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A Cadaver With Duplex Ureter: Surgical & Homoeopathic Management

¹Dr. Jayesh Kshirsagar, ²Dr. Ravi Soni, ³Dr. Falguni Hathila, ⁴Dr. Minal Chaudhari, ⁵Dr. Jignesha Kanasiya

¹Professor & HOD, ²Assistant Professor, ³Assistant Professor, ⁴Associate Professor, ⁵Assistant Professor

^{1,2}Department of Anatomy, ³Department of Surgery, ⁴Department of Pathology, ⁵Department of Materia Medica

^{1,2,3,4,5}Jay Jalaram Homoeopathic Medical Collage & Hospital, Morva (Rena), Panchmahal, Gujarat, India

Abstract:

Duplex Ureter also known as duplicated collecting System represent a common congenital anomaly of the urinary tract. Characterized by partial or complete duplication of the ureter. This condition, which may arises from abnormal embryological development of the ureteric bud. Many cases are asymptomatic and detected incidentally, others present with significant clinical complication such as recurrent urinary tract infection, vasico ureteral reflux, urethrocele, obstruction or hydronephrosis. Diagnosis typically involves imaging modalities such as ultrasonography, voiding cystourethrography, or magnetic resonance urography. Management depend on the severity of symptoms and complication, ranging from conservative approaches in asymptomatic individual to surgical intervention in case of obstruction, severe reflux or impaired kidney function. This article reviews the embryology, clinical presentation, diagnostic method and treatment strategies for duplex ureter, highlighting the importance of individualized care in optimized outcome and preventing long term renal damage

Index Term:

Duplex ureter; congenital anomaly; reno-renal reflux; Wolffian duct; Urinary incontinence; Hydronephrosis; Vesico ureteral reflux; Homoeopathic management; surgical management

INTRODUCTION:

Duplex ureter is one of the most common congenital anomaly of the upper urinary tract (4%). It is usually unilateral & common on the left side. Double ureter when associated, may be partial where two ureters join in lower third or complete where upper ureter opens into the bladder at a lower level and lower ureter opens into the bladder at the upper, normal ureteric orifice. In partial duplex, there is reno-renal reflux resulting in infection, stone formation and hydronephrosis.

REVIEW OF LITERATURE:

The ureters are pair of muscular tubes that convey urine from the renal pelvis to the bladder. They are located in fibrous tissue behind the peritoneum to which they tightly adhere. The upper aspect of the ureter is thin-walled and funnel-shaped and emanates within the sinus of the kidney in close association with the renal vessels. The thick-walled rest of the ureter passes unbranched through the abdomen to enter the bladder in a rather oblique angle and end with a slit-like opening of valvular nature

Case

In the routine educational dissection of 1st year student of academic year 2024-2025 in department of anatomy at jay jalaram homoeopathic medical collage & hospital, a female cadaver of about 60 years of age showed with duplex ureter on right side



Embryology

Ureteral development begins in the human fetus around the 4th week of embryonic development. A ureteric bud, arising from the mesonephric (or Wolffian) duct, gives rise to the ureter, as well as other parts of the collective system. In the case of a duplicated ureter, the ureteric bud either splits or arises twice. In most cases, the kidney is divided into two parts, an upper and lower lobe, with some overlap due to intermingling of collecting tubules. However, in some cases the division is so complete as to give rise to two separate parts, each with its own renal pelvis and ureter.

Duplex Ureter

Duplex Ureter OR Duplicate Collecting System are define as renal unites containing 2 pyleocalcyceal system associated with single or double ureter. It is present in 1% of population, mostly in female

Types of Duplex Ureter

1. Complete Duplex Ureter: - 2 ureters lead away from the same kidney and enter the bladder separately.
2. Incomplete Duplex Ureter: - 2 ureters lead away from the same kidney but joint together before draining into the bladder forming single ureter.

It can be Normal or Pathological

1. Normal Duplex Kidney: -
 - a. Normal width of renal pelvis,
 - b. Upper and lower poles are of same size.
 - c. Ureter are not dilated.
2. Pathological Duplex Kidney: -
 - d. One or both renal pelvis are dilated.
 - e. One or both ureter may be dilated

Clinical significance and symptoms

1. Urinary tract infection (UTI)
 - a) pain while urination
 - b) Frequent urge for urination
 - c) Fever
 - d) Vomiting
2. Urinary incontinence: - there is constant dribbling of urine.
3. Other symptoms:-
 - a. Abnormal insertion of the ureter into the bladder of urethra.
 - b. Blood in urine
 - c. Lower back pain
 - d. "decreased Appetite"
4. Vesico ureteral reflux (VUR)
 - a. Reversal of urine back to kidney
5. Hydro-nephrosis:
 - a. Swelling of kidney

