



Taeniectomy as neo-rectum after low anterior resection

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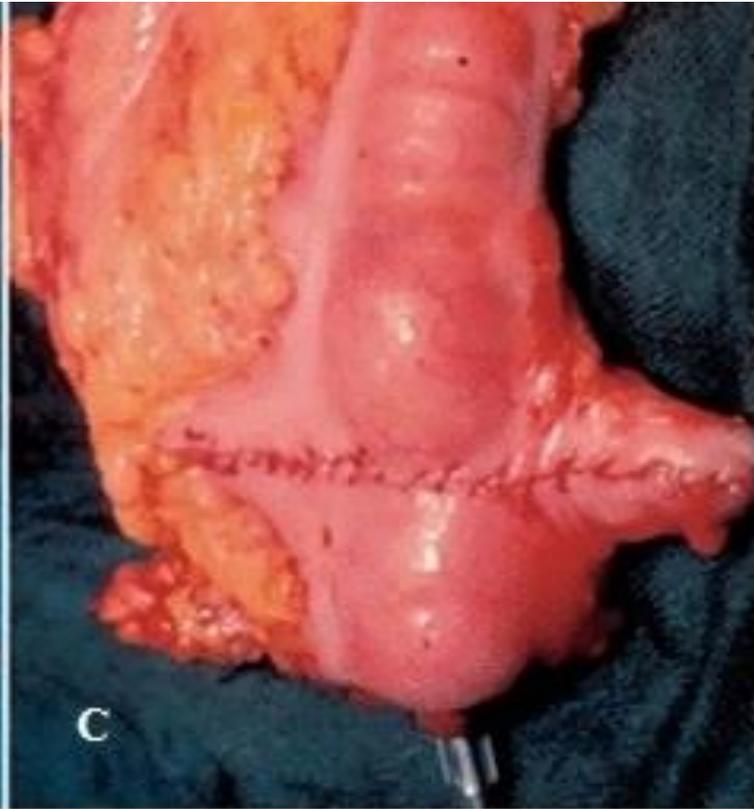
Introduction



- Restorative surgery for rectal cancer is criticized by concerns about the functional outcomes as incontinence and high stool frequency, especially when ultra-low colorectal anastomoses are required.
- Pouches described in literature include Colonic J-pouch and transverse coloplasty.



- While colonic J-pouch anastomosis can overcome some of the unfavorable functional outcomes of straight colo-anal anastomosis, it comes with the additional problems of being technically difficult and the difficulty with pouch evacuation.
- Consequently, coloplasty has been described to avoid drawbacks of J-pouch



Aim of work



- In this study, the taeniectomy pouch after low anterior resection of the rectum was assessed in comparison to other pouch techniques described. Functional outcomes of the new technique were assessed about frequency of bowel motions, urgency, incontinence and difficulty of evacuation

Methodology



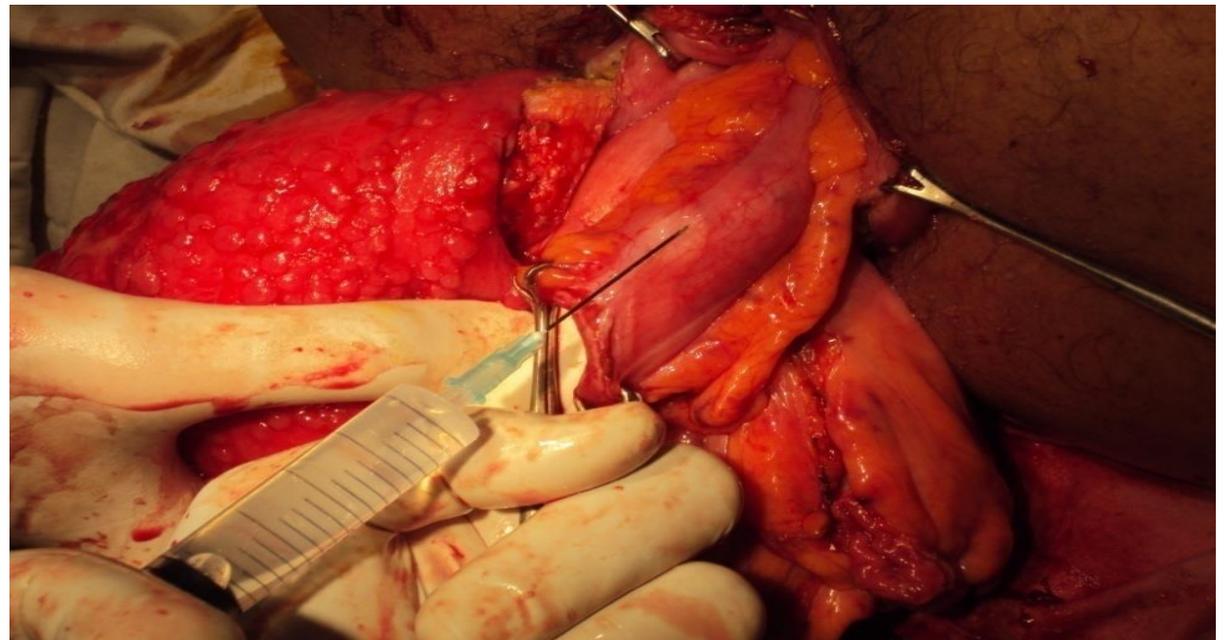
- This was a prospective cohort study. All patients who were candidate for low rectal resection presented to colorectal unit at Cairo university hospitals during the period from February 2013 to February 2015 were included in the study. It ends up into 90 patients.
- Safety and feasibility of the new technique were assessed about operative time, leakage, post-operative urgency, incontinence, number of daily motions and difficulty in evacuation. These parameters were assessed clinically, by means of defecography and anorectal manometry.

