



CAUTERY HEMORRHOIDECTOMY VS CONVENTIONAL HEMORRHOIDECTOMY PROSPECTIVE RANDOMIZED TRIAL DONE BETWEEN 2021-22

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ABSTRACT

Hypothesis: Cautery hemorrhoidectomy offers several advantages over excision hemorrhoidectomy, including reduced postoperative pain, an earlier recovery time and reduced hospital stay. Furthermore,

cautery hemorrhoidectomy is associated with lower hemorrhoidal recurrence on follow up **Study Design:** A randomized prospective trial. Patients were blinded to the operation technique used. Follow-up occurred at 1, 3 and 12 weeks postoperatively. **Place and Duration of Study:** Government medical college and hospital, Cuddalore. Duration-2021 & 22 Patients: Forty patients with second- and third-degree hemorrhoid disease were randomized to undergo either cautery or excision hemorrhoidectomy. All patients were subject to a follow-up examination. **Intervention:** Cautery hemorrhoidectomy vs excision hemorrhoidectomy (Milligan-Morgan technique). Main Outcome Measures Operating time, postoperative pain (measured by the visual analog scale), hospital stay, morbidity, defecation habit, continence, recovery time (return to work), and hemorrhoid recurrence after surgery **Results:** Cautery vs excision hemorrhoidectomy was associated with a significantly reduced operating time (30 vs 43.25 minutes; $P < .001$), reduced postoperative pain scores (visual analog score) on the first 4 postoperative days (day 1: 2.7 vs 6.3; day 2: 1.7 vs 6.3; day 3: 0.8 vs 5.4; and day 4: 0.5 vs 4.8, where 0 indicates no pain, and 10, maximum pain; $P \leq .001$), and an earlier return to work (6.7 vs 20.7 days; $P = .001$). Regarding hospital stay after surgery, no differences for cautery vs conventional open hemorrhoidectomy (2.4 vs 2.1 days), complications (3 [15%] of 20 patients vs 5 [25%] of 20 patients), and recurrence rate (1 [5%] of 20 patients vs 1 [5%] of 20 patients). **Conclusion:** over 90 percent of symptomatic hemorrhoids can be treated conservatively or with rubber band ligation, and, as surgery is reserved for only the most severe cases, (3) Hemorrhoidectomy using cautery is associated with less postoperative pain, minimal postoperative complications, earlier recovery time and return to work, and recurrence is similar after both technique Provided further clinical trials confirm these findings, cautery hemorrhoidectomy may become a standard technique for hemorrhoids.

KEYWORDS : Cautery hemorrhoidectomy conventional open hemorrhoidectomy, Postoperative complication, Recovery time, Ideal procedure, Recurrence

INTRODUCTION

Conventional open hemorrhoidectomy ⁽¹⁾ (Milligan Morgan Technique) is associated with significant postoperative pain because of injury and trauma the anal mucosa (anoderm) and subcutaneous tissue. In a small series including 23 patients, it was shown that the cautery hemorrhoidectomy initially leads to less postoperative pain, a shorter postoperative hospital stay, and a shorter recovery time in patients with third-degree hemorrhoids compared with conventional hemorrhoidectomy. ⁽²⁾ Faster wound healing and less postoperative pain have also been observed. Larger studies comparing the 2 techniques also confirmed less postoperative pain and an earlier return to work in the cautery group but showed no difference in total hospital stay and overall complications.

This prospective randomized study analyzes the outcome of cautery vs excision hemorrhoidectomy in patients with second- or third-degree hemorrhoid disease blinded to the operation technique used, with special regard to the long-term results and recurrence

PATIENT AND METHODS

Between June 11 2021 and Aug 30, 2022, 40 patients with symptomatic second- or third-degree hemorrhoid disease, according to the grading of Milles, were included in this prospective randomized study. The study was approved by the local ethics committee. Following written informed consent, the patients were allocated by drawing lots-generated randomization to undergo either cautery hemorrhoidectomy (n=20) or conventional excision hemorrhoidectomy (n = 20). During the hospital stay, the patients were not informed of the technique performed, but this information was given during a

3-week follow-up examination on request. Because the patients were blinded to the technique used, the same care and dressing of the anal region was performed in both groups in the postoperative period.

