Ann Colorectal Res. 2019 June; 7(2):e89956. doi: 10.5812/acr.89956.

Published online 2019 July 6. **Brief Report**

Short-Term Outcomes of Rectal Mucosa Sleeve Resection and Transverse Perineal Support Operation for Occult Rectal Prolapse, Rectocele and Descending Perineum: A Single Center and Single Team Experience

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Received 2019 January 27; **Revised** 2019 April 16; **Accepted** 2019 April 19.

Abstract

Occult rectal prolapse is a pathological condition that mainly affects women and is frequently associated with obstructed defecation. Numerous surgical procedures have been advocated for treating patients with obstructed defecation. In this study, we performed a retrospective analysis of the short-term surgical outcomes of combining internal mucosal resection with transverse perineal support in a single center with expertise in anorectal surgery. Resolution in obstruction symptoms was achieved with low morbidity. The use of sleeve resection of the rectal mucosa is a well-known and established procedure for occult rectal prolapse in obstructed defecation syndrome patients. Transverse perineal support operation has been recently adopted to correct defects of the perineum. In our preliminary experience, we report a combination in surgical techniques never described in the literature. Our preliminary results suggest that the technique is feasible, safe and reproducible. More patients and longer follow-up are required to be able to draw stronger conclusions.

Keywords: Rectal Prolapse, Outlet Obstruction, Delorme's Procedure, Mesh Perineal Support

1. Background

Occult rectal prolapse is a pathological condition represented by circumferential rectal infolding confined to the anal canal (1). This condition is more frequent in elderly women, and can be associated with rectocele (anterior rectal outpouching through an incompetent rectovaginal septum) and perineal descent. The latter condition is the result of a reduction in perineal muscle strength mainly due to previous pregnancy (particularly after long and difficult delivery), associated with a modification in force vectors during defecation.

Perineal descent is frequently associated with other anatomical abnormalities, as described above, in the obstructed defecation syndrome (ODS) (2). ODS is a debilitating condition with the main symptoms of prolonged straining, sensation of vaginal lump, incomplete evacuation, vaginal splinting, need for anal digitation or perineal manual support, and difficult evacuation of hard stool.

Surgery represents the main form of treatment for patients presenting with ODS symptoms in association with occult rectal prolapse and perineal descent with or without rectocele. Numerous procedures have been advocated for surgical correction (3, 4).

The Delorme and Sarles procedures are based respectively on circumferential and anterior hemicircumferential rectal mucosal sleeve resection and imbrication of the muscularis layer. These perineal approaches, usually reserved for old and frail patients, are considered very safe and provide relief from constipation (5).

The transverse perineal support (TPS) operation first described by Renzi et al. (6) is an interesting technique for perineal descent correction with the use of a biological mesh to reinforce the transversus superficialis perinei muscle. TPS can be combined with other surgical procedures aimed at resecting or suspending the prolapse.

2. Methods

We performed a retrospective analysis of short-term surgical outcomes of combining internal mucosal resection (Internal Delorme or Sarles operation) with TPS in

ODS patients in a single center with expertise in anorectal surgery.

All the procedures were performed by the same surgical team trained in anorectal surgery (E.M. and F.C.).

Patients were referred to our Proctology and Pelvic Floor Center for rectal outlet obstruction symptoms (excessive straining, difficult defecation, need for anal digitation or vaginal splinting, daily use of laxatives or enemas, fragmented evacuation) lasting more than six months. In particular, the patients were evaluated for ODS symptoms, ODS Score, home diary, Bristol stool scale, and Rome IV criteria. Dietary modifications with increase in fiber intake, probiotics, and stool softeners were prescribed according to the Bristol stool scale and home diary. In patients with two or more positive criteria for IBS with predominant constipation, a medical evaluation was prescribed. Mean ODS Score at time of diagnosis was 17.3. In Table 1, the patients' characteristics are summarized.

Table 1. Patients' Characteristics

Patients' Characteristics	Data
Number of patients	15
Females	15
Mean age, y	52.3
Number of patients with excessive and prolonged straining lasting at least 6 months	15
Number of patients requiring vaginal splinting at least once/week	5
Number of patients requiring anal digitation at least once/week	4
Number of patients requiring the daily use of enemas	8
Number of patients with daily fragmented evacuation and/or sensation of incomplete evacuation	15
Prevalent symptoms of slow transit constipation	1
Pre-operative mean ODS Score	17.3
Number of patients with previous prolapse surgery	1 (STARR procedure)

Pre-operative evaluation was based on a detailed medical history, clinical evaluation, anoscopy/proctoscopy, colonoscopy and defecography. Colonic transit time was requested only to rule out predominant slow transit constipation.

