

# BILATERAL CONGENITAL PELVIC KIDNEYS IN FEMALE "A RARE SCENARIO"

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## ABSTRACT

Bilateral pelvic kidneys in a patient presented with bilateral lumbar pain, nausea, fever, with rigors and chills, burning micturition, frequency and amenorrhea. Both kidneys were in pelvis with short ureters and malrotation and an isthmus uniting upper poles of kidneys.

**Keywords:** Bilateral pelvic kidneys, renal ectopia, malrotation.

## Introduction

Kidneys are normally located in the retroperitoneal position, on either side of vertebral column, against the psoas muscles (level of the L2 vertebra), but when not at such position, it is called renal ectopia or ectopic kidney.

The incidence of renal ectopia is about 1/1,000 births but only 10 % are ever diagnosed, as the patients are mostly asymptomatic and it is usually discovered incidentally, during the work up for any other medical condition.<sup>1</sup> A study conducted at Gomal University Pakistan<sup>2</sup> found that 0.2% of patients presenting with abdominal complaints have renal ectopia. Out of 12,000 patients with renal ectopia, 7 (28%) were with right ectopic pelvic kidneys, 5 (20%) with left ectopic pelvic kidneys, 2 (8%) with crossed ectopic unfused kidneys, 5 (20%) with crossed ectopic fused kidneys, 4 (16%) with horseshoe shaped kidneys and 2 (8%) with bilateral ectopic pelvic kidneys.<sup>2</sup>

Bilateral pelvic ectopic kidneys, with or without fusion, are very rare and only few cases are reported in the medical literature. Henot first described fused pelvic kidneys in 1830, while Judd and Harrington made

the first radiologic diagnosis of this condition in 1919.<sup>3</sup>

## Case Scenario

This is a case of 30 year married housewife resident of tehsil Arifwala presented with complaints of bilateral lumbar pain for last one and half year more on left side radiating to groin associated with nausea but no history of vomiting. The pain was often associated with fever, rigors and chills for which she was taking medicines off and on from local practitioner. Patient complained of burning micturition, frequency and amenorrhea for 03 months. Her pregnancy test was negative at time of presentation. There was no history of urgency, dysparunia, passing stones per urethra or visible hematuria. No Past history of hospitalization or any surgical intervention drug or food allergy. On examination bilateral mass was palpable in pelvic region. Her Hemoglobin was 11.7g/dl, TLC count was 9100/cm<sup>3</sup> and platelet count was 399x10<sup>9</sup>/L. Her urea and creatinine were within normal range. Urinary pH 5.5, pus cells 8-10/ hpf, RBC were 4-6 / hpf.

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USG scan showed both kidneys were lying in pelvis with small ureters. Upper poles of both kidneys were fused by an isthmus. (Fig. 1)



Figure 1: USG scan showing pelvic location of both kidneys with isthmus

X-ray KUB plain film showed no radio opaque calculus over renal system, however osteophytes were noted at L1-2 levels that could also be the possible cause of lumbar pain. On IVU, 5 min film demonstrated nephrogram in pelvic area bilaterally and subsequent films at 15, 30, 45 and 90 minute shows ureterogram and vesicogram. (Fig. 2).



Figure 2: Plain KUB and IVU films

On DTPA renal scan both kidneys were fairly visualized and appeared low lying in pelvis. Early dynamic images showed slightly reduced perfusion to both kidneys. Sequential images showed reduced cortical uptake of radiotracer on both sides. Corticopelvic transit of radiotracer was normal bilaterally. Pelvic calyceal retention of radiotracer is seen on both sides with bilateral fair response to diuresis (injection frusemide). Relative renal function of left kidney was 45% and right kidney was 55%, showing reduced functioning both (ectopic) kidneys. (Fig.3)

It is worth while mentioning that DTPA scan underestimates GFR in case of ectopic kidneys.

