

Diathermy haemorrhoidectomy: Reasons for a therapeutic choice



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Diathermy haemorrhoidectomy: Reasons for a therapeutic choice.

BACKGROUND: *Diathermy haemorrhoidectomy is an effective technique for the management of 2nd, 3rd and 4th degree haemorrhoids. The anal cushions are excised by use of diathermy without ligature of the vascular pedicles. The aim of the present study is to evaluate the efficacy and tolerability of this technique.*

METHODS: *Between September 1999 and September 2003, 84 patients with 2nd, 3rd, and 4th degree haemorrhoids underwent diathermy haemorrhoidectomy. Patients were discharged the same day or the day after. All the patients were asked to complete two questionnaires one on the level of pain they experienced and the other on their expectation of pain. Patients were followed-up for 1 to 4 years (range 12-48 months, mean 20.5).*

RESULTS: *The average pain severity score on a visual analogue scale (0-10) was 3.06 ± 0.38 and consistently lower than expected. The majority of patients returned to their usual daily activities within 4 days and all of them returned to work within 11 days. A mild residual secretion persisted for 4 to 5 weeks. None of our patients experienced postoperative haemorrhage, complete stenosis or sphincteric disturbances.*

CONCLUSIONS: *Diathermy haemorrhoidectomy appears to be a safe, low cost and effective technique for the treatment of haemorrhoids. It is well tolerated by patients.*

KEY WORDS: Anal cushions, Anal pain, Diathermy haemorrhoidectomy, Haemorrhoids.

Introduction

Haemorrhoids are a common condition affecting predominantly the western population ¹. According to Corman, 50% of people over 50 years of age is affected by symptomatic haemorrhoids ². The anatomy of the haemorrhoidal plexus has only recently been defined, whereas classification ³ and pathogenesis of the disease are still debated ⁴⁻⁶. The management of haemorrhoids has undergone over the years a remarkable evolution in an attempt to find a solution that was the least invasive as possible and prevented the risk of recurrence ⁷⁻⁹. In the last few years we have observed several patients treated with various techniques (both surgical and not surgical), including stapled haemorrhoidopexy ^{1,10-16}, and often we have encountered cases of recurrences, with relapse of pain, as well as more severe com-

plications, and, in some circumstances, pseudostenosis ^{17,18}. Since 1999 we have been using diathermy haemorrhoidectomy for 2nd and 3rd degree haemorrhoids. This technique consists of the excision of anal cushions by means of diathermy, without ligature of the vascular pedicles ^{19,20}. Encouraged by the good results obtained, in the last two years we decided to use the same technique also for 4th degree haemorrhoids, taking particular care to preserve the skin bridges or, when this was not possible, to reconstruct them.

Material and methods

The procedure we used (diathermy haemorrhoidectomy) consisted of the complete excision of the anal cushions by means of diathermy, without ligature of the vascular pedicles. The procedure was carried out under either general or lumbar epidural anaesthesia. The patients were placed in the lithotomic position. We used an Eisenhammer retractor to allow optimal visualization of the anal cushions and the skin bridges that needed to be preserved. The position of the retractor was constantly

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changed in order to prevent trauma to the sphincters and to allow visualization of the anal canal from the best angle.

The three anal cushions were detected at 3, 7, and 11 o'clock, and so were the relevant skin bridges. The submucosa of the anal cushions was infiltrated with adrenaline 1:200.000 to reduce postoperative bleeding and also with 10 ml of ropivacaine 7.5 mg/ml to reduce postoperative pain. Also, the submucosa of the skin bridges was partially infiltrated with adrenaline 1:200,000 to prevent bleeding from the anal mucosal margin. Once infiltrated, the nodules were removed one by one. This allowed preserving the skin bridges which, otherwise, would have been masked by the simultaneous lifting of more than one cushion. We used monopolar diathermy (15W cut and 40W coagulation) to create a "V" shaped incision starting from the base of the haemorrhoid and moving towards the vascular pedicle while exposing the sphincteric fibres, which were identified and preserved. The mucosa and submucosa containing the haemorrhoids were excised and a careful haemostasis was carried out. Once reached, the vascular pedicle was sectioned and burned with diathermy. The same procedure was carried out for each cushion, as in the Milligan-Morgan haemorrhoidectomy²¹⁻²³. At the end of the procedure, a careful inspection of the anal canal was carried out to confirm the completeness of haemostasis and the preservation of skin bridges and sphincteric fibres. A jelly sponge was left in the anal canal.

