

Closed Hemorrhoidectomy with Linear Stapler: A Consecutive Series of 300 Patients

FABIO RONDELLI¹, LORENZO MARIANI², ANDREINO TASSI², PAOLO STELLA²,
PIETRO GIORGIO MARIANI², GIOVANNI BISTONI³ and ENRICO MARIANI²

¹Department of General and Oncologic Surgery, University of Perugia, Perugia, Italy;

²Department of General Surgery, Foligno, Italy;

³Department of Plastic Surgery, University of Rome 'Sapienza', Rome, Italy

Abstract. *Background:* Hemorrhoidectomy is one of the most commonly performed anorectal operations. The aim of this study was to evaluate the safety and the efficacy of a new technique for sutured closed hemorrhoidectomy with linear stapler in a consecutive series of 300 patients. *Patients and Methods:* Between January 2006 and December 2009, 300 patients (117 male, 183 female) (mean age, 52 (range 21-85) years) with grade III and IV hemorrhoids were treated with our modified technique with linear stapler with 6 cm vascular recharge. This technique essentially achieves a sutured closed hemorrhoidectomy. The primary end-points of the study were blood loss, time to achieve complete wound healing and recurrence; the secondary end-points were postoperative pain, operative time, hospital stay, patient satisfaction, need of analgesics and morbidity. *Results:* Post-operative bleeding occurred in 8 patients (2.7%), requiring surgical hemostasis in 2 patients (0.6%). Overall, 132 patients (44%) reported no presence of pain, 43% defined it as light, the remaining 13% reported it as moderate and required the use of painkillers for about 1 month. Eight patients (2.7%) required postoperative temporary bladder catheterization because of acute urinary retention. The mean operative time was 13 minutes and the hospital stay was one day in 282 patients (94%), two days in 12 patients (4%) and three or more days in the remaining patients. None of the patients developed anal stenosis or fecal incontinence; 1 patient reported gas incontinence. The median follow-up was 23.4 months. All patients had complete wound healing within 6 months. Two patients had recurrent disease and were re-operated on with the same technique. *Conclusion:*

Our modified sutured closed hemorrhoidectomy with linear stapler is a simple and safe technique and may be successfully applied for radical treatment in patients with third-degree or fourth-degree hemorrhoids.

Hemorrhoidal disease is a common pathology affecting 5% of the general population (1). Hemorrhoidectomy remains the definitive procedure for treating symptomatic grade III and IV hemorrhoids (2). For this procedure there are two established techniques: the 'open' Milligan-Morgan technique (3) and the 'closed' Ferguson technique (4). Known complications of these interventions are postoperative bleeding, infection, urinary retention, postoperative pain, incontinence, and late anal stenosis. Recently, further techniques have been established, such as stapled hemorrhoidectomy and hemorrhoidectomy conducted by means of electrothermal systems, harmonic scalpel and bipolar scissors (5-7). Wound closure helps to reduce postoperative pain and assures faster wound healing (8, 9).

Stapled suture lines heal by primary intention with a minimal inflammatory response resulting in superior wound strength during the critical first week following surgery (10); for this reason, we decided to utilize a linear stapler for the complete excision of the hemorrhoidal complex.

The purpose of this study was to evaluate the safety and the efficacy of the modified Ferguson hemorrhoidectomy with linear stapler and to investigate the incidence of the operative and postoperative complications.

Patients and Methods

Three hundred consecutively treated patients were operated on with a modified Ferguson hemorrhoidectomy with a linear stapler having vascular recharge between January 2006 and December 2009 at the San Giovanni Battista Hospital in Foligno, Italy and were included in the study. The average age of the patients was 52 years, with a range of 21-85 years. The number of males included was 117 (39%). No exclusion criteria were considered.

Correspondence to: Fabio Rondelli, S.C. di Chirurgia Generale, Ospedale San Giovanni Battista, Via Arcamone, 06034, Foligno (PG), Italy. Tel: +39 07423397760, e-mail: rondellif@hotmail.com

Key Words: Hemorrhoidectomy, linear stapler.