The operation was performed under spinal anesthesia after general evaluation for surgery. Surgery was conducted by same surgeon. Patients were placed in a position for lithotomy. Preoperative preparation was done and postoperatively the patients received 0.5% bupivacaine hydrochloride locally. No antibiotics were given in this trial. The hemorrhoidectomy ^(4,5) in the conventional group was performed according to the Milligan Morgan technique (open method) The base of the hemorrhoid was ligated and excised and hemostasis secured

In the cautery hemorrhoidectomy, pile mass is separated from the surrounding muscle fibers until reaching the pedicel for the haemorrhoid. Pedicel ligated with Vicryl 3.0. Pile mass excised and hemostasis secured. The operating time was defined as the time from the beginning of the operation until the application of the endoanal dressing.

All patients received a normal diet postoperatively and were given lactulose for preventing hard stool. Patients in both groups were requested to perform the same cleaning of the anal region 2 to 3 times per day using a shower. The patients agreed not to inspect the anal region themselves to maintain blinding during the postoperative period.

A pain score data sheet (visual analog scale) was filled out by the patients postoperatively (0 indicates no pain; and 10, maximum pain). Pain scores were evaluated 12 hours later

and on the next 3 consecutive postoperative days by a surgeon not involved in the operation. Pain therapy consisted of a basic analgesia (paracetamol) and injection tramadol given on request. At discharge from the hospital, the patients received lactulose, 20 mL daily hour before sleep, and paracetamol.

A continence score was evaluated using the Williams score preoperatively and after 12 weeks.

A follow-up examination was performed 3 and 12 weeks postoperatively by an independent surgeon (not a operated surgeon). Postoperative complications (with special regard to rectal stenosis), defecation habit, frequency, and return to work postoperatively were evaluated. In addition, a 1-year follow-up examination was performed with special regard to hemorrhoid recurrence. At this examination, defecation habits were evaluated and a proctologic examination was performed.

Statistical analysis was performed by the Mann-Whitney test and the Wilcoxon rank sum test for unpaired data. $P < .05$ was regarded as significant. A power calculation was not performed before the study.

RESULTS

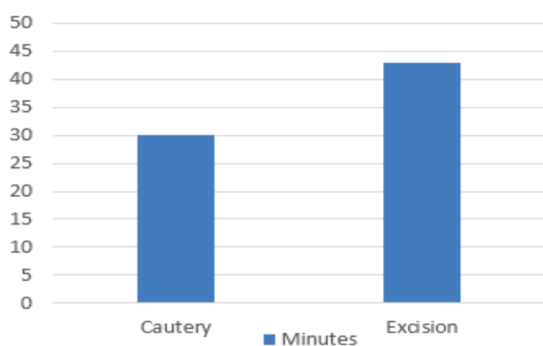
Forty patients were operated on for second-degree ($n=12$) or third-degree ($n = 28$) hemorrhoids, according to the Miles classification. These 12 patients were operated on and included in the study.

Patient characteristics were comparable for age, sex, and grade of hemorrhoid disease. The characteristics of the patients in the 2 groups are as follows:

The overall operating time was 30 minutes (range, 15-45 minutes) in the cautery group and 43 minutes (range, 25-60 minutes) in the excision group ($P < .001$).

Table-1: Operating time

AVG. Operating time	Minutes
Cautery	30
Excision	43



Using the visual analog scale, mean pain scores were 2.7 (range, 0-8), 1.7 (range, 0-6), 0.8 (range, 0-3), and 0.5 (range, 0-2) on days 1, 2, 3, and 4, respectively, in the cautery group; in the excision group, the respective values were 6.3 (range, 0-10), 6.3 (range, 1-10), 5.4 (range, 1-9), and 4.8 (range, 1-10). The average amount of pain in the stapler group was significantly lower than in the excision group ($P \leq 0.001$) (Figure 1).

Table-2: Pain score

AVG. pain score	Day 1	Day 2	Day 3	Day 4
Cautery	2.7	1.7	0.8	0.5
Excision	6.3	6.3	5.4	4.8

The mean length of the hospital stay after hemorrhoidectomy was 2.4 days (range, 1-4 days) in the cautery group and 2.1

days (range, 1-4 days) in the excision group; this difference was not statistically significant ($P = 0.17$). Patients returned to work at an average of 6.7 days (range, 2-14 days) in the cautery group and 20.7 days (range, 7-45 days) in the excision group ($P = 0.001$).