The aim of the present study was to report the short term outcomes of an old and well-known procedure (sleeve resection of the rectal mucosa) in combination with a quite new procedure - TPS. In the literature, this is the first publication about the combination of the two described procedures in the surgical treatment of ODS patients.

All patients provided informed consent for the procedure. The steps of the surgical procedure are depicted in Figures 1 - 6.

Figure 1. Pre-operative evaluation with patient in the lithotomy position. Descended perineum is well visible.

3. Results

At our Proctology and Pelvic Floor Center, we performed 15 consecutive mucosal sleeve resection with TPS for occult rectal prolapse with rectocele and descending perineum in the period from March 2018 to October 2018. All patients were female with a mean age of 52.3 years (range: 38 - 75).

Operative time ranged from 2 hours to 2 hours and 30 minutes. Intra-operative blood loss was minimal due to extensive use of irrigated bipolar forceps. No intra-operative complications were recorded.

Early post-operative complications (within 30 days of operation) included local septic complications with perirectal suffusion and retropneumoperitoneum (n = 1), fever without radiological signs of a local septic process

Figure 2. Internal Delorme is completed; the rectal mucosa is stripped off the muscular plane.

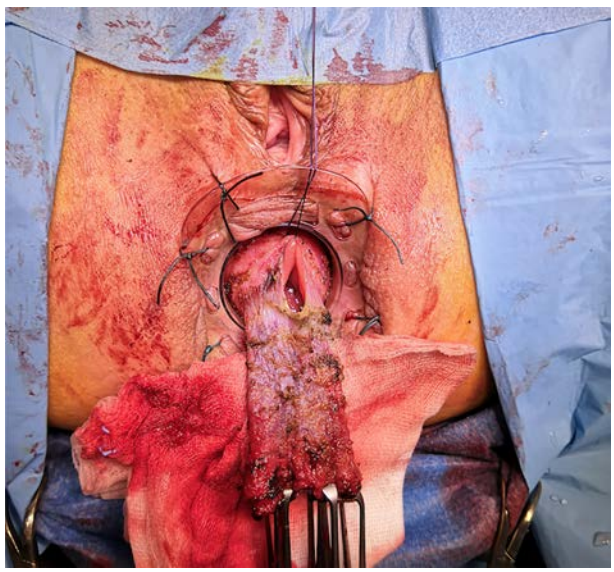

Figure 3. Rectal mucosa is partially excised and anorectal anastomosis is commenced.

(n = 2), mild perineal hematoma (n = 5), urinary tract infection (n = 1), and urinary retention (n = 1). Reoperation rate was nil, as was the rate of interventional radiology/endoscopic procedures. Only grade I and II complications, according to the Clavien - Dindo classification, were

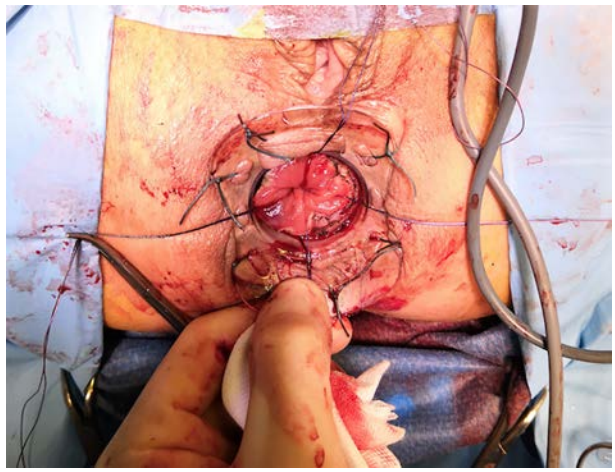

Figure 4. The anastomosis between the anal canal and the rectum is almost completed.

Figure 5. The biological mesh is placed anteriorly to the transversus superficialis perinei muscle.

recorded during the perioperative time.

The numerical rating scale was used for post-operative pain evaluation. Mean NRS was values were 4.7 (range: 4 - 7) and 3 (range: 2 - 6) on the first and third post-operative days, respectively. The location of referred pain was mainly at the level of skin incisions. First stool passage was uneventful in all patients; only minor and self-limited bleeding was reported during the first week. Mean hospitalization time was 4.3 days (range: 3 - 10). Re-admission rate and mortality were 0%. Mean post-operative ODS Score at 30 days was 8.5, dropping from 17.3 at the time of diagnosis.

Concerning late post-operative complications (after 30 days from surgery) we recorded two cases of anastomotic narrowing (n = 2) in Delorme's patients, persistent fragmented evacuation with sensation of incomplete evacuation (n = 1) in a Sarles' patient with pre-operative symptoms of slow-transit constipation. In particular, one of the

Figure 6. Final aspect with the complete correction of the perineum

two patients with anastomotic sub-stenosis requested endoscopic dilation; the other patient found that manual dilations in the outpatient clinic were therapeutic. The patient with persistent symptoms of fragmented evacuation and sensation of incomplete evacuation was sent for pelvic floor retraining and biofeedback. In all other patients (n = 12), follow-up was uneventful (median follow-up of 4 months).

