



Hybrid Hemorrhoid Artery Ligation: A Novice Technique to Treat Non Reducing Hemorrhoids

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Abstract

Hemorrhoids are defined as the symptomatic enlargement and distal displacement of the normal anal cushions. The most common symptom of hemorrhoids is rectal bleeding associated with bowel movement. In most instances, hemorrhoids are treated conservatively and non-operative approaches include sclerotherapy and, preferably, rubber band ligation. An operation is indicated when non-operative approaches have failed or complications have occurred. Several surgical approaches for treating hemorrhoids have been introduced including hemorrhoidectomy and stapled hemorrhoidopexy, but postoperative pain is invariable. Some of the surgical treatments potentially cause appreciable morbidity such as anal stricture and incontinence. Here we report a novel hybrid technique with less post-operative pain and complications.

Introduction

Hemorrhoid disease is a very common presentation to the proctologist with some series reporting up to 40% in the population [1]. It is a disease entity causing an abundance of symptoms and presentations. There are several clinical procedures that can be performed in an attempt to avoid the gold standard Milligan Morgan (MM) surgical intervention. MM is a painful procedure with a significant risk of post-operative complications [2]. In 1995, Professor Morinaga described a novice technique for surgical treatment of hemorrhoids using the Doppler guided ligation of the feeding end arteries of the superior rectal artery to the hemorrhoid plexus leading to symptomatic relief [3]. This led to the adoption of the Hemorrhoid Artery Ligation Doppler probe (HAL) and the use of this kit to perform the above ligation. Over the years this technique has been widely accepted and developed to treat grade II and III hemorrhoids and extrapolated to treat the prolapse associated with hemorrhoids by adding Mucopexy sutures to reduce all the prolapsed tissue back in to the anal canal; the term used for the mucopexy is rectoanal repair (HALRAR) [3]. This technique has been adopted over the last two decades and reports have shown its efficacy and superiority in moderate grade hemorrhoids (II and III) however it is still controversial and lacks the consensus for the treatment of grade IV hemorrhoids where a residual prolapse is reported in up to 59% [4]. In this study, we report the use of a hybrid technique which combines ligation and MM based on the hemorrhoids type and grade in the patient. In the same patient ligation and Mucopexy are performed on grade II and grade III hemorrhoids and MM open hemorrhoidectomy is performed on the plexus that is resilient in prolapse. The primary aim of our study is to demonstrate the efficacy of this hybrid technique as a treatment option for mixed (of several grades in presentation) hemorrhoids with decreased recurrence rates and reduced use of analgesia.

Materials and Methods

A retrospective chart review of all patients who had hemorrhoid surgery using the Hemorrhoid Artery Ligation/ Recto Anal Repair (HALRAR) system for grade II, III, and IV between 1 June 2015 and 31 May 2018 was done. All patients who had a mixture of grade II and/or grade III hemorrhoids with one grade IV hemorrhoid were included in this study. Patients who had previous surgery were excluded. Follow-up was done in the clinic of the surgeon at two and four week's standard and then up to 12 months if needed. Ethical approval to conduct this study was obtained from the American University of Beirut Institutional Review Board prior to initiation.

Surgical procedure

All patients were seen and examined pre-operatively with routine blood count and urine analysis; all patients above 40 years had a preoperative clearance by cardiology and were prepped with a cleansing enema 4 h prior to surgery. All operations were done under proper anesthesia

