

## ABNORMAL DILATATION OF RIGHT URETER FOUND DURING ROUTINE CADAVERIC DISSECTION

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### **ABSTRACT**

On routine dissection in an adult male cadaver, it was observed that there was an abnormal dilatation of the abdominal part of right ureter. Mild to moderate dilatation of both calyces of the right kidney. Gross hypertrophy of urinary bladder seen. A mucosal elevation called uvula vesicae seen partially obstructing the internal urethral orifice.

### **KEYWORDS**

Ureter, Uvula Vesicae, Hydroureter, Hydronephrosis

### **INTRODUCTION**

The ureters are muscular tubes whose peristaltic contractions convey urine from the kidney to the urinary bladder. Each measures 25-30 cm in length and 0.3 cm in

average diameter. The ureters are thick walled, narrow and continuous superiorly with the funnel shaped renal pelvis. Diameter is slightly less at its junction with the renal pelvis, at brim of the lesser pelvis and where it runs within the wall of the urinary bladder which is its narrowest part. It consists of three parts (first part - pelvis of ureter, second part - abdominal part, third part - pelvic part)

### **MATERIAL AND METHODS**

During routine dissection of adult male cadaver in the department of Anatomy of BLDEA's Shri B.M. Patil Medical College, it was noticed that there was an abnormal dilatation of the right ureter. The urogenital system was further dissected to see any other abnormalities.

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## **OBSERVATIONS**

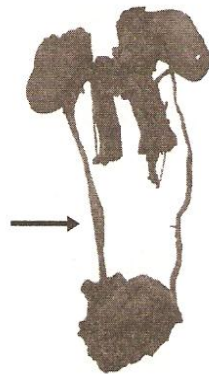
Abdominal dissection was done. The organs were examined.

**Kidneys:** Both the kidneys were normal in shape and size. On sectioning the kidneys, the right kidney showed mild to moderate dilation of both calyces. The left kidney was normal.



Picture 1 -section of right kidney showing dilatation of both calyces

**Ureters:** Gross dilatation of right ureter, maximum dilatation at the abdominal part of the ureter measuring 1.5 cm. No stricture of the ureter or calculus seen. The left ureter was normal.



Picture 3 - Right ureter showing dilatation at the abdominal part

Magnification - 7x7 cms

**Urinary Bladder :** Gross hypertrophy of the urinary bladder. No vesicle stone found on cut section.

**Prostate:** Normal shape and size. A mucosal elevation called uvula vesicae seen partially obstructing, the internal urethra orifice. It was a soft nodule like elevation measuring 1x1 cm.

**Urethra:** appears normal



Picture 2 - Uvula vesicae obstructing the internal urethral orifice

## **HISTOLOGICAL APPEARANCE**

The section of the dilated part of the ureter was stained with haematoxylin-eosin stain and observed under light microscope. All the layers of the ureter was observed and appeared normal.

## **DISCUSSION**

35% of urinary tract abnormalities are hydronephrosis and hydroureter (Tan et al 1994). Hydronephrosis and hydroureter are common clinical conditions. Hydronephrosis is defined as dilatation of renal pelvis and calyces. Analogously hydroureter is defined as a dilation of the ureter. The presence of hydroureter or hydronephroses should be considered as physiologic response to the interruption of the flow of urine.

### **Frequency**

Ranging from birth to age 80 years was 3.1% (Bell 1946). The prevalence rate was 2.9% in females and 3.3% in males.

### **Age**

In young adults, the calculi are the most common causes of hydroureter and hydronephrosis. In Children, reflux and ureteropelvic junction obstruction are common cause.

### **Sex**

In women, gynaecologic cancers and pregnancy are common causes. In men, obstruction secondary to prostatic hypertrophy and prostatic cancer are the major causes of hydronephrosis. Consequently, among older patients (>60 years), the frequency of hydronephrosis is higher in the men than in women.

### **Some common causes of hydronephrosis and hydroureter**

## **I. URETER**

### **a. Intrinsic**

- i. Ureteropelvic junction stricture
- ii. Ureterovesical junction obstruction
- iii. Ureteral Valves
- iv. Ureteral Stricture (iatrogenic)
- v. Benign fibroepithelial polyps
- vi. Ureteral tumour
- vii. Ureteral calculus
- viii. Ureterocele
- ix. Tuberculosis
- x. Retrocaval ureter

### **b. Functional**

- i. Gram Negative infection
- ii. Neurogenic bladder

### **c. Extrinsic**

- i. Cervical cancer
- ii. Prostate cancer
- iii. Aortic aneurysm
- iv. Retrocaval ureter
- v. Uterine Prolapse
- vi. Pregnancy
- vii. Ovarian Cysts
- viii. Tubo ovarian abscess

## **II. BLADDER**

### **a. Intrinsic**

- i. Bladder Carcinoma
- ii. Bladder Calculi
- iii. Bladder neck contracture
- iv. Cystocele
- v. Bladder Diverticula

### **b. Functional**

- i. Neurogenic Bladder
- ii. Vesicoureteral reflux

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**c. Extrinsic**

- i. Pelvic Lipomatosis

**III. URETHRA**

**a. Intrinsic**

- i. Urethral stricture  
ii. Urethral Valves  
iii. Urethral Diverticula

**b. Extrinsic**

- i. Benign Prostatic Hypertrophy

**Common Investigation for hydronephrosis and hyroureter**

1) Lab Studies

- a) Urinalysis - Assess for signs of infection  
b) Complete blood count  
c) Serum Chemistry  
d) X-ray- KUB

2) Imaging Studies

a) Ultrasound : Rapid, inexperience and reasonably accurate method of detecting hydronephrosis and hyroureter. Serves as preferred screening test.

b) IVP : Is a functional study, probably the most useful imaging study for identifying both presence and causes of hydronephrosis and hydroureter. Contraindicated in patients with renal failure.

3) CT Scan : has important role in the evaluation of hydronephrosis and hydroureter. Unenhanced CT scan is currently the imaging modality of choice to assess for a possible calculus.

4) Radio nucleotide Studies : to measure differential function and therefore useful for treatment planning

5) MRI : Generally MRI has a limited role in the workup of of hydronephrosis and hydroureter because of long acquisition time and cost. However in the setting of pregnancy in which ionizing radiation should be avoided, MRI may have role.

**RESULTS**

The probable cause of unilateral hydronephrosis and hydroureter related to the cadaver findings could be due to calculus causing obstruction to the flow of urine. However, another probable reason may be the uvula vesicae obstructing the internal urethral orifice which may lead to obstruction to the outflow of urine subtrigonal glands and all subcervical glands of Albarran are situated deep to the neck of the bladder. Slight degree of enlargement of these mucous glands of the median lobe of prostate may lead to obstruction to the outflow of urine. This also could be the probable cause for hydronephrosis and hydroureter.

**CONCLUSION**

Hydronephrosis and hydroureter can range from benign processes such as the physiologic hydroureteronephrosis of pregnancy, to potential life threatening situations, such as infected hydronephrosis or pyonephrosis. Although patients usually present with some signs or symptoms, hydronephrosis can be an incidental finding encountered during the evaluation of an unrelated process. If unrecognized or left

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untreated, hydronephrosis and hydroureter secondary to obstruction can lead to hypertension, loss of renal function and sepsis. Consequently, all patients found to have hydronephrosis and hydroureter should undergo a thorough evaluation and should be referred to a urologist.

Hence coordinated work between cadaver finding in relation to clinical relevance leads to better understanding in academics and patients management

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