

CASE REPORTS

RETRO-AORTIC LEFT RENAL VEIN AS A CAUSE OF UNILATERAL DENSE PERSISTENT NEPHROGRAM

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INTRODUCTION

Retention of administered intravenous contrast for a prolonged period is termed dense persistent Nephrogram. None of the previously mentioned differentials ever included Retro-aortic left renal vein (RLRV) as a cause of unilateral dense persistent nephrogram. First case of its kind is presented here which presented as diagnostic dilemma and eventually turned out to be a normal variant.

CASE REPORT

A young-middle aged patient presented with right sided flank pain and visible renal

was recalled for doppler renal vessels which turned out to be normal.

CT Urogram was done to ascertain the cause of left sided dense persistent nephrogram. CT urogram showed right renal calculus in renal pelvis with retroaortic left renal vein (RLRV type I), which was compressed to more than half of its diameter (fig-2). Persistent nephrogram was seen on left side (fig-3). Thus, the only cause of left sided persistent nephrogram was retro-aortic left renal vein.

CASE DISCUSSION



Figure-1: (15min post-IV contrast Films): Persistent nephrogram seen on left side in 15 min post-IV contrast film.



Figure-2: (Post contrast CT KUB): Retro-aortic left renal vein, type I variant, partially compressed behind aorta is noted.



Figure-3: (Post contrast CT KUB): Persistent Corticomedullary phase on left side with scanty contrast excretion.

calculus on plain x-ray abdomen. Ultrasound KUB showed right renal calculus and normal left kidney. Intra-venous urography (IVU) showed right renal calculus but left sided dense persistent nephrogram was found which was contrary to the previous investigations (fig-1). Delayed excretory films also showed persistent corticomedullary phase on 2 hours film but contrast was cleared on 24 hours excretory film. Laboratory investigations were normal. Patient

Retention of injected contrast within renal cortices is termed as persistent nephrogram, however exact time period for contrast stasis to be called as dense persistent nephrogram is not specified. Rather it is mere comparison with the contralateral normally excreting kidney or in case if both are obstructed then delayed appearance of contrast in pelvicalyceal system is termed as dense persistent nephrogram¹.

Persistent nephrogram may be bilateral or unilateral. Hypotension or contrast reaction causes bilateral persistent nephrogram. Obstructive uropathy, pyelonephritis and renal artery stenosis causes unilateral persistent nephrogram.

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A retroaortic left renal vein (RLRV) is a normal variant, with its incidence varying between 2-3% in various literatures²⁻⁴. Left renal vein anomalies are of four types, depending upon the course and persistence of dorsal limb of renal vein, also with relation to aorta and its drainage level into IVC. Type I and II, have obliterated ventral preaortic limb with dorsal limb continuing as RLRV either in orthotopic position in Type I variant, whereas, it joins inferiorly with IVC in Type II variant. Type III RLRV forms venous collar around aorta and in type IV RLRV dorsal retroaortic limb continues to drain into left common iliac vein⁵⁻⁶.

"Nutcracker phenomenon" is due to increased pressure in RLRV which is communicated through gonadal, ascending lumbar, adrenal and ureteral veins. It may result in hematuria, proteinuria and varicocoele⁷.

RLRV although is a normal variant but close follow up is advisable especially if patient experiences constant flank pain or if there is

microscopic hematuria, proteinuria or varicocoele. Treatment may range from conservative care to pyeloplasty, varicocelectomy or nephrectomy depending upon the severity of the condition.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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