

# Surgical approach to piles at risk of severe postoperative pain: tricks and tips



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## Surgical approach to piles at risk of severe postoperative pain: tricks and tips

*AIM: Aim of the present study is to propose a clinic-therapeutic course for the treatment of hemorrhoidal disease able to combine radical anatomic surgery with a painless postoperative path.*

*MATERIAL OF STUDY: The present study is based on the evaluation of 20 selected patients who underwent radical hemorrhoidectomy for very high grade hemorrhoidal disease. The clinical course was characterized by careful bowel cleansing, hemorrhoidectomy according to Milligan-Morgan using LigaSure, intraoperative perianal infiltration of Ropivacaine and postoperative use of analgesic drugs.*

*DISCUSSION: A low postoperative pain may descend from a scheduled timing of clinical procedures. Preoperative bowel cleansing delays the first postoperative evacuation, thus avoiding the perianal nerve stimulation. The use of LigaSure allows to perform surgical excision in a perfect way: lack of hemostatic stitches, less tissue trauma, very low early morbidity. A rational and scheduled intra and postoperative drug administration offers a highly significant contribution to the pain control. The intra and postoperative use of drugs makes it possible to perform the so-called "preventive anesthesia with activation of the pain memory" and postoperative evacuations with low pain perception. All patients, in fact, reported low and well tolerated pain, satisfaction and return to normal activities in a short period.*

*CONCLUSIONS: Radical hemorrhoidectomy with LigaSure and attention to pre, intra and postoperative protocol makes the procedure painless, safe and with low morbidity.*

**KEY WORDS:** Hemorrhoidectomy, LigaSure, Painless procedure

## Introduction

The anal cushions or hemorrhoids are one of the most common anorectal conditions. The anal cushions are specialized submucosal vascular tissue, located in the anal canal at level of pectin line. In their natural history, they

increase in volume, and prolapse out the anal canal, facilitated by some predisposing conditions such as familiarity, constipation, poor eating habits, straining in defecation, conditions increasing the intra abdominal pressure. The anal cushions/ hemorrhoids are not veins, but rather hemorrhoids are composed of vascular plexus with arteriovenous anastomoses with fibro elastic tissue, and muscle fibers. They seem to contribute to the maintenance of anal continence.

The high-grade hemorrhoids are prevalently treated with excisional procedures, as Milligan-Morgan, Parks, Ferguson, Withehead techniques. Irrespective of specific techniques of excision, the hemorrhoidectomy consists in complete or nearly complete removal of hemorrhoidal tissue. For some years it has been used another surgical technique alternative to classic hemorrhoidectomy. The stapled hemorrhoidopexy is now an alternative procedure

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to the classic hemorrhoidectomy, where a stapling device is used to resect and fixate the internal hemorrhoidal tissue to the rectal wall. Both procedures have pros and cons. The excisional procedures are painful, but surgical risk is limited, and long-term results are satisfying. The hemorrhoidopexy, on the other hand, is less painful, but may present some important and irreversible complications.

The aim of this paper is to suggest a radical hemorrhoidectomy supported by a planned clinical and pharmacological process and thus well tolerated by the patient.

## Material and Methods

Twenty selected patients, chosen for symptomatic high-grade hemorrhoidal disease (primary and secondary nodules, 4<sup>th</sup> posterior pile, skin tags, irreducible prolapse) were selected. Patients who didn't meet these characteristics were excluded, including only those cases in which the complexity of surgical procedures unavoidably causes severe and long-lasting postoperative pain. All treated patients complained symptomatic hemorrhoidal disease with perianal sense of weight, bleeding during the evacuation, discharge, sensation of incomplete emptying, burning.

The patients matching the selection criteria were investigated to exclude concomitant pathologies. Male:female ratio was 18:2. Age ranged from 45 to 67 for males and 52-64 for females. All patients underwent a standardized clinical protocol including:

- Preoperative thorough bowel cleansing drug (as for colonoscopy);
- Hemorrhoidectomy acc. to Milligan-Morgan's technique (Hemorrhoidectomy performed using LigaSure™ Vessel Sealing (Covidien-Medtronic);
- Perianal infiltration with Ropivacaine 150 mg (15 ml) during surgery;
- Morphine (10-15mg/day) administered through elastomer in the first postoperative 48 hours;
- Ketorolac 10 mg (10 drops) before the first evacuation and then "a la demande" for 6-7 days;
- Anesthesia was performed with laryngeal mask, spontaneously breathing air oxygenated, with continuous infusion of Propofol and Fentanyl when needed. The Milligan-Morgan technique was modified with partial plasty of mucosal bridges.