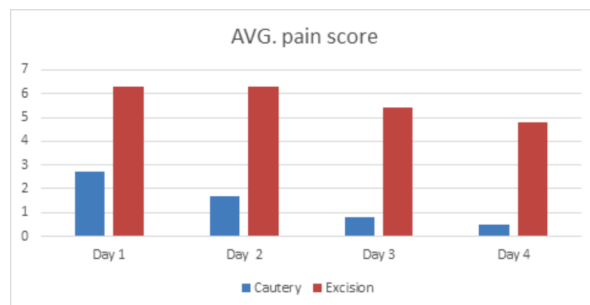
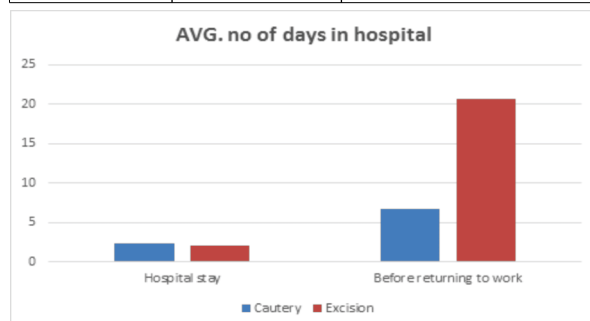


Table-3: AVG. no of days in hospital

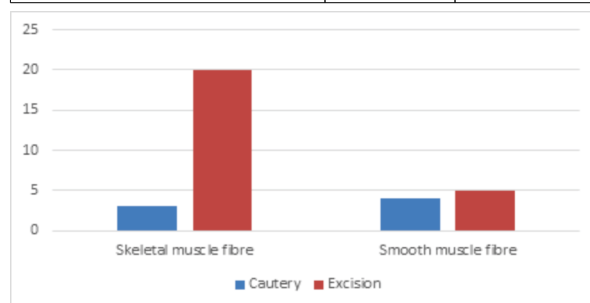
	Hospital stay	Before returning to work
Cautery	2.4	6.7
Excision	2.1	20.7



Histologic examinations of resected specimens revealed small parts of skeletal muscle fibers in 3 patients (15%) in the cautery group, all in the excision group ($P = 0.43$). Smooth muscle fibers were found in 4 patients (20%) in the cautery group and in 5 patients (25%) in the excision group ($P = 0.80$).

Table-4: Histologic examination in post op specimen

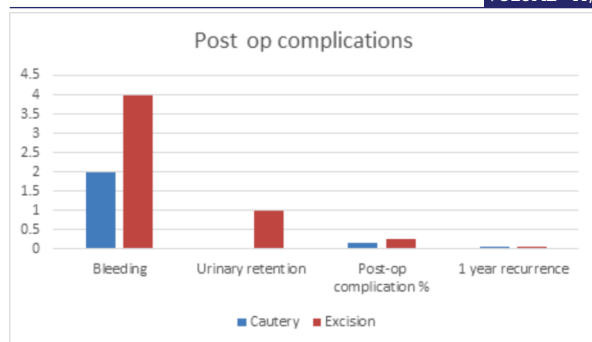
No. of patients whose histologic exam revealed	Skeletal muscle fibre	Smooth muscle fibre
Cautery	3	4
Excision	20	5



Of the 40 study patients, perioperative complications observed included bleeding in 2 patients in the cautery group, and urinary retention in 1 patient and bleeding in 4 patients in the excision group, all occurring within the first postoperative week.

Table-5: Post-op complications

No. of patients with post-op complications	Bleeding	Urinary retention	Post-op complication %	1 year recurrence
Cautery	2	-	15%	5%
Excision	4	1	25%	5%



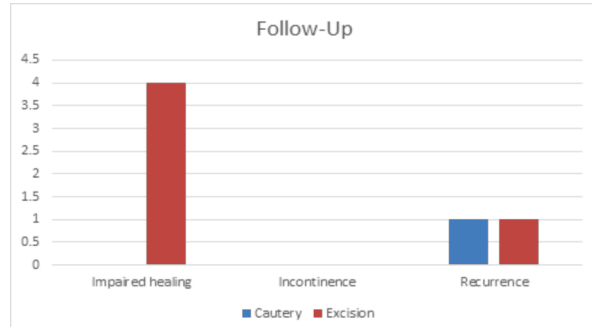
In one patient, a bleeding arterial vessel had to be sutured; in the other patient, the bleeding stopped after internal compression with a balloon catheter for 30 minutes. The total postoperative complication rate was 15% (3 of 20 patients) in the cautery group and 25% (5 of 20 patients) in the excision group ($P = .60$). There were no deaths in either group; and at 1 year, recurrent hemorrhoidal disease occurred in 1 (5%) of the patients in both groups.