Investigations

- Ultrasonography:- This is a noninvasive and useful examination for evaluating a duplex ureter
- IVU (Intravenous urography): - Used to diagnose kidney disease, monitor kidney function, and identify obstructions in the urinary tract. IVU is considered the gold standard for visualizing the urinary tract in patients with suspected acute obstruction.
- Voiding Cystourethrogram:- This is done to rule out vesico ureter reflex (VUR) as the cause of the swelling of the kidney and ureter. This test is also used to see if there is reflux in a second ureter linked to the ectopic ureter.
- Cystoscopy:- This is often done with general anesthesia, a small scope is placed into the urethra. The openings of the ureters from both kidneys are found. X-ray liquid dye is injected through tubes placed temporarily in the ureters to show the anatomy. Unfortunately, the opening of the ectopic ureter cannot always be seen. But by pinpointing the number and location of the other ureteral openings
- DTPA scan (Diethylenetriamine Pentaacetic Acid renal scan):- A radioactive material called DTPA is injected into a vein and travels to the kidneys through the blood. The material emits gamma rays that are detected by a gamma camera and computer to create images of the kidneys. These images show how the kidneys are functioning and structured, and can help identify any blockages or abnormalities

SURGICAL MANAGEMENT:

- Ureteric meatotomy is done if there is narrowing of the orifice. It is a surgical procedure that widens the opening of the ureter, the tube that carries urine from the kidneys to the bladder
- Nephrectomy:- if kidney is not functioning properly nephrectomy is done by complete removal of kidney.
- Hemi nephrectomy:- part effected of kidney is removed
- Ureteral Re-implantation: - the ureter is cut away and moved to a part of bladder where it can drain more easily. This has a risk of future blockages. In females with complete duplication, lower ureteric orifice is ectopic, causing urinary incontinence which needs partial nephrectomy or ureteric reimplantation.

HOMOEOPATHIC MANAGEMENT:

Double ureter is purely surgical condition but certain clinical symptoms resulting due to obstruction or infection like burning maturation, renal calculi, haematuria, pain, difficulty in urination can treated with this following Homeopathic medicine

Hydrangea arborescens

- Burning in urethra and frequent desire. Urine hard to start. Spasmodic stricture. Great thirst with abdominal symptoms. It is particularly useful for profuse deposits of white amorphous salts in the urine. It has arrested the tendency to formation of stones, relieves distress from kidney stones with soreness over region of kidneys and bloody urine.

solidago

- Dark urine. Especially at night with very scanty brown and sour urine. Urine, dark and scanty or clear, stinking voided with difficulty. Kidneys, sore and tender over, ache, feel distended. Pain in kidneys extend forward to abdomen, bladder, down the thighs. Chronic nephritis. Cystitis. Obstructing flow of urine or inflammation. Affections of any other part or organ complicated with these symptoms will probably find their remedy in Solidago.

Plumbum metallicum

- Frequent ineffectual tenesmus. Chronic interstitial nephritis with great pain in abdomen. Contracted kidney. Urine profuse but flows slowly, drop by drop. Albuminous, low specific gravity. Diabetes mellitus. Uremia. Urine scanty. Tenesmus of bladder. Paralysis of bladder, difficult urination or retention, suppression.

Eucalyptus globulus

- Acute nephritis complication influenza. Hematuria. Suppurative inflammation of kidneys. Urine contains pus and is deficient in urea. Burning and tenesmus. Bladder feels loss of expulsive force. Catarrh of Bladder. Spasmodic stricture, gonorrhea. Urine has the odor of violets

Hamamelis virginiana

- Hematuria with increase desire to urinate, Dull ache in renal region. Hematuria from passive congestion of the kidney. Scanty high-colored urine. Irritation of the urethra. followed by a discharge and ardor urine.

Uva ursi

- Painful urination with burning sensation. Burning after the discharge of slimy urine. Slime passes with blood. Pains shooting through from hip to hip. The bladder symptoms are better lying on the back. Urinary symptoms most important. Cystitis with bloody urine. Uterine hemorrhage. Chronic bladder irritation with pain. Frequent urging with severe spasms of bladder.

Mag. phos.

- Nocturnal bedwetting from nervous irritation. Spasm of bladder of neck of bladder, spasmodic retention, tenesmus with constant and painful urging. Bladder neuralgia after use of catheter. Nocturnal bedwetting from nervous irritation. Cutting pain in bladder before urinating.

Cimicifuga

- Profuse clear urine, causing weakness with yellow sand. Nervous urination.

CONCLUSION:

The knowledge of abnormality in renal collecting system is necessary for effective endo-urolological applications and intrarenal surgeries. Developmental anomalies of the kidney, ureter, and urinary bladder should be kept in mind and promptly detected before the manifestations of aforementioned complications increase the morbidity of the affected individuals.

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