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and as per surgical requirements. The HALRAR probe was handed over and connected to the Doppler AMI machine on the left of the patient so the surgeon can access the screen of the machine to his right. Examination under anesthesia was done using an Eisen hammer retractor and the grade IV hemorrhoid to be excised using a MM approach was identified. We then proceeded with the open MM hemorrhoidectomy using standard electrocautery cutting settings of 20 for the skin and fulguration setting of 35 for the submucosal dissection with the Valley lab Force triad platform generator (Medtronic, Minneapolis MN). During the MM hemorrhoidectomy all internal anal sphincter fibers were dissected off the hemorrhoid plexus and spared with dissection carried all the way up to the feeding pedicle of the hemorrhoid plexus where then it was clamped and the plexus cut using tissue scissors and the pedicle was then tied off with a suture ligation using 2/0 vicryl suture (J&J New Brunswick, New Jersey USA). Hemostasis was then achieved in the surgical bed with electrocautery when needed. Then the AMI HALRAR probe was connected and the hemorrhoid arteries were approached all around the anal verge around 6 cm from the dentate line in the 1,3,5,7,9, and 11 o'clock positions, without the two arteries corresponding to the plexus excised by MM approach in that particular patient. So each patient received 4 ligations of four arteries located 6 cm above the dentate line using a Pegasorb 2/0 vicryl suture with 5/8 needle and under Doppler guidance from the HALRAR probe. In addition, each of the above ligations were continued as running suture mucopexy all the way down to half a centimeter above the dentate line and then tied to the original ligation suture causing adequate reduction of all the prolapsed mucosa back into the anal verge. Hemostasis is last achieved by two 4 × 4 gauze wrapped into a cylinder and left in the surgical field for compression for a period of 5 min. After which, these gauzes were removed, and a foam cylindrical dressing was left in the patient's anal verge for postoperative hemostasis. Patient then left the operating room to recovery unit all in stable condition. Follow-up was done in the clinic of the surgeon at two and four weeks standard and then up to 12 months if needed.

Results

The cohort of patients that had the hybrid procedure over the period of the study is 55 patients, with mean age of 42 years, and male to female ratio was 0.77. Patients with grade IV and large grade III hemorrhoids were 88% in the group, none had liver disease and 40% were chronic smokers and 60% had chronic constipation. Our mean follow-up time was 6.8 months (0.25 to 65 months) with recurrence rate 6.2% and 14.5% used opioid analgesia for a period not more than 3 days after the operation and were opioid free at one week follow up in clinic. As for the complication rate in the group bleeding occurred in 2% post-operation and anal stricture in 2% both managed conservatively and did not necessitate operative intervention. None of our cohort had urinary retention or fecal incontinence post operatively. The follow up mean was six months where they were seen, and no symptoms documented and discharged from clinic; none of our patients presented back after that with new symptoms.

Discussion

Hemorrhoids are normal anatomic structures that are found in all erect mammals. It is well known that the gold standard for surgically treating hemorrhoids with grade 4 is the open MM with the least recurrence rates of 4% to 6%. However, this procedure is painful to patients as the surgical field is the anal canal full of sensory innervation. The healing time and pain can persist in up to 4 weeks

post operatively and patients usually report poor tolerance to the ensuing pain especially during the defecation process. Hemorrhoid ligation with recto anal repair has gained wide acceptance in the treatment of hemorrhoid that used to be tackled with a painful MM since it is better tolerated by patients and its pain scores are much better tolerated by patients [5-12]. The recurrence rate in HALRAR on grade II or III hemorrhoids is acceptable in the range of 4% to 9%; however when we use this approach for the larger grade 4 hemorrhoids the recurrence rates tend to increase to the range of 40% in the literature depending on technique and experience of surgeon [13,14]. However, the pain scores are always lower in the HAL patients as compared to open MM hemorrhoidectomy [15]. We have applied both procedures in the same setting to benefit from the low recurrence rate of grade 4 hemorrhoids in open MM technique and from the decreased pain scores in patients with HAL when patients present with different grades of hemorrhoids ie, combined moderate grade 2 and 3 with grade 4 in one plexus in the same patient. So, we tackled the grade 4 in open MM and the other moderate grade 2 to 3 in the HAL method, relying on the fact the at the less the incisions in the anal canal the less the pain score will be post-op. So, a single incision in the canal is definitely less painful than three to four incisions in the anal canal in MM. Our small cohort of cases did show the low recurrence rate of 5.4% for grade 4 mixed with grade three hemorrhoids when approaching with the hybrid method as compared to the literature recurrence rates with MM of 4 to 6% yet anesthetics intake was not as high as the MM scores when done for all plexus [16]. Our patients used opioid analgesia in 14.5% for three days post operatively only and the rest was the classical paracetamol extending for a week, comparing to literature in the classical MM the use of opioid analgesia can be as high as 20% to 42% [16]. So this hybrid method has shown that it provides a low recurrence rate for patients closer to MM rates but has less analgesia requirements and pain scores closer to the HAL method. The complication rates of anal stenosis and fecal incontinence are found to be minimal with this method in this cohort of 2% each which are closer to the MM rates as seen in literature [17]. Further RCT are required to further evaluate this hybrid method.

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