Short Communication

Conventional Approach in Genitourinary Anomalies: A Pictorial Essay

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ABSTRACT

Introduction: Congenital anomalies of genitourinary tract are more common after Cardiovascular and muscular system anomalies in order. In imaging of urinary system there are number of Techniques Such as IVU, MCU, USG, CT, and MRI. Among the above, IVU and MCU are the main radiological exploration techniques especially after the development of Non-ionic Contrast media, allowing Morphological and Functional assessment of the Urinary system.
Methodology: This pictorial essay attempts to concisely present the imaging features of common congenital anomalies.
Conclusion: Conventional IVU and MCU are still the first Modality of choice to study the urinary system in periphery. Procedure done by skilled personnel with good interpretation of the images can give results which can easily accept the challenge with other Modalities.

Key Words: Genitourinary anomalies, IVU.

INTRODUCTION

Genitourinary anomalies are commonly seen coexisting with congenital abnormalities of Muscular system, Central nervous system and Gastro intestinal system. Since the urinary and genital systems are closely related embryo-logically their development is interdependent and anomalies of the Genital system often coexist with urinary tract anomalies and vice versa. Reproductive anomalies are uncommon in males, but the incidence of associated urinary tract anomalies is high. [1]

Congenital anomalies of genitourinary tract are more common after Cardiovascular and muscular system anomalies in order. In imaging of urinary system there are number of Techniques Such as IVU, MCU, USG, CT, and MRI. [2] Among the above, IVU and MCU are the main radiological exploration techniques especially after the development of Non-ionic Contrast media, allowing Morphological and Functional assessment of the Urinary system. Conventional IVU has been considered as an integral component of
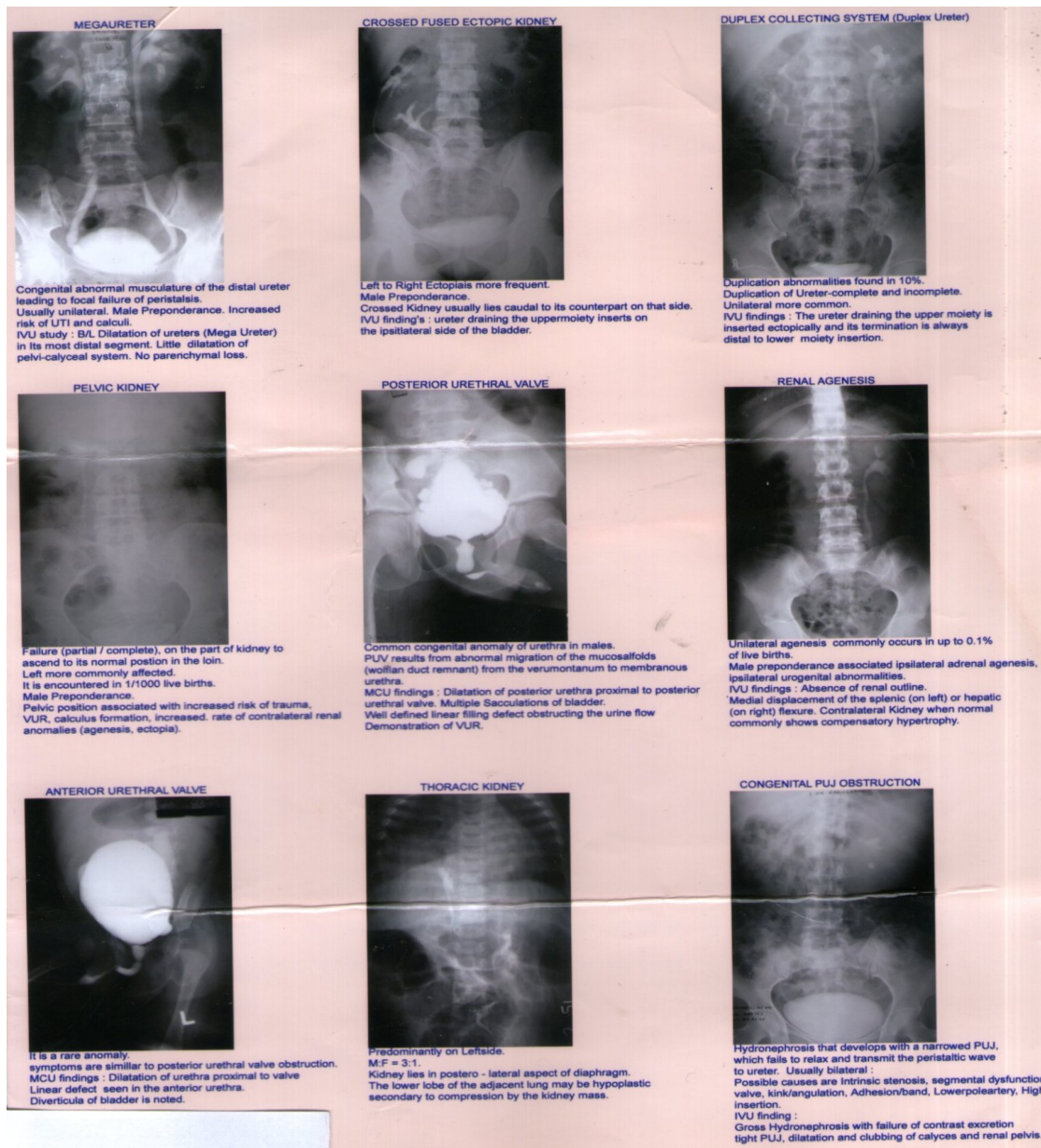
the Radiological as well as Uro-nephrological work up. [3]