All patients were clinically evaluated postoperatively and pain was measured using a 10 cm Visual Analogue Scale (VAS) graduated from 0 (no pain) to 10 (unbearable pain). VAS scores were assembled in 5 subgroups: 0 (no pain), 1-3 (mild pain), 4-5 (moderate pain), 6-7 (moderate pain requiring occasional use of analgesic drugs), and 8-10 (severe pain requiring frequent use of analgesic drugs).

## Results

The operating time ranged from 30 to 60 min. No intraoperative complications were registered. Hemostatic stitches on the internal sphincter were never necessary. Early oral liquid and semisolid feeding were administered to all patients.

All patients were discharged within the 1<sup>st</sup> postoperative day. Clinical examinations were performed on the 1<sup>st</sup>, 3<sup>rd</sup> and 6<sup>th</sup> postoperative day and then after 30 and 90 days; patients were followed by phone for 3-4 weeks and when needed.

Pain was practically absent in the first 12 hours (VAS 0) and mild during the first postoperative week (VAS 1-3). At the end of the first week, there was good pain control. Only 3 patients prolonged to take medications to their will to maintain health conditions. Severe perianal pain was never reported. Total disappearance of symptoms always occurred within 3-5 weeks. Return to normal activities and social life was registered in 5-15 days. Seven patients showed urinary retention in early postoperative hours solved by a single catheterization. No cases of late or significant bleeding, were reported.

At 90 days follow-up no recurrence or rigidity/stenosis of the anal canal were reported. In some cases we observed perianal skin tags, without clinical significance.

## Discussion

Multiple treatments have been considered for the therapy of hemorrhoidal disease. Therapies, such as sclerotherapy<sup>1</sup>, rubber band ligation<sup>2</sup>, infrared<sup>3</sup>, cryotherapy<sup>4</sup>, dearterialization<sup>5</sup> are indicated in the early stages of the disease (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> stage), in the outpatient setting<sup>6-9</sup> and in local anesthesia.

The 4<sup>th</sup> stage hemorrhoidal disease, prolapse extended to all nodules, presence of secondary nodules, skin tags and 4<sup>th</sup> posterior pile, needs surgical therapy<sup>10-13</sup>, that should be safely performed only in the hospital setting<sup>14</sup>. In advanced stages, many surgical procedures of radical hemorrhoidectomy are available, such as Ferguson's, Milligan-Morgan's, Parks', and, more recently, the dearterialization and hemorrhoidopexy with mechanical device.

The dearterialization is a painless procedure, easy to perform<sup>15</sup> but it finds practical difficulties in very high stages of hemorrhoidal disease where it could be challenging the detection and the fastening of all arteries feeding hemorrhoidal piles<sup>16</sup> thus leading to unsatisfactory early results. The risk of recurrence is 60%<sup>17-18</sup>. For these reasons this procedure should be indicated only in the 2<sup>nd</sup> stage of hemorrhoidal disease<sup>19</sup>.

Hemorrhoidopexy allows good early results due to the partial removal of hemorrhoidal tissue and mostly the significant reduction of the prolapse with the mechanical fixing of the tissue to the high part of the anal canal.

TABLE I - *Personal series*

	1982-2015
Total cases	654
Ferguson	132
Milligan-Morgan	371
Parks	41
Whitehead	40
Hemorrhoidopexy (Longo)	70

This procedure is well tolerated from the patient since it is painless (lack of surgical wound, minimal loss of substance and tissue handling). On the other hand, it exposes to early and late complications, sometimes severe, and high risk of recurrence<sup>4,20,21</sup>. In fact, urgency for defecation, bleeding, stenosis, perianal inflammation, pelvic floor pathologies and recurrence rate >50% are reported in literature<sup>22-19</sup>. Some complications moreover can be devastating: rectal perforation, pelvic sepsis, rectovaginal fistulae, intra-abdominal bleeding, Fournier's cancrena<sup>23-28</sup>.

