One-Step Laparoscopic Sigmoid Resection with Ventral Mesh Rectopexy in Management of Rectocele-Associated Dolichocolon

By

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INTRODUCTION

Constipation

- Normal-transit constipation (IBS-C)
- Slow-transit constipation (colonic inertia)
- Obstructed defecation (rectocele, rectal prolapse, anismus)

Obstructed defecation syndrome (ODS) is a challenging problem for every colorectal surgeon. Internal rectal prolapse and anterior rectocele were reported to be associated with the symptoms of ODS *(Carvalho e Carvalho & Gurland, 2018)*.

Medical treatment and rehabilitation therapy usually confer good results in ODS patients; however; we may resort to surgery (via trans-abdominal approach) when patients are refractory to conservative management *(Emile et al., 2019)*.

- Some patients with ODS may also have dolichocolon. It is not clearly known if dolichocolon is a primary condition that coexists with ODS or is secondary to prolonged ODS patients.

- In either cases, dolichocolon can be a major cause of constipation and may result in residual symptoms and incomplete satisfaction of the patients after surgical treatment of ODS *(Raahave et al., 2018 and Bove et al., 2012 "Part I")*.

How we reached the concept of combined surgery:

- Some patients with rectocele managed with VMR showed less adequate results after rectocele repair.
- Those patients were found to have associated slow-transit constipation (proved preoperatively and showed no improvement postoperatively)

How we reached the concept of combined surgery (Continued):

- Those patients showed adequate improvement after resection of dolichosigmoid.
- In literature, it is difficult to find poor rectocele repair outcomes related to slow-transit constipation due to the exclusion of such combined cases from most of studies

Previous studies:

- A study reported variable results of five patients with preop. slow-transit constipation (from excellent to poor outcomes) *(Mercer-Jones et al., 2004)*
- Another study reported poor oucome (7/26) due to slow-transit constipation and were associated decreased urge to defecate *(van Dam et al., 2000)*
- Moreover, another study reported three patients with PO various degrees of constipation due to slow-transit time *(Mellgren et al., 1995)*

How we reached the concept of combined surgery (Continued):

- The idea of our procedure (combined VMR and sigmoid colectomy) shares the same concept of the original technique known as resection rectopexy which is used in management of rectal prolapse with redundant sigmoid colon.

How we reached the concept of combined surgery (Continued):

- Colonic resection and rectopexy can reduce intussusception in 100% of cases, restore anal muscle tone (P = 0.002), reduce the descending perineum (P < 0.001) and accelerate colonic transit (P < 0.001) with stable results over time (based on a 5-year follow-up) Level V evidence, Grade C recommendation (Bove et al., 2012 “part II”).

Recommended procedure for Slow-transit constipation:

- Subtotal or total colectomy Level V evidence, Grade C recommendation (Bove et al., 2012 “part II”)

Indication for subtotal & total colectomy in constipation:

Level V evidence, Grade c recommendation (*Bove et al., 2012* "part II")

1. ≤ 2 weekly defecations
2. Duration of symptoms (mean 5-17 years)
3. The presence of symptoms such as abdominal bloating or pain, nausea, and vomiting that have a significant impact on the patient's quality of life
4. Failure of behavioural, dietetic, pharmacological and RTs to improve the symptoms

5. Radiological evidence of slow-transit constipation
6. exclusion of organic or functional pelvic floor disorders (obstructed defecation, Hirschsprung's disease) based on defecography and anorectal manometry
7. Exclusion of upper gastrointestinal tract dysmotility based on functional (manometric, scintigraphic) examinations, if dyspeptic symptoms are present
8. Normal results of psychological evaluation

Total or subtotal colectomy with reservation of ileocecal valve:

Level III evidence, Grade B recommendation (*Bove et al., 2012* "part II")

Subtotal colectomy with ceco-rectal anastomosis showed:

- Less incidence of fecal incontinence
- Less use of antidiarrhoeal drugs
- Fewer defecations per day

Can segmental colectomy lead to better functioning?

Level V evidence, Grade c recommendation (*Bove et al., 2012* "part II")

1. It appears that if the decision to undertake segmental colectomy is based on radiologically demonstrated segmental colonic slow transit
2. Good results can be achieved in 82%-96% of patients
3. Without this evaluation (CTT), the failure rate is 100%

Other options for slow-transit constipation:

Level V evidence, Grade C recommendation (*Bove et al., 2012* "part II")

Although antegrade enema showed the best results in constipation of neurologic origin, especially in pediatric group, the greatest improvement in QoL was observed in patients with concomitant fecal incontinence.

