

Transanal lateral lymph nodes dissection combined with laparoscopic approach for lower rectal cancer: An Initial Experience of 10 Cases

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Introduction

- Neoadjuvant treatment followed by total mesorectal excision (TME) is the standard treatment for advanced low rectal cancer in Western countries.[1]
- In Japan, however, lateral lymph node dissection (LLND) combined with TME is a routine procedure in clinical stage II and III rectal cancer.[1]
- The oncological benefits of LLND in reducing local recurrence in those with positive lateral lymph node (LLN) metastasis is described.[2]
- Also, selective LLND after neoadjuvant chemoradiotherapy (NACRT) has been reported to improve disease-free and overall survival. [3]
- LLND is technically demanding and known to cause several adverse effects
- Transanal LLND is a still challenging technique with a few reports. [2]

Purpose

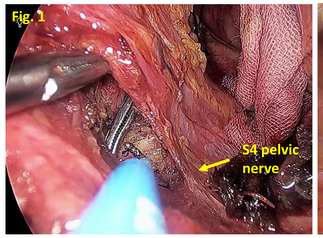
The aim of this study was to present the technical aspects and surgical outcomes of transanal LLND combined with laparoscopic approach for lower rectal cancer.

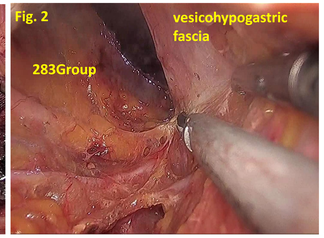
Methods and Materials

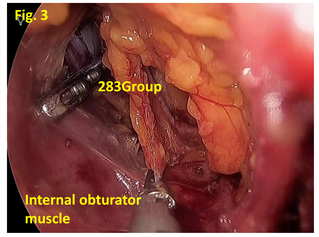
- We retrospectively analyzed the prospectively collected data of 10 consecutive patients who underwent transanal LLND combined with laparoscopic approach from January 2019 to August 2021.
- Intraoperative adverse events, operative time, blood loss, postoperative complications, length of hospital stay, pathological findings were assessed
- The patients' demographics are shown in Table 1.
- Transanal access was achieved using self retaining anal retractor, (Lone Star Retractor; CooperSurgical, Trumbull, CT), and the access device (GelPOINT path; Applied Medical, Rancho Santa Margarita, CA).

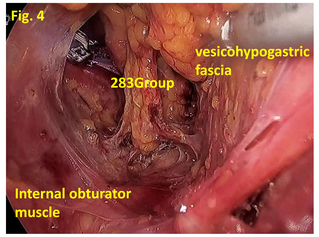
Transanal LLND:

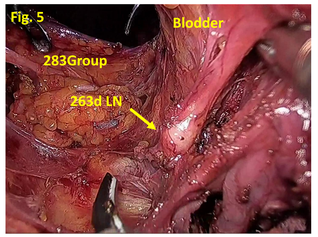
- After confirming S4 nerve, parietal pelvic fascia was dissected at anal side of S4 nerve to enter the surgical plane.
- Dissection was proceeded between the vesicohypogastric fascia and pre-hypogastric nerve fascia to rendezvous with laparoscopic dissection (Fig. 1).
- Dissection was proceeded between the vesicohypogastric fascia and 283 group to rendezvous with laparoscopic dissection (Fig. 2).
- Dissection was performed along the levator ani muscle up to the obturator internus muscle. Dissection was proceeded between the 283 group and parietal pelvic fascia to rendezvous with laparoscopic dissection (Fig. 3).
- Then dissection was performed between the vesicohypogastric fascia and the obturator nodes (283 group) (Fig. 4).