Congenital anomalies of kidney and urinary tract play a causative role in 30-50% of cases of end stage renal disease in children. It is important to diagnose these anomalies and initiate therapy to minimize renal damage, prevent orderly the onset of end stage renal disease, and provide supportive care to avoid complications of end stage renal disease. Urinary tract anomalies predispose to many complications, including Infection, obstruction, Stasis, Calculus formation and impaired Renal function. Treatment of Genitourinary anomalies is often surgical. [4]

METHODOLOGY

This pictorial essay attempts to concisely present the imaging features of common congenital anomalies.

MEGAURETER
Congenital abnormal musculature of the distal ureter leading to focal failure of peristalsis.
Usually unilateral. Male Preponderance. Increased risk of UTI and calculi.
IVU study : B/L Dilatation of ureters (Mega Ureter) in its most distal segment. Little dilatation of pelvi-calyceal system. No parenchymal loss.

CROSSED FUSED ECTOPIC KIDNEY
Left to Right Ectopiais more frequent.
Male Preponderance.
Crossed Kidney usually lies caudal to its counterpart on that side.
IVU finding's : ureter draining the uppermoiety inserts on the ipsilateral side of the bladder.

DUPLEX COLLECTING SYSTEM (Duplex Ureter)
Duplication abnormalities found in 10%.
Duplication of Ureter-complete and incomplete.
Unilateral more common.
IVU findings : The ureter draining the upper moiety is inserted ectopically and its termination is always distal to lower moiety insertion.

PELVIC KIDNEY
Failure (partial / complete), on the part of kidney to ascend to its normal postion in the loin.
Left more commonly affected.
It is encountered in 1/1000 live births.
Male Preponderance.
Pelvic position associated with increased risk of trauma, VUR, calculus formation, increased. rate of contralateral renal anomalies (agenesis, ectopia).

POSTERIOR URETHRAL VALVE
Common congenital anomaly of urethra in males.
PUV results from abnormal migration of the mucosalfolds (wolfian duct remnant) from the verumontanum to membranous urethra.
MCU findings : Dilatation of posterior urethra proximal to posterior urethral valve. Multiple Sacculations of bladder.
Well defined linear filling defect obstructing the urine flow Demonstration of VUR.

RENAL AGENESIS
Unilateral agenesis commonly occurs in up to 0.1% of live births.
Male preponderance associated ipsilateral adrenal agenesis, ipsilateral urogenital abnormalities.
IVU findings : Absence of renal outline.
Medial displacement of the splenic (on left) or hepatic (on right) flexure. Contralateral Kidney when normal commonly shows compensatory hypertrophy.

ANTERIOR URETHRAL VALVE
It is a rare anomaly.
symptoms are similar to posterior urethral valve obstruction.
MCU findings : Dilatation of urethra proximal to valve
Linear defect seen in the anterior urethra.
Diverticula of bladder is noted.

THORACIC KIDNEY
Predominantly on Leftside.
M:F = 3:1.
Kidney lies in postero - lateral aspect of diaphragm.
The lower lobe of the adjacent lung may be hypoplastic secondary to compression by the kidney mass.

CONGENITAL PUJ OBSTRUCTION
Hydronephrosis that develops with a narrowed PUJ, which fails to relax and transmit the peristaltic wave to ureter. Usually bilateral.
Possible causes are Intrinsic stenosis, segmental dysfunction valve, kink/angulation, Adhesion/band, Lowerpoleartery, High insertion.
IVU finding :
Gross Hydronephrosis with failure of contrast excretion tight PUJ, dilatation and clubbing of calyces and renal pelvis.

CONCLUSION

Genitourinary tract anomalies are frequently multiple and their identification and elucidation often depend on radiologic techniques. Understanding of the development of such anomalies facilitates their accurate radiologic interpretation. [1]

Conventional IVU has been the primary radiological imaging modality when assessing the urinary system for many decades. [5,6] Different studies have shown that accuracy rate of CT and MR Urography has been almost similar to that of conventional IVU. CT urography is better modality for renal parenchyma and retroperitoneal status. [6]

Conventional IVU and MCU are still the first Modality of choice to study the urinary system in periphery. [3] Procedure done by skilled personnel with good interpretation of the images can give results which can easily accept the challenge with other Modalities.

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