AIM OF THE WORK

- The aim of the work is to demonstrate the safety, feasibility, and effectiveness of LVMR combined with sigmoid colectomy with side-to-side anastomosis.

- The patient presented with two distinct pathologies, each warranted surgical correction in order to obtain tangible improvement in ODS symptoms.

PATIENTS AND METHODS

Study population:

- This series comprised female patients with rectocele-associated slow-transit constipation due to dolichosigmoid colon managed either in one or two stages.
- Any other anorectal pathologies were excluded.

Preoperative assessment:

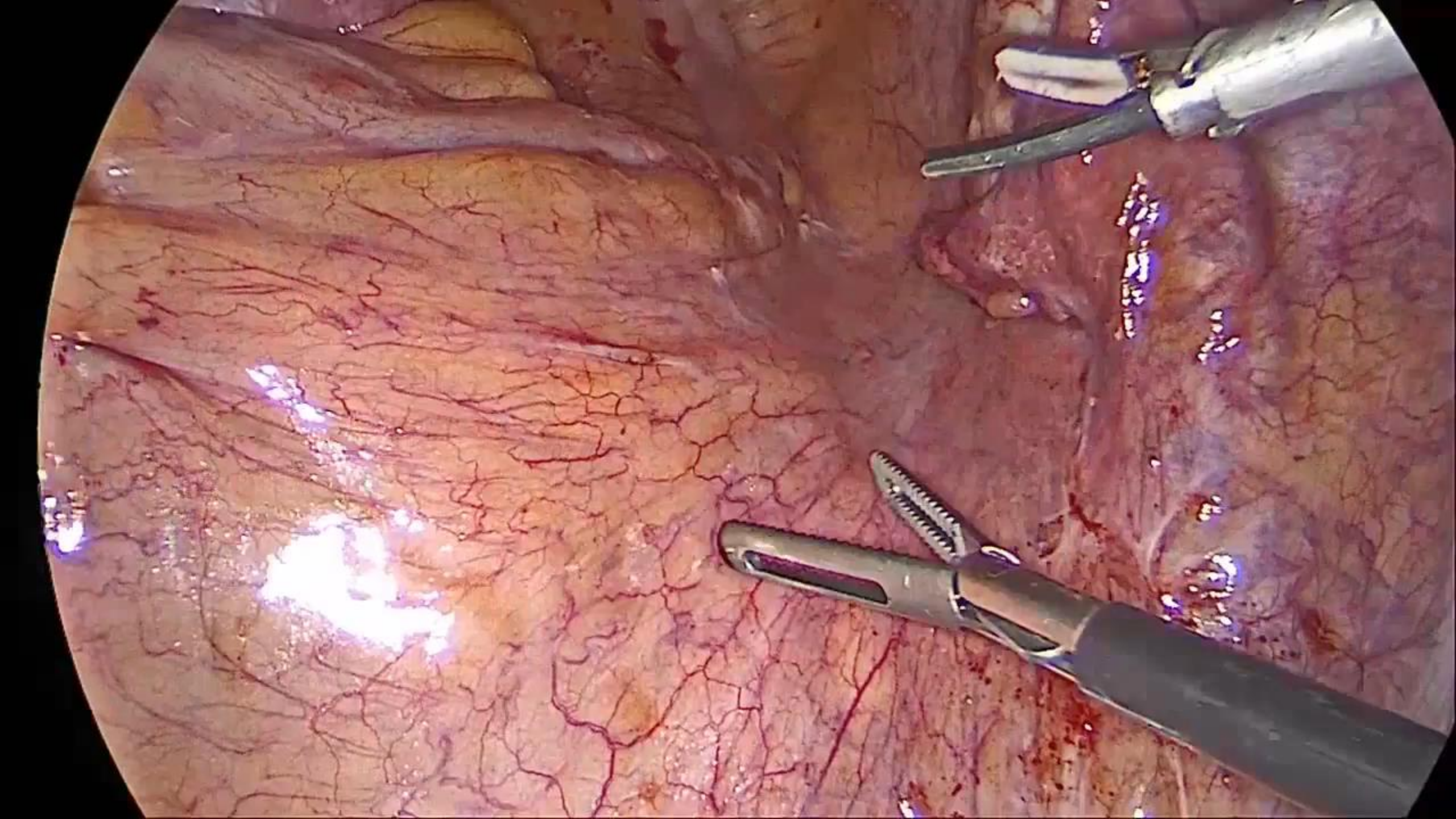
- CCCS and WIS
- PISQ-12
- PAC-QoL
- HRAM

Investigations:

- Fluoroscopic defecography
- Colon transit time

Note: previous study showed no evidence of the effect of rectocele on CTT even after the repair (Sloots et al., 2003).