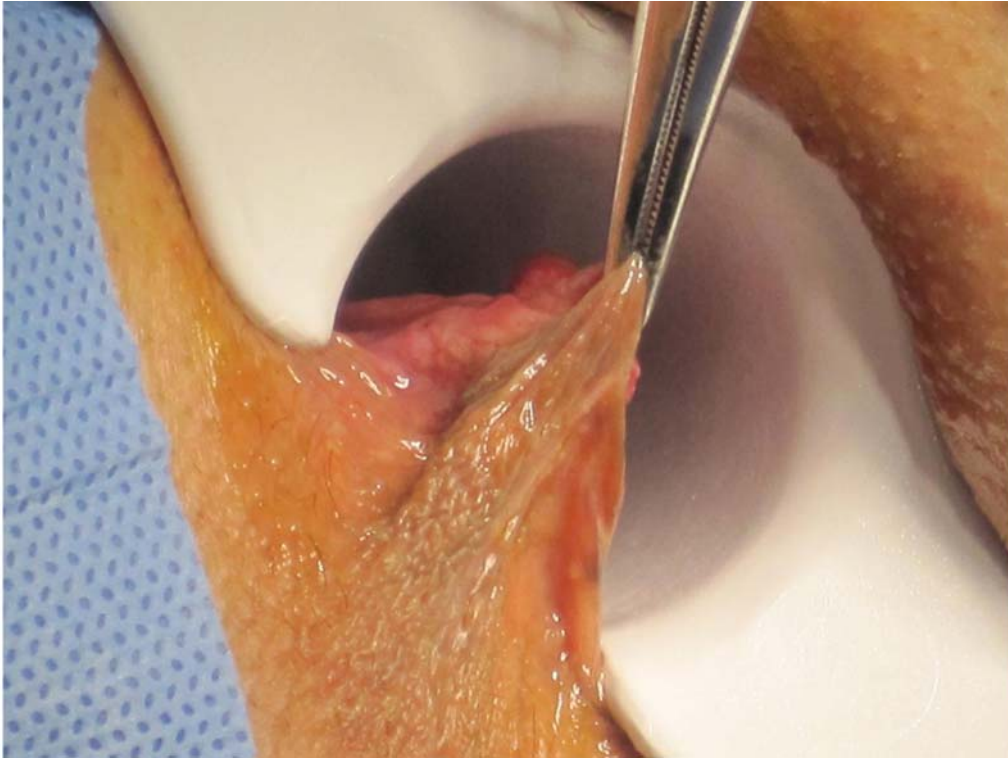


Figure 1. Hemorrhoidal complex was grasped and elevated.