4. Discussion

A wide number of surgical approaches have been proposed for the treatment of occult rectal prolapse, rectocele and perineal descent in ODS patients (5). All the surgical procedures are aimed at restoring the abnormal anatomy. However, we must remember that anatomical restoration is not always followed by functional restoration. This consideration appears of paramount importance when counseling patients for surgery. Moreover, a "functional" procedure has to carry low short and long-term percentages of complications.

The use of sleeve resection of the rectal mucosa is a well-known and established procedure for occult rectal prolapse in ODS patients (7). The technique is aimed at reducing the redundant and obstructive rectal mucosa, shrinking a wide rectal ampulla, and finally facilitating a regain in rectal sensitivity, which is diminished in most ODS patients due to rectal chronic dilation, pudendal neural damage, and recurrent recto-anal intussusception (8). This procedure also allows the correction of the concomitant rectocele through the trans-anal route. On the other hand, the presence of perineocele and perineal descent cannot be completely addressed by this technique. We decided, according to a recent publication by Renzi et al., to perform the TPS operation to correct the defect of the lower level described by De Lancey in patients suffering from ODS. The latter technique appears in Renzi's publication as feasible, safe and adaptable to different surgical procedures for rectal prolapse. In his experience, he applied the TPS operation mainly in stapler prolapse surgery (6). In our preliminary experience, we report the first application of TPS in adjunction with the internal Delorme operation ever described in literature. The operative time we recorded was mainly dependent on the amount of rectal mucosa excised (circumferential vs. anterior) and the surgeon's learning curve. In consideration of our preliminary results, the approach to ODS patients with rectal mucosa sleeve resection and TPS seams feasible, safe and reproducible. The main complaints by patients in the post-operative time were related to the perineal incisions and the formation of mild hematomas in the perineal area. The latter was reduced in the last 10 cases (without any statistical significance) by the adoption of a modification in the technique based on the use of a dissecting trocar instead of blunt finger dissection of the perineal space as described in the original technique (9). In our short-term follow-up, we did not find any mesh-related complications, and no sexual disturbances were reported. In the analysis of the early post-operative complications, they were mostly related to the mucosa sleeve resection procedure (10). All such complications were treated without any invasive procedures. Regarding late complications (more than 30 days after surgery), two patients were found to have narrowing of the anastomotic rim. In one of these patients, digital massages were enough to dilate the anastomosis; in the other patient, the main complaint was a narrowing of the stool caliber, and an endoscopic dilation was requested. Concerning the resolution of obstructive symptoms, we achieved good results with a reduction in the pre-operative mean ODS score. In one patient in whom obstructive symptoms co-existed with colonic slow-transit constipation, the resolution of ODS was transient. At three months from surgery, the patient was commenced on a biofeedback program with mild amelioration of symptoms after a two-week course.

From our preliminary experience, we can conclude that the technique has low morbidity, is well tolerated by patients, and has a good effect on obstruction resolution. The main indication for this procedure is suggested as occult rectal prolapse associated with rectocele and perineal descent in patients referred mainly for rectal outlet obstruction. For patients with predominant symptoms of slow transit constipation, the surgical approach may not be as effective. Concerning the age of the patients, the perineal approach is performed under loco-regional anesthesia and seems useful both in elderly and frail patients as

well as in young patients. This last consideration seems very important in women in the childbirth age. The use of a perineal approach avoids any dissection close to the reproductive organs, abolishing the risks of adhesion formation and consequent reduction in fertility. Moreover, the use of an abdominal approach (mainly laparoscopic ventral mesh rectopexy (LVR) nowadays) might be relatively contraindicated in patients affected by occult rectal prolapse suffering from outlet obstruction given the risk of an increase in obstructive symptoms. Concerning the efficacy of Delorme's procedure, a recent publication by Emile et al. (11) compared the procedure with LVR in patients affected by complete rectal prolapse, where it was concluded that neither procedure had definite superiority in terms of clinical and functional outcomes.

In the present study, bias is mainly related to the small number of patients and the short-term follow-up. More patients and longer follow-up are needed to be able to draw stronger conclusions. Our preliminary experience suggests a valid role for rectal mucosa sleeve resection combined with TPS in treating patients affected by occult rectal prolapse and perineal descent. The technique appears to be reproducible and leads to low rates of early and late complications.

Footnotes

Authors' Contribution: All authors have made substantial and significant contributions to this work.

Conflict of Interests: The authors declare no conflict of interest.

Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional and/or National Research Committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Funding/Support: It is not declared by the authors.

Patient Consent: Informed consent was obtained from all individual participants included in the study.

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