SURGICAL PROCEDURE



RESULTS

Item	Value
Stages, 1-stage/2stage	17/3
Operative time (min.), mean ± SD	149 ± 23.3
Hospital stay (day), mean ± SD	4.2 ± 0.6
Time to 1st bowel movement (day), mean ± SD	3 ± 0.7

Among the reported 20 patients, only three were subjected to staged procedure

There was a significant improvement in all reported parameters

Item	Preoperative	PO 6m	PO 12m	P value*
CCCS, mean ± SD	17 ± 1.3	6.7 ± 2.1	5.8 ± 2.4	<0.0001
PISQ-12, mean ± SD	30.2 ± 2.4	34.2 ± 3.9	39.4 ± 2.4	<0.0001
PAC-QoL, mean ± SD				
• Dissatisfaction	66.8 ± 5	24.1 ± 6.8	25.3 ± 6.8	<0.0001
• Satisfaction	0.7 ± 0.9	9.1 ± 2	8.8 ± 2.3	<0.0001
Defecography				
• Size of rectocele (cm), mean ± SD	4.8 ± 0.9	0.6 ± 0.6		<0.0001
• Barium trapping, yes/no	18/2	0/20		<0.0001
HRAM, mean ± SD				
• MRP (mmHg)	78 ± 14.5	71 ± 14.6	75 ± 14.3	<0.0001
• MSP (mmHg)	174 ± 25.7	158 ± 17.3	159 ± 16.9	0.0002
• Desire to defecate volume (ml)	156 ± 19.9	75 ± 10.5	79 ± 10.6	<0.0001
• Maximum tolerable volume(ml)	200 ± 28.4	134 ± 23.2	139 ± 23.9	<0.0001

- Subgroup analysis showed no significant difference between those who were subjected to single stage and those subjected to staged procedure.

Item	Single stage	Two stage	P value
CCCS, mean ± SD	5.8 ± 2.5	6 ± 1.7	0.9
PISQ-12m mean ± SD	39.5 ± 2.5	38.7 ± 2.1	0.6
PAC-QoL, mean ± SD			
• Dissatisfaction	25.4 ± 6.9	25 ± 7.9	0.9
• Satisfaction	8.7 ± 2.4	9 ± 1	0.8
Defecography			
• Size of rectocele (cm), mean ± SD	0.5 ± 0.6	1 ± 0.5	0.8
• Barium trapping, yes/no	0/17	0/3	1
HRAM, mean ± SD			
• MRP (mmHg)	73 ± 10.3	84 ± 30.6	0.2
• MSP (mmHg)	159 ± 18.2	158 ± 8.5	0.9
• Desire to defecate volume (ml)	79 ± 11.4	81 ± 6.1	0.7
• Maximum tolerable volume(ml)	138 ± 25.5	149 ± 5.1	0.5