Methodology



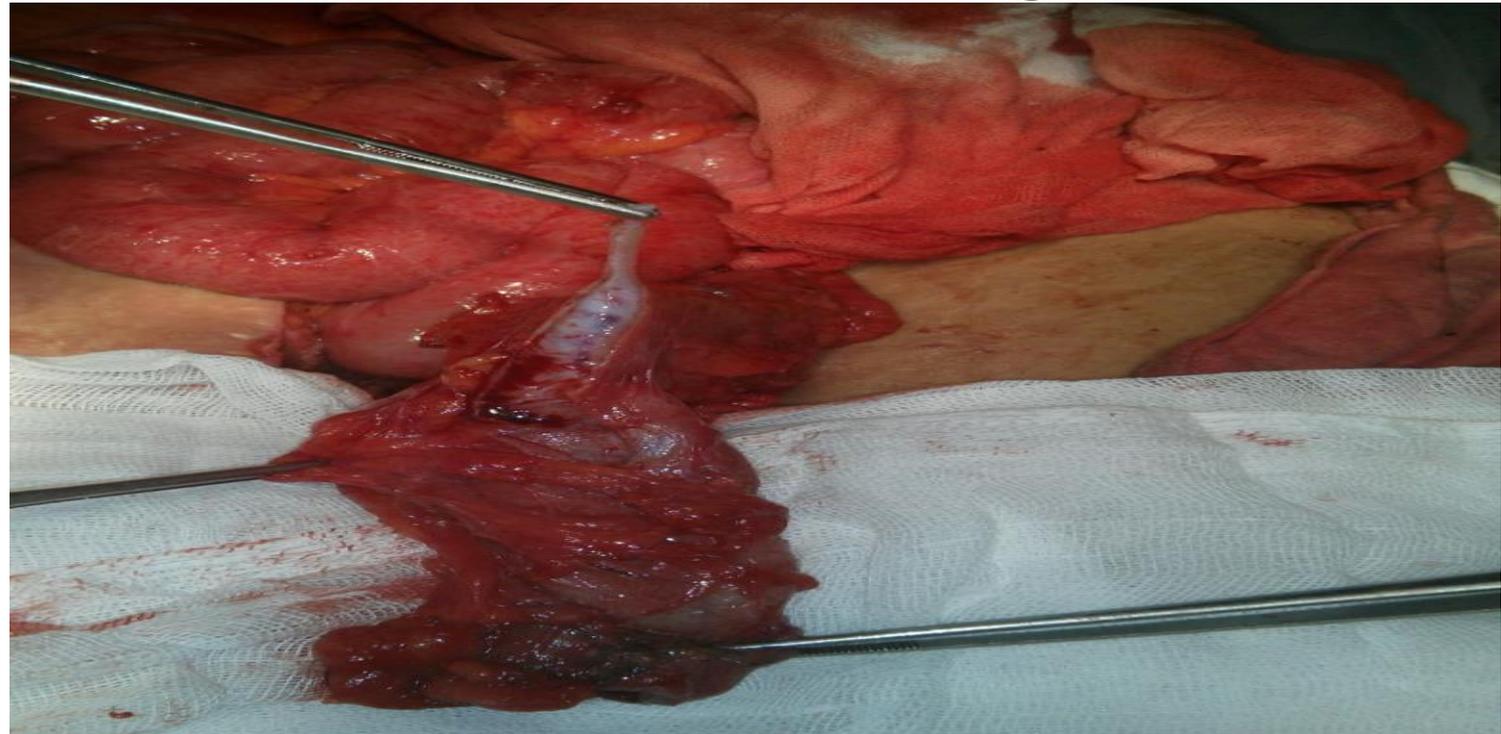
- Technique:

Four cm proximal to the distal cut end of the colon, the anti-mesenteric tenia coli was identified. The submucosal plane of the chosen teniae coli was infiltrated with 20 ml of adrenaline in saline solution (1:100000) for 20 cm. (Figure 1)

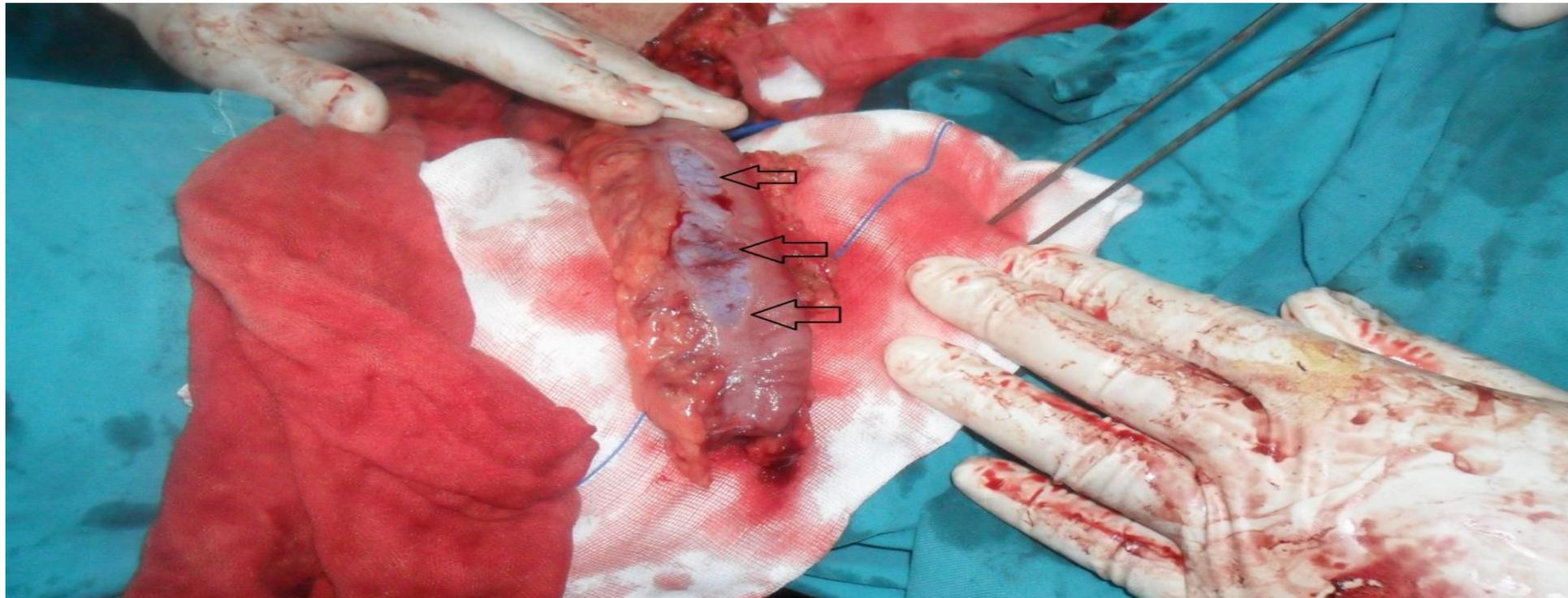




- Dissection of the anti-mesenteric tenia from the submucosal plane was done using scissors for 20 cm. Careful dissection prevents breaching the submucosa and leaving it intact. (figure 2)



- The integrity of the mucosa was confirmed by visually inspecting the mucosa from outside, during gentle finger palpation from inside and by injecting 100 ml of methylene blue colored saline into the pouch.





- The pouch was then anastomosed to the distal anorectal stump end. Integrity of the anastomosis was checked using methylene blue dye. Diverting loop ileostomy was done for most of the patients (85 from 90 patients included in the study).



- ***Statistical analysis***

Data were statistically described in terms of mean \pm standard deviation (\pm SD), median and range, or frequencies (number of cases) and percentages when appropriate.

Results



- Mean age of patients was 49.6 years.
- Percentages of post-operative mortality and post-operative leakage were 2.2% (2 from 90) and 3.4% (3 from 88) respectively.
- Mean operative time was 117 minutes. Mean number of daily motions per day were 3.04 and 1.52 at 3 and 12 months respectively.
- Mean Wexner score for continence at 3 and 12 month were 3.21 and 1.32 respectively.
- Mean resting pressure was 51.63 mmHg, squeeze pressure was 130.42 mmHg and mean threshold volume was 118.68 ml.



- Mean number of motions per day was 3.04 at 3 months and 1.52 at 12 months.