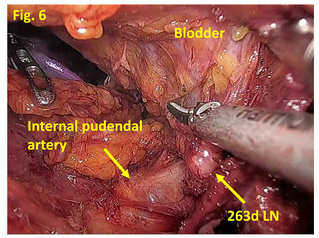


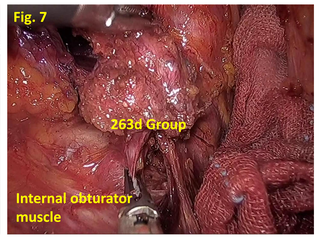


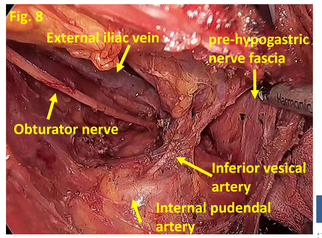












- Dissection was proceeded to rendezvous with laparoscopic dissection, confirming the internal pudendal vessels and inferior vesicle vessels. Next, the internal iliac lymph nodes (263d group) were removed confirming the inferior vesicle vessels (Fig 5, Fig 6 and Fig 7).
- Then, the obturator nodes were removed, preserving the obturator nerve and dissecting the obturator vessels (Fig. 8).

Laparoscopic LLND:

- It was simultaneously performed with transanal LLND.
- After confirming the ureter, incision of the peritoneum was performed just lateral to the ureter at pelvic inlet level.
- The dissection proceeded between the vesicohypogastric fascia and pre-hypogastric nerve fascia. Dissection was proceeded to rendezvous with transanal dissection.
- Then, dissection was performed between the vesicohypogastric fascia and the obturator nodes. Dissection was proceeded to rendezvous with transanal dissection.
- Finally, after confirming the external iliac vein, parietal pelvic fascia was dissected along the external iliac vein.
- The dissection was proceeded along the psoas muscle and the obturator internus muscle down to levator ani muscle.
- Dissection was proceeded to rendezvous with transanal dissection.

Results

Table 1. Patient demographics

S.N.	Factors	Values
1	Age, years, median (range)	66.5 (31-72)
2	Sex (M: F)	7:3
3	BMI, median (range)	23.5 (19-27)
4	Procedure	
	APR	5
	ISR	2
	LAR	1
	Hartmann	2
5	Tumor location	
	RaRb	1
	Rb	9
6	Preoperative treatment	
	NAC	9
	TNT	1

- There were two events of intraoperative complications (vaginal injury and CO2 embolization).
- Postoperatively, one anastomotic leak (CD Grade IIIa), two each of urinary retention, chylous ascites and ileus (CD Grade II) occurred.

Table 2. Surgical outcomes and Pathology

S.N.	Outcomes	Values
1	Surgery time, min, median (range)	679.5 (434-840)
2	TaTME time, min, median (range)	126 (37-239)
3	Lateral LN dissection time, min, median (range)	99 (45-197)
4	Bleeding, ml, median (range)	130 (2-430)
5	Intraoperative complications	2
6	Postoperative complication	7
	Clavien Dindo II	6
	Clavien Dindo IIIa	1
7	Postoperative hospital stays, median (range)	18.5 (10-33)
8	Pathological stage	
	pStage I	1
	pStage II	2
	pStage III	4
	pStage IV	3
9	Number of LN retrieved, median (range)	15.5 (9-30)
10	Tumor size, mm, median (range)	40 (25-44.5)

Discussion

- The Japanese Society for Cancer of the Colon and Rectum recommends an LLND in rectal tumors with invasion beyond the muscularis propria located beyond peritoneal reflection. [4]
- During LLND, the dissection around the pudendal and inferior vesicle vessels are difficult to reach from laparoscopic approach because of narrow pelvis and distant surgical field.
- However, that region is said to be associated with frequent LN metastasis. [2]
- This part can be easily accessed transanally and transanal dissection can be used for LLND in this part.
- Transanally we could enter the plane between vesicohypogastric fascia and pre-hypogastric nerve fascia following parietal pelvic fascia was dissected at anal side of S4 nerve, and the internal iliac lymph nodes (263) could be removed. Following that we could retrieve obturator lymph nodes, preserve obturator nerve and dissect obturator vessels.
- In this study, we adopted combined abdominal and transanal approaches which provide the advantage of an anatomical view.
- This procedure may provide advantages over the laparoscopic alone LLND by providing lateral pelvic anatomical structure viewing, and easier access to the deep lying pelvic lymph nodes.

Conclusions

Transanal lateral lymph nodes dissection combined with laparoscopic approach may have a potential benefit to LLND for lower rectal cancer.

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