Between September 1999 and September 2003 we performed 84 haemorrhoidectomies (54 males and 30 females) with the above technique (Tab. I). A general health check was carried out on all patients a few days preoperatively. All patients asked to have a light diet in the two days preceding the operation and were prescribed osmotic laxatives. The patients were admitted on the day of surgery. We treated with the above technique haemorrhoids of 2nd, 3rd and 4th degree (Tab. I).

Twelve of our patients, affected by recurring haemorrhoids, had been previously treated elsewhere. Of these 2 had been previously treated with cryosurgery, 2 with elastic banding, 2 with unknown techniques and 6 with stapled haemorrhoidopexy (Tab. II). In the group previously treated with stapled haemorrhoidopexy, 2 patients were also complaining of persistent bleeding, one patient had a recto-vaginal fistula, 2 patients had persisting pain at rest and one patient was complaining of pain during defecation. Also in these six cases, we excised the recurrent hae-

TABLE II – Patient with recurrent haemorrhoids

No of patients	Previous procedure
2	Cryosurgery
2	Elasting banding
2	Unknown
6	Stapled haemorrhoidopexy

morrhoids with diathermy haemorrhoidectomy. In the patient with recto-vaginal fistula we unsuccessfully attempted three times to perform a fistulectomy, and eventually we created a dual end colostomy on the descending colon. In the three patients with pain at rest and during defecation, having hypothesized that the pain was related to the presence of the metallic staples, we attempted to remove them at the time of the haemorrhoidectomy. In two out of three cases we were successful, in the remaining patient, because the recto-vaginal septum was particularly thin we abstained from removing all the staples to avoid the risk to create a recto-vaginal fistula.

Postoperative care and follow-up

The patients were discharged the same evening of surgery when all physiological functions, including micturition were restored. Patients coming from areas distant from the Hospital were discharged after an overnight stay. Postoperative pain, when present, was treated with 100 mg of Tramadol HCl diluted in 500 cc of normal saline solution and administered intravenously over 12h. At the time of discharge, all patients were given two questionnaires (one on the level of pain experienced and the other on their expectation of pain) to complete from day one post-procedure for the following six weeks²⁴. Patients were also advised of the possibility of a mild postoperative oozing of blood which would bear no consequences.

We carried out weekly follow-up visits for the first five weeks to evaluate the presence and intensity of pain and verify that the anal canal was patent and the sphincteric function was preserved (Tab. III)^{25,26}. Thereafter patients were followed up for one to four years to establish the rate of recurrence and stenosis.

TABLE III – Results following diathermy haemorrhoidectomy

Pain level	(3.06±0.38)
Return to social activities	3-4 days
Return to work	5-10 days
Serious secretions	4-6 weeks
Substenosis	1
Bleeding	0
Recurrence	0
Accessory costs *	0

(*) In adjunct of the basic costs of surgery.

TABLE I – Patient treated with diathermy haemorrhoidectomy (n. 84)

Age	Sex	Degree	Recurrences
Range (21-68)	M 54(64%)	2 nd 7(8%) 3 rd 52(62%) 4 th 25(30%)	12 (14%)
Mean (44)			

Perioperative results

From the questionnaires completed and returned weekly we noticed that:

- 1) the average pain severity score on a visual analogue scale (0-10) was 3.06 ± 0.38 and consistently lower than expected;
- 2) in 15 patients (17.8%) mild pain was present only during defecation and only 5 of them required oral analgesics and non-steroidal anti-inflammatory drugs for the first week;
- 3) 50 patients (60%) returned to normal daily activities 3-4 days after the procedure and to work 5-7 days post-procedure, the remaining 34 patients (40%) returned to work after 11 days;
- 4) sero-mucous discharge persisted for 4-5 weeks, requiring the use of gauze swabs to protect the patients' garments;
- 5) complete epithelization of the burned surfaces occurred in 4 to 6 weeks.

Long-term results

Patients were followed-up for 1 to 4 years. Fifty-nine patients (70%) attended all their follow-up visits; the remaining 25 (30%) returned the complete questionnaire but failed to attend their follow-up visits. From the answers to the questionnaires and the clinical examination, we observed that none of our patient experienced recurrence of haemorrhoids, sphincteric disturbances or cosmetic alteration of the anal region. Sixty-one patients (72%) stated that the result of the intervention was "very good" and 23 patients (28%) stated that the results was "good". All the patients would recommended this procedure to other patients. One patient with 4th degree haemorrhoids, in which we had to reconstruct a skin bridge, presented with a mild anal stricture which resolved with the use of anal dilators.