Among the radical hemorrhoidectomies, surgical excision represents the treatment displaying the best chances of recovery, low intraoperative risk, and satisfactory late results with low recurrence rate (1-2%). Many patients report severe postoperative pain, from waking up after anesthesia up to 2-3 weeks after<sup>12</sup>. In many patients a severe postoperative pain is reported and, even if it trends to decrease, it may cause discomfort up to 2-3 weeks. A "minimal" sensation of discomfort can prolonge until the complete healing of perianal scar.

During more than 30 years of surgical activity, we tested all main techniques for the treatment of hemorrhoidal disease (Table I). In order to reduce pain and postoperative complications, we adopted some procedures, such as hemorrhoidectomy without suture stitches, hemostasis using fibrin glue, concomitant lateral sphincterectomy<sup>29</sup>.

Many co-factors may contribute to perianal pain, as stitches through the internal sphincter, causing increased muscular tone<sup>18</sup>, wound trauma and secretion stimulating nerve endings beneath the pectin line, and the presence of fibrin supporting at rest the adhesion of margins. The distention of perianal wounds, in fact, is an important co-factor of pain re-exacerbation during evacuation.

Postoperative pain is directly related to the complexity of surgery. The selected patients were all at risk of severe postoperative pain (VAS 8-10). The procedure we focused, includes some clinical tricks besides surgery, that synergistically contribute to the pain control. We believe that the adoption of our therapeutic protocol was effective for patient's comfort.

The main contribution to the reduction of pain was evidently due to the use of LigaSure during surgical dis-

section. The procedure begins with the excision of the principal piles (anterior and posterior on the right and lateral on the left) carefully preserving the mucosal bridges between the hemorrhoids. The high-frequency scalpel removes the hemorrhoidal tissue providing an accurate hemostasis. Tissue lesion due to cauterization is more contained than using the traditional bipolar scalpel. LigaSure, in fact, works at 60°C (range 50-80) in front of 600°C needed by the traditional bipolar scalpel<sup>30</sup>. Radiofrequency significantly reduces tissue necrosis, resulting from the heat of cauterization and allows to resect the excess tissue without bleeding<sup>31-33</sup>. The use of LigaSure reduces postoperative pain in front of the traditional bipolar scalpel<sup>31-34</sup> since the lower thermal trauma on the operative field, whose necrosis does not exceed 2 mm from the section line<sup>30</sup>, reduces the spasm of the internal sphincter and so the pain. LigaSure avoids hemostatic stitches on the apex of the removed pile that may contribute to pain.

The technique we perform consists in the removal of main piles, extra mucosal partial elimination of secondary piles and 4<sup>th</sup> posterior pile, still by LigaSure. The reduction in volume of piles permits to position mucosal absorbable stitches to draw near, in the middle and upper part of the anal canal, the margins of mucosal bridges without involving the internal sphincter below. Mucosal stitches represent the principal prevention of postoperative strictures<sup>18</sup> as well as the complete removal of piles is the prevention of recurrence (1%)<sup>35</sup>. The use of LigaSure, besides reducing pain, permits to shorten operating time<sup>36</sup>, to drop postoperative complications<sup>37</sup> thus quickening recovery time with a shortest return to normal activity and social life<sup>37</sup>.

In our study, other factors significantly contributed to reduce postoperative pain. The first one is the intraoperative perianal subcutaneous infiltration of Ropivacaine (150 mg, 15 ml) resulting in a painless awakening. This realizes the so-called "preemptive analgesia and reduction of the pain memory" with interruption of the central pain stimulus<sup>38,39</sup>. Since the patient is calm, he forgets to complain for pain and can spend the night quietly. The second factor is the complete colonic cleansing that allows the lack of evacuation during the first 24-36 postoperative hours, even if the patient starts oral feeding 6 hours after surgery. In this way there isn't any mechanical stimulation of perianal nerve endings and therefore the pain is absent (VAS 0).