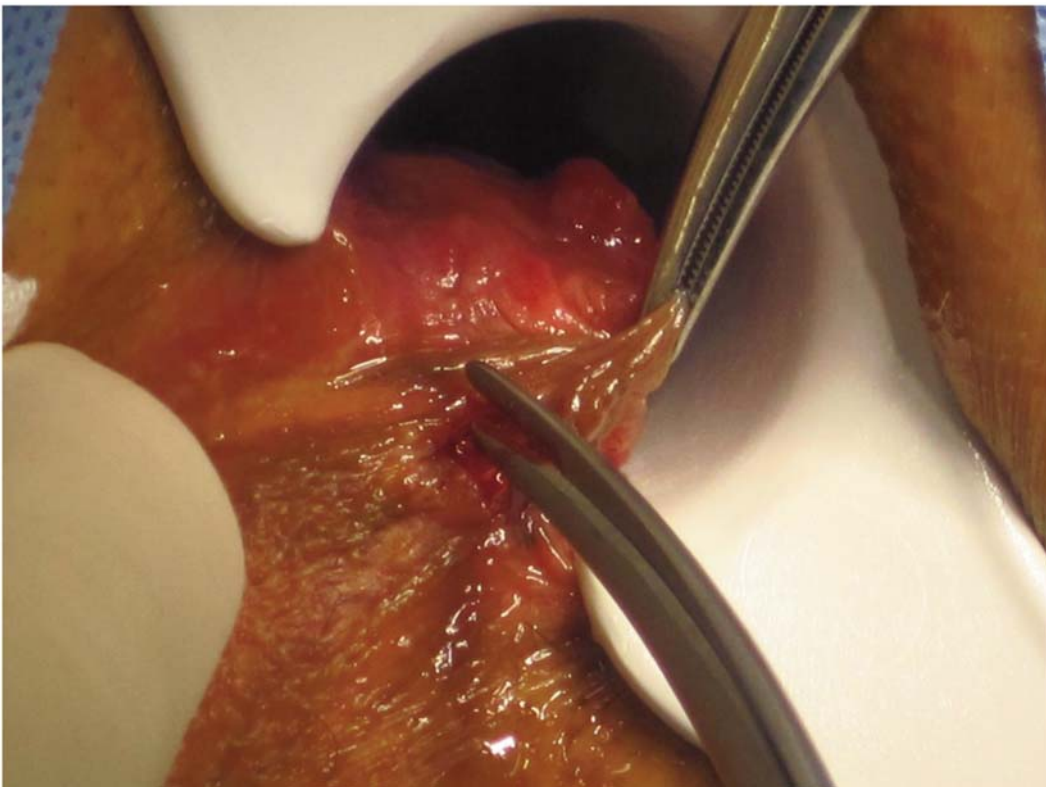


Figure 2. Cutaneous incision at the level of anal-cutaneous border.

