorders, mental retardation, and drugs or narcotics consumption.

Results:

This study included 42 children 28 boys (66.7%) one year to 12 years (median age 4.5 years) and 14 girls (33.3%) one year to 12 years (median age 4.2 years). Thirty-eight children (90.5%) had acute urinary retention for the first time and 4 (9.5%) had a previous history of retention of urine.

Table 1: Aetiological causes and their distribution by gender

Causes	Total children	Boys	Girls
Infection and Inflammation			
urinary tract infection	5	2	3
Vulvovaginitis	2		2
Urethritis	2	2	
Balanitis	1	1	
Mechanical			
Lower urinary tract stones	16	10	6
Tumors	2	1	1
Phimosis	3	3	
Neurogenic/Neuro-urologic	1	1	
Trauma	1	1	
Constipation/fecal impaction	6	5	1
Iatrogenic	3	2	1
Total	42	28	14

The most common cause was mechanical obstruction. It was identified in 21 children, out of which 14 were boys and 7 were girls. An infectious pathology was seen in 10 patients. Fecal impaction was seen in 6 patients. Neurological causes were seen in 1 case. No cause was found in 3 patients. In cases with lower urinary tract stones, the locations of stones were the bladder neck, penile urethra, meatus, and urethral diverticulum. Ultrasonography was the most common imaging modality performed and was done in all cases. Plain X-ray, CT scan, MRI and MCU were done in a few patients only when indicated.

Discussion

This study describes 42 children, who presented to the emergency pediatric department of a tertiary care government general hospital, in Andhra Pradesh, India with acute urinary retention of urine. The most common cause of acute urinary retention was mechanical obstruction by stone, urethral stricture, phimosis, and a tumour in the bladder neck area. Out of these, many children required immediate diagnosis and treatment.

Mechanical obstruction (21 children) was noted in 14 male children and 7 girls. 10 children had urethral stones impacted in the urethra. 4 out of them had stone impacted just before the external meatus. They were managed by meatotomy and urethral stone milking out. 3 patients had severe phimosis and were treated by circumcision. Two patients were diagnosed with SOL in the pelvis. Exploration with excision was done. The histology was sacrococcygeal teratoma. Infection was

diagnosed in 10 cases on routine urine examination and urine culture. They were all treated well with conservative treatment and appropriate counselling.

In children with idiopathic urinary retention, it is difficult to speculate on the cause. 3 cases were in this group. [4] Constipation and its association with voiding dysfunction is well known but pathogenesis is least understood. [5] Acute urinary retention due to constipation is well documented in children. [6] One theory is that the stool-filled rectum displaces the bladder base and trigone anteriorly, impairing bladder outflow. It has been found that urethrovesical and sacral reflex function is impaired in cases with chronic constipation with the majority of them having urodynamic abnormalities. [7] Due to the retrospective nature of the study, we were unable to assess the relationship fully.

Conclusion

Urinary retention in children is relatively rare. Urinary retention in children has various etiologies. Timely diagnosis and prompt treatment are needed because it is often associated with severe underlying disorders. Most of the time there is some obvious cause for acute urinary retention. Comprehensive evaluation is needed including neurological, psychological, rectal, urine analysis, blood tests and imaging. A flow chart is provided for the evaluation of the child with acute urinary retention.

References

1. Lepor H. Managing and preventing acute urinary retention. *Rev. Urol.* 2005; 7(suppl 8): S26-33.
2. Nevo et al. Urinary retention in children *Urology* (2014)
3. R. Jiang et al. Assessment of pediatric bowel and bladder dysfunction: a critical appraisal of the literature *J Pediatr Urol* (2018)
4. Wan KS, Liu NH, Liu CK, Hwang IZ. Psychogenic urinary retention in children: a case report. *Pediatr Neonatol.* 2010; 51:300-2.
5. Koff SA, Wagner TT, Jayanthi V.R. The relationship among dysfunctional elimination syndromes, primary vesicoureteral reflux and urinary tract infections in children. *J Urol.* 1998; 160:1019.
6. Baldew IM, van Gelderen HH. Urinary retention without organic cause in children. *Br J Urol.* 1983 Apr; 55(2):200-2.
7. Kerrigan DD, Lucas MG, Sun WM, Donnelly TC, Read NW. Idiopathic constipation is associated with impaired urethrovesical and sacral reflex function. *Br J Surg.* 1989; 76(7):748-51.