A follow-up examination after 3 and 12 weeks (follow-up, 100%) revealed impaired wound healing in 4 patients in the excision group. No impaired wound healing was observed in the cautery group. No cases of incontinence were observed during the follow-up period. The Williams score, evaluating for incontinence, was 1.0 preoperatively and postoperatively in the stapler group and 1.1 preoperatively and postoperatively in the excision group.

After 1 year, a total of 2 patients presented with second-degree recurrent hemorrhoidal disease; one was operated on by the excision technique and one was operated on by cautery hemorrhoidectomy.⁽⁸⁾ Both recurrent hemorrhoids were treated successfully with a rubber band ligation.

Table-6: Follow up

Follow up	Impaired healing	Incontinence	Recurrence
Cautery	0	0	1
Excision	4	0	1



After 1 year, there were neither signs of rectal stenosis nor perirectal fistulas in either group, and none of the patients had residual perianal pain. Because neither signs of sphincter damage nor incontinence were observed in both groups, we did not perform postoperative endosonography or a manometric examination.

DISCUSSION

The results of a study comparing the conventional excision haemorrhoidectomy with the cautery technique, with patients blinded to the type of procedure. We observed a significant reduction of postoperative pain in the patients who underwent cautery hemorrhoidectomy. Four patients in the cautery group were pain free on the first operative day⁽⁶⁾.

The total operating time was significantly shorter with the cautery technique in this trial (30 vs 43 minutes; $P < .001$).

Except for one postoperative bleeding episode, which was managed conservatively, no other severe complications were observed in the cautery hemorrhoidectomy group, especially no local or systemic infections. The bleeding observed resulted most likely from an undetected vessel. This complication may be prevented if adequate hemostasis ensured before dressing the wound there was no clinical sign of rectal strictures or stenosis, incontinence after 12 months in any patient.

The pathophysiologic background of the treatment of hemorrhoidal disease by cautery is same as that of pathophysiologic basis for excision hemorrhoidectomy.⁽⁷⁾

The indication for cautery hemorrhoidectomy in our study included third-degree hemorrhoids and second-degree hemorrhoids and even in fourth degree after an unsuccessful nonoperative treatment (eg, a rubber band ligation).

The incidence of hemorrhoid recurrence did not differ in the 2 groups within the 1-year follow-up, but a longer follow-up should be observed.

We did not evaluate the postoperative analgesic medication taken, which may limit the interpretation of this observation; however, even though both patient groups had free access to minor analgesics, the cautery group had significantly less pain than the excision group (average visual analog scale score, 1.4 vs 5.7; $P < .001$). The rather small number of patients who were included in the study limits the interpretation of the results.

CONCLUSION

We conclude that cautery hemorrhoidectomy is a safe and reliable procedure in the treatment of second- third- and fourth degree hemorrhoids. It offers a similar clinical outcome as conventional hemorrhoidectomy while offering a significantly shorter operating time, significantly reduced postoperative pain, an earlier return to work, and low recurrence at 1 year.

REFERENCES

1. Milligan ET, Morgan CN, Jones LE, Officer R. Surgical anatomy of the anal canal and the operative treatment of hemorrhoids. *Lancet*. 1937;2:1119-1124.
2. Ho YHSeow-Cheon FanMLEong AFPK Randomized controlled trial of open and closed haemorrhoidectomy. *Br J Surg*. 1997;84:1729-1730.
3. Bleday R, Pena JP, Rothenberger DA, Goldberg SM, Buls JG. Symptomatic Hemorrhoids: Current Incidence and Complications of Operative Therapy. *Diseases of the colon and rectum*. 1992;35(5):477-481.
4. MacRae HM, McLeod RS. Comparison of Hemorrhoidal Treatment Modalities. A meta-analysis. *Dis Colon Rectum*. 1995;38(7):687-694. [PubMed]
5. Keighley MRB. Vol. 1. WB Saunders publishers; 1993. *Surgery of Anus, Rectum and Colon*. 1; pp. 295-298.
6. Rogozina VA. Hemorrhoids. *Eksperimental' Naia i Klinicheskaia Gastroenterologija*. 2002;4:93-96.
7. Johanson JF, Sonnenberg A. The prevalence of hemorrhoids and chronic constipation: an epidemiological study. *Gastroenterology*. 1990; 98(2): 380-386.
8. Simillis C, Thoukididou SN, Slesser AA, Rasheed S, Tan E, Tekkis PP (2015) Systematic review and network meta-analysis comparing clinical outcomes and effectiveness of surgical treatments for haemorrhoids. *Br J Surg* 102(13):1603-1618.