- ***Difficulty in evacuation***

There was no difficulty in evacuation. All patients did not report the need of enemas or laxative for pouch evacuation. This was confirmed clinically and by complete evacuation on defecography.

- ***Urgency***

Three patients showed urge incontinence and inability to defer defecation for 15 min.



- The 2 cases of post-operative mortality. The first one was a 67-year-old male who was known to be cardiac died on the third day post operatively with extensive myocardial infarction. The second was a 72-year-old lady that died from massive Pulmonary embolism on the 9th day post-operative.
- There were three cases of post-operative leakage. The first case of leakage was diagnosed on the 4th postoperative day. Reoperation revealed a small opening in the anterior wall of the anastomotic line- not the taeniectomy pouch-, Peritoneal lavage and diverting loop ileostomy were done- as it was not done in the first operation-, with wide pored drains inserted. The patient had a smooth post-operative recovery, the bowel continuity was restored 6 weeks later and the patient completed the follow-up.



- The other 2 cases of leakage were diagnosed on the 5th and 7th day post-operative respectively when the patients developed pain, fever and tachycardia. Gastrograffin enema revealed a minor leak in both cases. CT scans showed mild to moderate pelvic collections in both patients near the anastomotic site that was drained via CT guided aspiration and insertion of a pig-tail drain for 5 days. Conservative management in both patients were successful and both patients completed follow-up.

Discussion



- **Operative time**

In their study Ho et al. in 2002 described mean operative time of 110 minutes for construction of Transverse coloplasty. Also in a study done by Yik Hong the mean operative time of 110 minutes. In taeniectomy pouch described in this paper mean operative time 117 minutes This is comparable to transverse coloplasty in those 2 studies.



- **Mortality**

Pimentel et al. conducted a study in 2003 with no mortalities in the transverse coloplasty. On the other hand, in Yik Hong study in 2002 there was 7% mortality in transverse coloplasty. In the Ho et al. study mortality rate was 2.27 %. [11]. Mortality in taeniectomy group was 2.22%, which is comparable to the previous studies.



- **Leakage**

In their study Pimentel et al had leakage rate of 6 %. Z'graggen and Büchler reported in a study, which included 41 patients with transverse coloplasty after low anterior resection, an anastomotic leakage rate of 7.3% (3/41 patients). In taeniectomy group, leakage was 3.4 %. When compared to the overall leakage rates in the previous studies, it is comparable or even lower than them.



- **Motions per day**

Pimentel et al. results showed mean number of motions of 3.12 at three months and 2.12 after twelve months. On the contrary, number of bowel motions in a study held by HO et al was higher, with 4.6 and 3.4 in six and twelve months respectively. In taeniectomy pouch the mean number of motions was 3.04 after three months and 1.52 after twelve months. These results are comparable to the overall number of motions in the results of previous studies.



- **Grade of continence**
- The grade of continence in this study was evaluated by Wexner scoring system, in which 0 is perfect continence and 20 is complete loss of continence Pimentel et al. used Wexner scoring system in their study in 2003 where the continence grade was 3.2, 2.9 and 2.7 at three, six and twelve months postoperatively. In Ho et al. study in 2002, continence grade was 3.2 in both early- 4 months- and late- 12 months follow up. [11]
- In the newly described taeniectomy pouch, the mean continence was 3.21 in three months and 1.32 after one year. These numbers come in favor to the concurrent study when compared to the previous studies.



- **Urgency**

In the current study, three patients (3.57%) had urgency that improved markedly by the end of one year. This is comparable to Pimentel et al who had 10 % urgency in their study. This also goes with Z'graggen who reported urgency of 16% of cases after 6 months, to drop to 6% after 12 months. On the contrary, Fazio et al. in 2007 reported persistence of urgency in 23.3% of patients with coloplasty.

Outcomes and limitations of this study



- Taeniectomy pouch is comparable to the widely accepted transverse coloplasty which can be used as alternative to it being theoretically safer and easier.
- However, a larger study comparing the newly described pouch to the widely accepted transverse coloplasty need to be conducted.
- Also, grade of continence should be assessed pre-operatively, by both clinical assessments using any of available scores of continence- and manometrically for all patients who are candidates for colonic pouches. This may help to have a baseline of continence and avoid misinterpreting a patient with already decreased continence as a post-operative complication.
- So, we are working on a cohort comparison study comparing our new technique to the widely accepted transverse coloplasty pouch.



Conclusion

- Taeniectomy is a novel technique in the field of colorectal surgery. It is applied with the aim of decreasing number of anastomoses and hence decreasing leakage, added to this being technically not demanding. Taeniectomy can be used as an alternative to TCP, however further larger studies are needed for more detailed assessment.



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Taeniectomy pouch as neorectum after low rectal resection.

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⊕ Author information



- Thank you
- Questions??