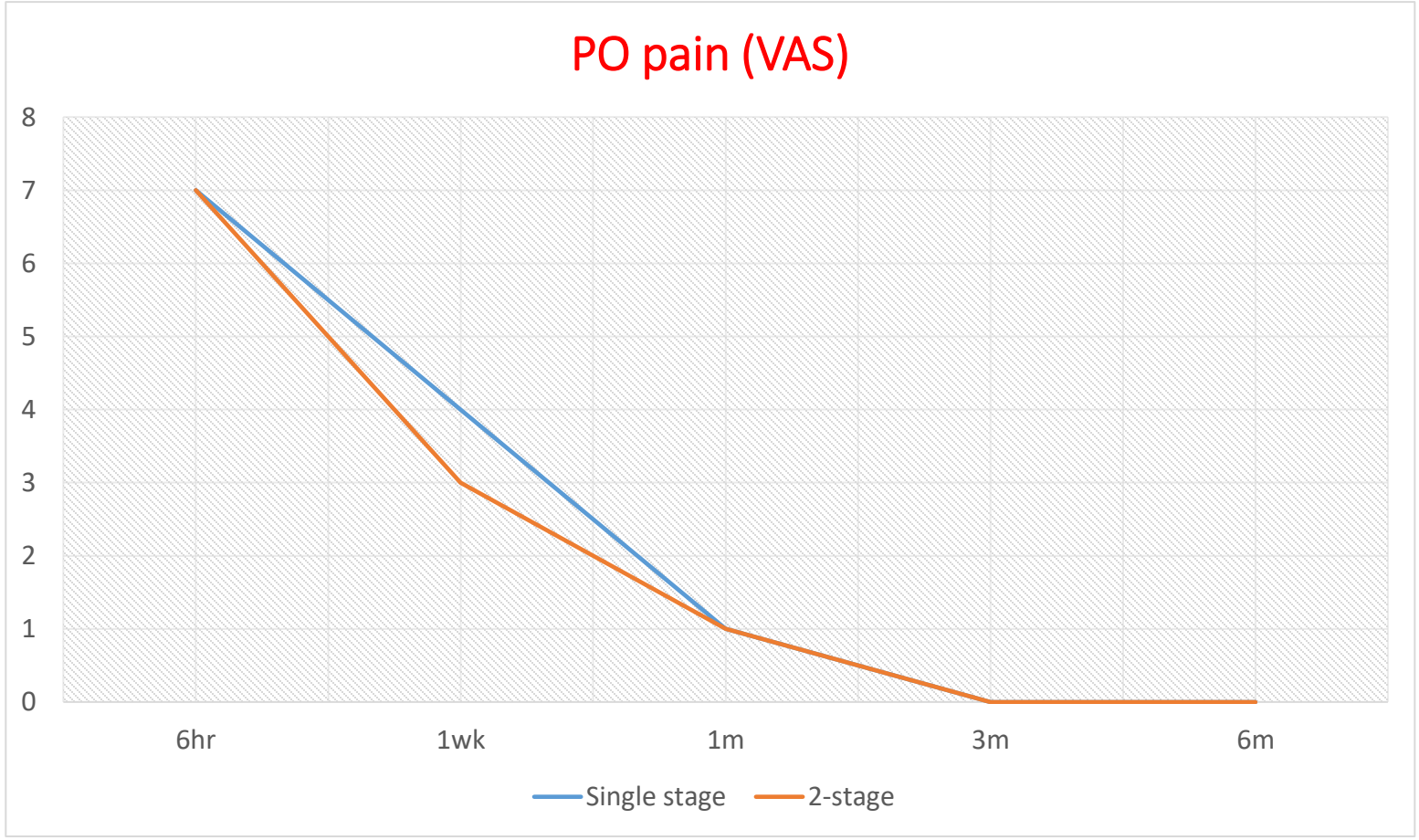
- unfortunately., QoL in the staged group was assessed in the 2nd stage only

On the other hand, single-staged procedure showed significant less operative time and intraoperative blood loss.

The complications were comparative between both subgroups.

Item	Single stage	Two stage	P value
Operative time (min.), mean ± SD	142 ± 18.5	185 ± 8.7	0.001
Hospital stay (day), mean ± SD	4.2 ± 0.6	4.3 ± 0.6	0.8
Time to 1st bowel movement (day), mean ± SD	2.9 ± 0.7	3.3 ± 0.6	0.4
Complications			
• Blood loss (ml), mean ± SD	30 ± 5.3	50 ± 5	<0.0001
• PO He, yes/no	1/16	0/3	1
• Urine retention, yes/no	2/15	0/3	1
• SSI, yes/no	2/15	0/3	1
• Fever, yes/no	2/15	1/2	0.4

Comparable results regarding PO pain assessed using VAS up to 6 months.



CONCLUSIONS

- In experienced hands, this combined procedure offers adequate results as the staged procedure with more favorable economic properties.
- Cost evaluation requires a formal assessment to compare the economic burden.
- More accurate QoL is required to adequately compare the two procedures (single vs two-staged procedure).

RECOMMENDATIOS

- Start with VMR and use synthetic light-weight marcoporous mesh
- Then, proceed with tubular resection with preservation of the mesocolon
- Restore bowel continuity with side-to-side isoperistaltic anastomis
- In case of long segment colonic inertia, subtotal colectomy with preservation of ileocecal valve is recommended (Sarli’s or deloyers procedures)

- More studies with larger sample size are required
- Consider application on patients with rectal prolapse with or without slow-transit constipation.

Thank You