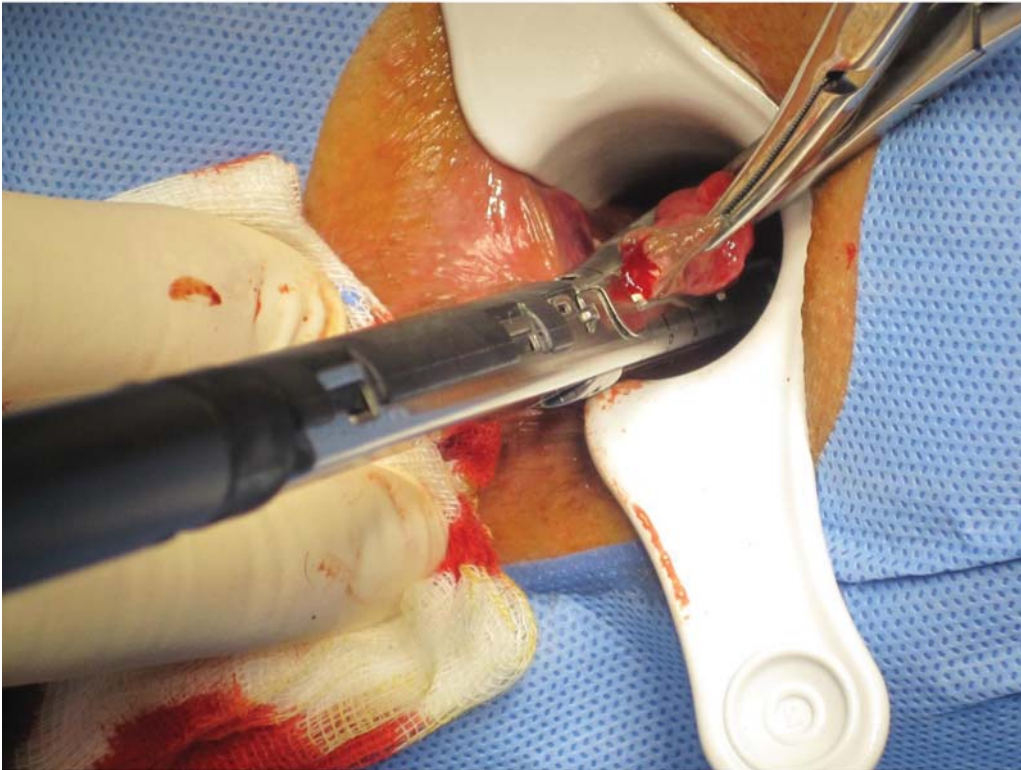


Figure 3. *The EndoGIA was positioned and shot beneath the external component.*



Figure 4. *The external clips were removed to facilitate the drainage.*

Surgical technique. Patients were operated on in the lithotomy position, with the buttocks tractioned laterally by two adhesive straps. The surgical technique used was hemorrhoidectomy according to Ferguson with a linear stapler. Hemorrhoidal complex was exposed using an operating anoscope. The internal and external components of each hemorrhoidal complex were grasped and elevated (Figures 1 and 2) and a cutaneous incision at the level of the anal-cutaneous border allowed for the identification of the inside sphincter; EndoGIA was positioned beneath the external component and was shot (Figures 3 and 4), without the necessity for isolating the mucous from the hemorrhoidal packet in the posterior wall. The most external clips are removed to facilitate the drainage of possible secretions and consequently reduce the risk of sepsis, only for a length of about 0.5 cm. The same procedure was performed on the principal hemorrhoidal complex.

Results

During the 4-year period, 300 patients with an average age of 52 (range 21-85) years, with symptomatic grade III and IV hemorrhoids were operated on with the modified Ferguson method. The severity of the hemorrhoids were classified as grade III in 187 patients and grade IV in 113 patients. During the study period, 23 patients (6.7%) required a surgical procedure in an emergency setting, and 277 patients underwent elective surgery.

Surgery was performed under spinal anesthesia in 234 patients and under general anesthesia in 66 patients. The mean operative time was 13 (range 11-18) minutes.

The hospital stay was one day in 282 patients (94%), two days in 12 patients (4%) and three or more days for the remaining patients.

Postoperative bleeding occurred in eight patients (2.7%), of whom two (0.7%) required surgical hemostasis. Forty-four percent of the patients (132) did not report any pain, 56% defined it as light, the remaining 13% defined it as moderate and required the use of painkillers for about a month. Eight patients (2.7%) needed bladder catheterization because of acute urinary retention. The average follow-up was 23.4 months. No patient developed anal stenosis or fecal incontinence, but one patient reported gas incontinence. All patients had a complete wound healing at 6 months and two patients had recurrent disease and were re-treated with the same technique.

Discussion

Hemorrhoidectomy is the most effective approach for hemorrhoidal disease, especially for grade III and IV hemorrhoids, and, recently, several new technologies have been employed for hemorrhoidectomy (11). The conventional open and closed hemorrhoidectomy procedures (3-4), and their modifications are well established, but both entail similar complications and a protracted postoperative course (12). This study describes a new technique that proves to be

safe, without any particular complications. This procedure associates the advantages of the closed hemorrhoidectomy (rapid scarring, little pain, low incidence of recurrence), with the advantages of the open hemorrhoidectomy (rapid, no infectious complications).

Postoperative urinary retention (2.7%) occurred with an incidence similar to that found after conventional operations (12-13). This complication might also have been influenced by the regional anesthesia. The troublesome anal stenosis that occurs in both the open and closed hemorrhoidectomy procedures with a frequency of 4-5% (12-14) seems to be eliminated with our technique. In this series, only two patients (0.7%) presented postoperative bleeding which required surgical hemostasis, although it is frequently encountered in conventional operations (12-13). Furthermore, only one patient presented gas incontinence, with an average follow-up of 23.4 months. The facilitating the drainage of the secretions by removing the last cutaneous clips, associated with the possibility to entirely remove the outer and inner component of the hemorrhoidal complex without having to create an isolation from the back muscular wall all along the packet itself, led to there being no wall infections in our series of patients, eliminating one of the most dangerous complications of the classic Ferguson technique (15), and moreover, scarring was optimal. There were only two recurrences and these were in patients suffering from chronic constipation. One of the advantages we registered in using this technique is that the treatment is radical, even in patients who suffer from IV grade hemorrhoids, with notably increased volumes of the outer and inner complexes, where the risk of bleeding and recurrence are very high.

Finally our data suggest a very high level of patient satisfaction, with only 13% of patients describing pain as being moderate and needing prolonged painkiller therapy. In closing, our preliminary report shows that hemorrhoidectomy performed with the linear stapler is a rapid (average operation time is 13 min), simple and safe technique for patients with symptomatic grade III and IV hemorrhoids.

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