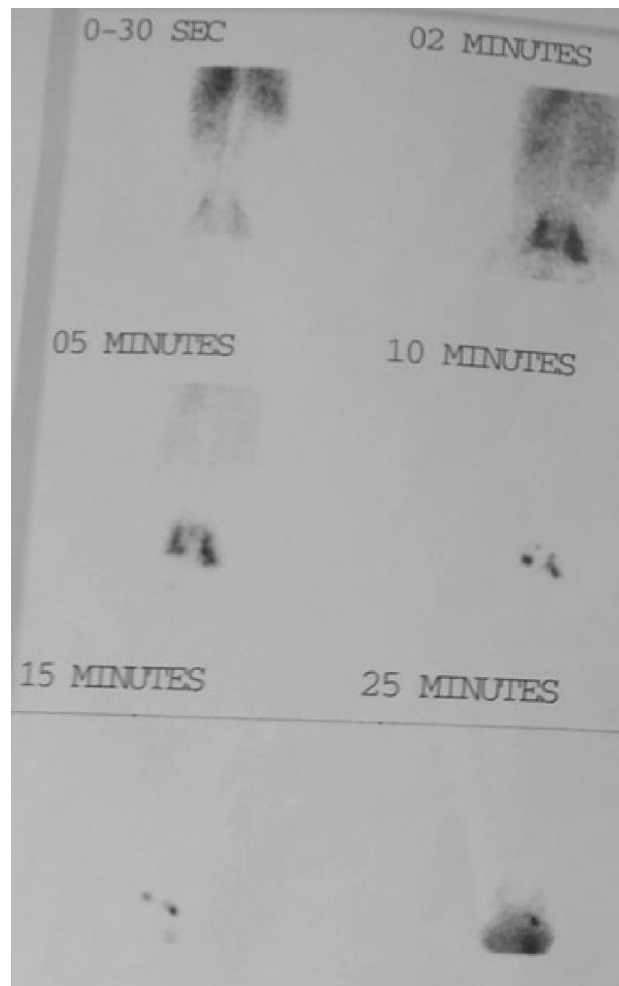


Figure 3: DTPA Renal Scan.

## Discussion

Kidneys normally develop in the pelvis and migrate to the upper abdomen. Ascent of kidneys precedes the descent of gonads into the pelvis. A caudal growth in the embryo appears to assist in migration of kidneys out of the pelvis into its eventual retroperitoneal location in the renal fossa. They attain their adult position by the 9<sup>th</sup> week. Factors which interfere with development such as teratogens, genetic factors, ureteric bud, when it does not meet with nephrogenic blastema for normal nephrogenesis or metanephric maternal disease, may result in abnormal migration of the kidney.

Ectopic kidneys may be pelvic, iliac, abdominal,

anywhere along the path of their usual ascend or contralateral referred to as "crossed" with slight predominance on left side and in males.<sup>4</sup>

If the kidney fails to ascend, it remains in the pelvis called ectopic pelvic kidneys, unilateral or bilateral. Pelvic Kidneys are usually close together in the pelvis due to the limited amount of space in the pelvic cavity. Due to compression of nephrogenic blastemas of ureteric buds by the umbilical arteries, the entire renal substance is fused into one mass or lump, giving rise to two separate ureters with normal entrance into the urinary bladder or rarely the single ureter, known as cake or pancake kidney.<sup>5</sup> From 20-66% of women with renal ectopia (pelvic Kidney) have abnormalities of either the uterus (unicornuate with or without rudimentary horn, bicornuate, or absent uterus), vagina (atresia of the proximal or distal vagina, vaginal duplication, or absence of vagina) or both.<sup>6</sup>

During ascent, each kidney acquires its blood supply from the neighboring vessels, initially from external and internal iliac vessels and at 8<sup>th</sup> week of development, direct from aorta. Any abnormality in origin of renal arteries may prevent cephalic migration resulting in renal ectopia.<sup>7</sup>

Many of these patients are asymptomatic. In symptomatic patients, features of obstruction and infection are very common. The pain of pelvic kidney is usually not of typical renal pain type and often is mistaken as acute appendicitis or pelvic inflammatory disease. In our study ectopic pelvic kidneys were diagnosed by USG and confirmed by urography, the similar findings are reported by other researchers. Some patients having pelvic kidneys present as pelvic mass and may also result in obstetric complication, in our case patient did not presented with any obstetric complications so far.

## References

1. Moore KL and Persaud TVN. Urogenetal system. In: The developing human. WB S Aunders, 2008; pp: 244-56.
2. Muhammad Asghar. Prevalence of renal ectopia by diagnostic imaging. Gomal Journal of Medical Sciences July-December 2008; **6(2)**.
3. Judd ES, Harrington SW. Ectopic pelvic kidney surg. Gynecol. Ostetric 1919. **28**: 446-51.
4. Bauer SB. Anomalies of the kidney and ureteropelvic junction. In:Walsh PC, Retik AB,Vaughan ED(eds): Campbells Urology, 7<sup>th</sup> ed. Philadelphia: WB Sanders,1998: 1709-55.
5. Calado AA, Macedo A, Srougi M. Cake kidney drained by single ureter. Int. Braz. J. Urol. 2004; **30**: 321-2.
6. Bauer SB. Anomalies of the kidney and ureteropelvic junction. In:Walsh PC, Retik AB,Vaughan ED(eds): Campbells Urology, 7<sup>th</sup> ed. Philadelphia: WB Sanders,1998: 1709-55.
7. Renalectopia. Availableonlineatwww.medcyclopaedia.com/library/topics/volume\_vii/e/ectopia\_renal.aspx?s=Renal+ectopia&mode=1&syn=&scope=v.