The third factor is the routine infusion of Morphine (10-20 mg/24 hours) by the elastomer, during the early 48 hours after surgery. Pain is stimulated by the passage of stools at the moment of the first evacuation. The infusion of Morphine synergistically concurs with the intraoperative infusion of Ropivacaine, that allows a painless awakening and 1<sup>st</sup> postoperative night, and the colonic cleansing, that permits the lack of an irritating painful stimulus until the evacuation (24-48 hours) to significantly reduce pain (VAS 0-1). The

infusion of Morphine does not cause any delay in bowel canalization.

As fourth recommendation for a painless postoperative course, the patient is suggested to take 10 drops of Ketorolac (10 mg) before each evacuation, at the moment of the stimulus perception. Ketorolac should be taken every 6 hours during the first 2 days and then at the stimulus perception for 5-6 days after surgery.

In our experience we played out some other tricks contributing to reduce postoperative pain. Urinary retention, as anaesthesiological consequence may contribute to pain for a reflex perianal stimulus<sup>40</sup>. Eating solid food with high residue and drinking at least 1,5 liters daily maintain soft feces, less traumatizing for tissue, and reduce bleeding and pain<sup>41</sup>. Jam with laxative effect are useful in case of constipation.

All patients treated according to this protocol, reported very low pain (VAS 1-3) during the first and following evacuations, and no pain during the first 24-36 postoperative hours (VAS 0-1) until the evacuation. This well-tolerated irritation tended to spontaneously reduce within 7-8 days after surgery.

All patients were monitored by phone during the first week. The daily check by phone demonstrated to be important, allowing the patient to interact regarding drugs administration.

All patients returned to normal activities within 5 and 15 days.

## Conclusions

Classical and anatomical haemorrhoidectomies remain the only effective and safe methods of therapy. Anatomic techniques (Ferguson, Milligan-Morgan, Parks) show very good results in terms of early and late morbidity but all display severe postoperative pain, sometimes lasting until 4-6 weeks, particularly in high grade hemorrhoidal disease. Pain, in fact, is directly related to the complexity of surgery

We hereby report our experience using a therapeutic protocol that allowed us to achieve radical hemorrhoidectomy with little pain, well tolerated by the patient (VAS 0-4) in high grade hemorrhoidal disease.

## Riassunto

Gli autori propongono una procedura clinica, che consente di praticare un intervento anatomico di emorroidectomia radicale ben sopportato dal paziente, in funzione del dolore molto contenuto nel periodo post operatorio. Come è noto, negli interventi di emorroidectomia, in tutte le tecniche chirurgiche praticate, il dolore è legato alla complessità dell'intervento e, quindi, allo stadio di malattia. Per tale motivo abbiamo valutato nel

nostro studio, i risultati relativi ad un gruppo selezionato di 20 pazienti con malattia emorroidaria avanzata ed sintomatica.

Il protocollo clinico è stato caratterizzato da: accurata pulizia dell'intestino, emorroidectomia sec. Milligan-Morgan eseguita con LigaSure, infiltrazione intraoperatoria di Ropivacaina, uso postoperatorio di farmaci analgesici. La pulizia preoperatoria del colon, con assenza di evacuazione postoperatoria nelle successive 24-30 ore, evita in tale periodo una stimolazione nervosa perianale. L'uso del LigaSure consente di eseguire l'intervento in maniera ottimale: assenza di punti aggiuntivi per l'emostasi, minore trauma dei tessuti, morbilità immediata praticamente assente. Una programmata e razionale utilizzazione di farmaci in sede intra e postoperatoria permette un efficace controllo del dolore. L'uso di farmaci intraoperatori consente, inoltre, di attuare la "analgesia preventiva con attivazione della memoria del dolore" (paziente asintomatico sino alla prima evacuazione), mentre la somministrazione post operatoria permette di avere evacuazioni intestinali con bassa percezione del dolore. Applicando il protocollo descritto, abbiamo ottenuto, nei 20 casi selezionati, i seguenti risultati: tempo operatorio contenuto, assenza di sanguinamento intra e postoperatorio, assenza di ano fibroso o stenosi nei controlli a distanza, ritenzione urinaria, nel 35% dei soggetti, transitoria e reversibile (una singola cateterizzazione), dolore postoperatorio contenuto e ben tollerato in tutti i pazienti, rapido ritorno alla normale attività e vita di relazione, con buona soddisfazione dei pazienti.

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