

## Comparison Of Laparoscopic Pyeloplasty Two Approaches- Retrocolic / Transmesocolic Our Institute Experience, 5 Years Study.

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**Abstract: AIM:** We compared possible outcomes, pros and cons of laparoscopic retrocolic / Transmesocolic pyeloplasty in 32 patients.

### **MATERIALS AND METHODS:**

Between 2011 and 2016, we analysed all the particulars /datas - presentation age, renal pelvis size, lower pole vessels, with or without stones. Selection of cases , left side- transmesocolic and Both sides retrocolic LP was done. Total number of cases 32. Approaches -Transmesocolic 12 and retrocolic 20. Follow up period - 24months. Outcome analysed were, symptom free, anatomical Reduction, physiological drainage, advantages of procedures.

**RESULTS:** Average Age group was 12 years for transmesocolic LP, 18years for Retrocolic LP. Operative time 140 mins. Transmesocolic approach 30 mins less than retrocolic LP.

### **CONCLUSION:**

Retrocolic approach is standard for right side. Transmesocolic or retrocolic approach is for left side. Both gives good and similar results.

**Key Words:** LP-Laparoscopic pyeloplasty, retrocolic, transmesocolic

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### **I. Introduction:**

Anderson-Hynes dismembered Pyeloplasty is the basic gold standard for UPJ Obstruction Surgery. Laparoscopic Pyeloplasty was first described by schuessler in 1993. The laparoscopic surgery mimicks all the steps in open surgery. Various types of laparoscopic pyeloplasty with minimal modification are described by many authors all over the world. The advantage of one technique is incorporated over another. In our study, two techniques Retrocolic laparoscopic pyeloplasty is compared with Transmesocolic pyeloplasty.

### **II. Materials And Methods:**

Time period was between January 2010 and January 2016. Total number of patients were thirty two . retrocolic LP was done in 20 patients and transmesocolic LP was done in twelve 12 patients. Follow up period was 24 months. Technique adapted was dismembered Anderson Hynes pyeloplasty with double j stent placement, laparoscopically in all patients. Basic and specific investigations were done including RFT, Ultrasonogram kub, Tc 99 DTPA diuretic Renogram. Surgery was done for significant Obstruction revealed by Prolonged t ½ more than 20 minutes. Surgery performed by two surgeons from our Institute. ( 1 and 2 authors ).

### **Surgical Procedure**

GA with ET, Open technique, umbilical optical 10mm port, two 5mm midclavicular port with good ergonomics , one subcostally and another in spino umbilical line. Important steps for retrocolic LP are, 1.identification of pelvis, 2.colon mobilization from white line of Toldt, 3.uretero pelvic junction identification , 4.lower polar vessel separation, 5. Dismembering , leaving stenosed part with ureter, 6.spatulation of ureter lateral part, 7. Tailoring of pelvis making dependent funnel supero medial /infero lateral end, 8. Pyeloplasty with 5-0 vicryl/ pds with dj stent placement , 9. Drain 10. Port closure. In transmesocolic for exclusively left UPJ obstruction, all the steps are same, done through a window created inbetween inferior mesenteric vein and descending colon. Pelvis is brought out through the mesocolon window. Steps 3 to 9 are same . mesocolon closed with vicryl. In some cases stay sutures helped. Guide wire for DJ stenting was passed through PCN needle cannula.

Median follow up 24 months with TC 99 DTPA diuretic renogram at 3 months . then two scans at one yr interval. Success is determined by 1.improvement in symptoms 2. Resolution of Hydronephrosis revealed by Ultrasonogram.



figure 1: laparoscopic pyeloplasty initial steps



figure 2. After dissection the renal pelvis is brought anterior to crossing vessel.

### III. Results:

The Mean age was almost same in both and can be compared in retrocolic LP/ Transmesocolic LP. Crossing vessels were seen in almost 60% of patients in our series. Secondary stones were seen in < 5%. Male : female ratio was 20:12.

#### Patient analysis

Mean Age	16 in transmesocolic/ 18 in retrocolic LP
Sex M:F	20:12
Crossing vessel	20 cases 60%
Stones	7 cases 5%

#### Peroperative and peri Operative analysis

Total duration of surgery	Retrocolic LP 160 mins	Transmesocolic LP 120 mins
Drain removal	After 48 hours	After 48 hours
Orals started	After 24 hours	After 24 hours
Success rate/ Resolution rate	98% to 100 %	98%

#### Studies comparison table from various centres from India and abroad

Studies	age	No of patients		Mean operative time		Oral feeds when started	Drain removal	followup
		RLP	TMP	RLP	TMP			
Aneesh Srivastava et al	8 yrs	41	38	135 mins	105	After 20hrs	20 to 40hrs	2yrs
Ramalingam et al	16 yrs	12	26	165	145			
Romero et al	18 yrs	52	18	170	130			
Our present study P.V.Thiruvarul et al	17 yrs	20	12	160	120	After 24 hrs	After 48hrs	5yrs

### IV. Discussion

Primary UPJ obstruction, the Gold standard operation is Anderson Hynes dismembered Pyeloplasty. The surgery can be done open, laparoscopic, retroperitoneoscopic or endoscopically. We analysed the commonly done transperitoneal , retrocolic or transmesocolic LP(1). Transmesocolic approach was first done by Nicol and Smithers. On left side, the renal pelvis overlies the descending colon , Hence it can be approached on either way transmesocolic, or retrocolic by mobilizing the colon(2,3). On right side, renal pelvis is lateral to colon and well defined. Hence little mobilization of colon, laterally is enough. Moreover the presence of duodenum and IVC, the best approach for right side is retrocolic LP. By decreasing the duration of time taken for colon and mesocolon mobilization, the total operative time is nearly reduced to 30 to 40mins in our and many other authors series. The recovery period was faster or time to return to normal life was v.earlier in both Retrocolic and transmesocolic LP, comparing open pyeloplasty(4). For adult LP , the similar principles applied with obvious excellent results.various methods of tissue approximation were devised to avoid the difficult to master, time consuming conventional suturing technique. Laparoscopic antegrade stenting is preferred by some authors. Few authors argue that retrograde stenting is better as it rules out the coexisting distal obstruction. Most

failures if occurs , it is within two years.y-v plasty, fenger,s pyeloplasty, Heineke Mickulicz pyeloplasty in difficult situations may be required. In majority of cases Anderson Hynes dismembered pyeloplasty is the surgery of choice(5,6,7). Secondary stones are easily dealtwith. All patients must be postoperatively followedup with radiographic evaluation, ultrasonogram, diuretic renogram depending on the protocol of institutions. As the experience gains, average operating time goes down with reduced no.of complications. Results become comparable to international standards(8). In UPJ obstruction with stones, before pyeloplasty, stones are usually extracted through a pyelotomy wound. Using rigid graspers, under direct laparoscopic vision many stones are removed intoto(9,10). This is possible in both transmesocolic and retrocolic LP. Sometimes flexible nephroscopes are used to extract the stones, when the stones are in calyces. Transmesocolic approach reduces operating time and facilitate repair without increasing morbidity(11,12,13). Especially in left LP, Transmesocolic LP is easy in paediatric and adolescent patients. Standard Retrocolic LP is possible on both sides. Even vessel crossing, large pelvis, stones are dealt with both Retrocolic and Transmesocolic LP. Success rate are same for both retrocolic and transmesocolic LP(18,19).

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