Introduction and Objectives: The incidence of crossing vessels and role of ureteral transposition during laparoscopic pyeloplasty is both commonly debated. We examined the incidence, distribution and management of crossing vessels during retroperitoneal laparoscopic pyeloplasty (RLP) over an 84-month period by a single surgeon (MG).

Methods: We retrospectively reviewed 62 consecutive cases of RLP to identify the presence or absence of crossing vessels, the pattern of distribution, and the necessity of ureteral transposition. General tenets of repair included preservation and repositioning of all crossing renal arteries, division of unessential venous anomalies, and creation of a dependant collecting system funnel below the crossing vasculature, most commonly with a dismembered technique.

Results: Table 1 illustrates the distribution of crossing vessels along with two unique venous anomalies. Crossing vessels were encountered in 46 (74.7%) patients. The ureter was transposed in only three cases (6.5%). There were no major complications. Success rate at a median follow-up of 36 months was 97.8%.

Conclusion: The retroperitoneal approach allows for prompt access to the renal hilum which may help define a higher incidence of vascular anomalies. Meticulous retroperitoneal vascular dissection with precise ureteropelvic junction reconstruction facilitates our long term success with retroperitoneal laparoscopic pyeloplasty.

<table>
<thead>
<tr>
<th>Incidence and Distribution of Crossing Vessels (% based on n=46)</th>
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<tbody>
<tr>
<td>Gonadal Vein Variants*</td>
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<tr>
<td>Accessory Renal Artery</td>
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<td>Main Renal Artery</td>
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<td>Main Renal Vein</td>
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<tr>
<td>Mesenteric Vein</td>
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<tr>
<td>Gonadal Artery</td>
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<tr>
<td>Lumbar Vein</td>
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</tbody>
</table>

* Includes two unique venous anomalies and their incidences: 1) Right gonadal vein draining to right accessory renal vein (4). 2) Trifurcating left gonadal vein complex with lumbar and mesenteric branches (6).