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Double Ureter---A Case Report

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Abstract
In the present case, 45 years old female patient was operated for total laparoscopic hysterectomy for some gynaecological problems after which she developed symptoms of urinary incontinence. After investigation with CT urography, patient was diagnosed as having right side complete duplication of ureters. Duplex ureters are an anatomic anomaly which, if not recognised, can complicate surgery. Knowledge about variations of renal collecting system should be kept in mind during surgical interventions and procedures like cystoscopy and retrograde pyelography to avoid complications.
Key words: *Ureter, Double, CT Urography*

Introduction

The ureters are two muscular tubes which convey urine from kidneys to urinary bladder and measures about 25cm in length [1]. Embryologically the ureter develops from a stalk of ureteric bud. The ureteric bud arises as a tubular diverticulum from the mesonephric duct close to the point where it joins the cloaca [1,2]. Double ureters have been classified as

1) Complete, wherein two pelvis on the same side, one superior to the other, drain by separate orifices onto the floor of the bladder. The opening may lie side by side or one may be superior to the other .They may also be closely situated or set at some distance apart.

2) Incomplete, wherein two pelvis and the two ureters join and enter the bladder by one common orifice, both of these forms of duplication may be unilateral or bilateral .The bifurcation in this latter group may be present at any point in the course of the ureter, from just above the bladder, upto the renal pelvis. Minor degrees of bifurcations are called bifid pelvis [3,4].

Most patients with double ureter are asymptomatic. Duplex systems are implicated in childhood urinary tract infections, hydronephrosis and parenchymal scarring but are often identified as incidental findings. The patient noted above had an undiagnosed double ureter system [5].

Case Report

A 45 years old female patient was asymptomatic since birth. For some gynaecological problems she underwent laparoscopic assisted vaginal hysterectomy. On 3rd day she developed symptoms like urinary incontinence with intermittent normal micturation. On CT urography patient was diagnosed as having right side complete duplication of ureters, while the left ureter appeared to be normal.

CT Urography

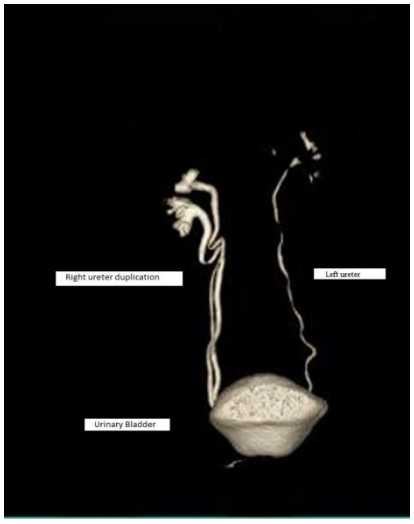

Fig 1: Anterior View Showing Rt. Side duplication of ureter

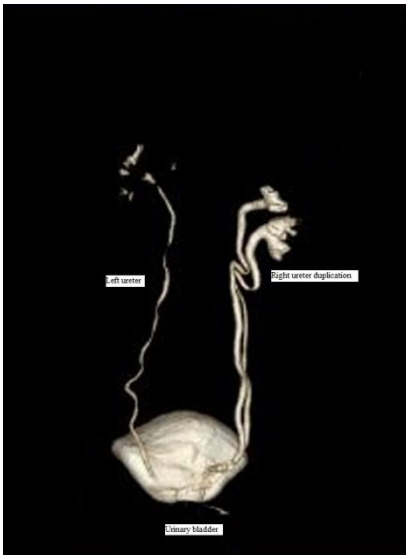

Fig 2: Posterior View Showing Rt. Side duplication of ureter

Discussion

The incidence of duplex ureters is 1 in 125 cases i.e. approximately 0.8% and bilateral duplication of ureter occurs in approximately 1 in 800 cases [1,6]. Duplex collecting systems occur equally on the right and left sides [6]. Double ureter is due to early splitting of the ureteric bud into two parts. Splitting may be partial or complete, and metanepric tissue may be divided into two parts, each with its own renal pelvis and ureter [7]. Chwalla on the other hand has shown that complete duplication is probably due to the formation of twin ureteral buds, arising one above the other on the lower end of mesonephric duct [8]. Division of ureter takes place at any point between the ureteral bud and renal pelvis, the commonest site being upper third of the ureter [9]. Russell et al. reported on an average, 3% of routine excretory urograms show ureteral duplication [10].

In complete ureteric duplication, the ureter from upper pole of the kidney (longer ureter) inserts into bladder in a more caudal and medial location than the ureter from the lower pole (shorter ureter) [1]. In double ureters, usually the ureter from the lower pole has a shorter intramural course than the longer ureter and is more prone to develop reflux and further complications [1].

Conclusion

The present case illustrates an often missed anatomical anomaly which leads to intraoperative injury and highlights the importance of awareness of these anomalies during surgical procedures. Knowledge about this anatomic variation is of great importance for surgical approaches and radiologic and other evaluative methods like cystoscopy and retrograde pyelography.

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