In all the patients that had been previously treated elsewhere with stapled haemorrhoidopexy the haemorrhoids were successfully excised. In two cases with pain at rest the symptoms disappeared following removal of the metallic staples, whereas in a third patient with burning pain on defecation a decision was made not to remove all the staples due to the significant risk to create a recto-vaginal fistula ²⁷.

The patients with recto-vaginal fistula was discharged with a colostomy and has still to decide whether to undergo closure of the stoma

Discussion

The term "haemorrhoid" has a Greek etymology (*haim*: blood, *rheo*: flow) and was created more than 2400 years ago by Hippocrates, who believed that they were cau-

sed by an increase in blood temperature secondary to the action of *bile* and *phlegma* ²⁸.

Until recently the haemorrhoids were considered "venous dilatations" similar to varicose veins of the lower limbs or oesophageal varices ²⁹.

In 1963 Stelzner ³⁰ demonstrated the presence of arteriovenous communications in anorectal mucosa and introduced the concept of "corpora cavernosa" of the rectum which play an important role in the mechanism of faecal continence.

In 1975 Thompson ³¹ confirmed the presence of arteriovenous communications, but also showed the presence of smooth muscle fibres in the submucosa (already described in 1853 by Treitz as "muscularis submucosae ani") and of a particular variety of vasculature made by the terminal branches of the superior, middle and inferior haemorrhoidal arteries. He introduced the concept of "anal cushions" present at birth; in 19% of cases two of them are on the right (3 or 7 o'clock) and one is on the left (11 o'clock), but their position can be different. Histological studies have been shown that these venous dilatations are reinforced by smooth muscle cells and fibro-elastic tissue and their drainage occurs via veins that pass through the muscular layer. The smooth muscle cells are derived from the internal sphincter and the fibroelastic tissue corresponds, at the level of the intersphincteric space, to the Parks' suspensory ligament ⁶.

The anal cushions contribute to 15 to 20% of the anal continence. The mechanisms for performing this function is still unclear ³². At rest, the anal cushions retain passively faeces; during the defecation, the smooth fibres of the submucosa and the striated fibres of the external sphincter contract, flattening the anal cushions and facilitating the expulsion of faeces. Thompson ³¹ postulated that the haemorrhoids could be brought about by a laxity of the anal epithelium that is pushed downward during defecation. With time this laxity could favour the distal displacement of the anal cushions. Chronic constipation, the duration of the sphincteric contraction and the subsequent weakening of the muscle of Treitz could be contributory factors to the development of haemorrhoids. Furthermore, the aging of the connective tissue would lose its ability to support the mucosa. The vascular structures, become more sensitive to the pressure exerted by the faeces and bulge out ³³. Concurrently the hypertrophy of muscular fibres (both smooth and striated) provokes constriction of the intermuscular veins preventing the normal blood outflow causing a subsequent haemorrhoidal hypertension ³⁴. In fact, the real pathogenesis of the haemorrhoids has not yet been explained, nor have the role played by factors like gender, age, socio-economical status, diet, bowel habits, genetic factors, constipation ³². A relationship between portal hypertension and haemorrhoids has been shown to be present only in 28% of patients with liver cirrhosis ³⁵. On the other hand, the development of haemorrhoids is more frequent in patients with laxity of the ligaments ³⁶. Until

recently, the procedure most widely used was the Milligan-Morgan haemorrhoidectomy. However, with time this technique has been associated with an increase tendency to sepsis and postoperative pain. The use of lactulose preoperatively and metronidazole in the early postoperative period has been advocated to reduce the rate of these complications.^{16,20} The ligature of the vascular pedicle is, reportedly, associated with an increase in postoperative pain³⁷.

In recent years, the use of diathermy has become increasingly more popular because, although it does not prevent completely postoperative pain it is undoubtedly associated to a reduced need for analgesic postoperatively³⁷. In a minority of patients mild pain occurs during the defecation for a few days. This can be further minimized by prescribing laxatives for the first week postoperatively. This technique had also the advantage of a reduced duration of the procedure and the possibility to preserve the internal sphincter which is easily visualized. The haemostasis is also very accurate³⁸. The only inconvenience of diathermy haemorrhoidectomy is the presence of sero-mucous oozing through the anus, usually for about 2 weeks. However, the discharge gradually stops spontaneously over 6 weeks.

Other authors report that the need for analgesia is further reduced with stapled haemorrhoidopexy and LigasureTM. The higher cost of these techniques would be balanced by a shorter convalescence and an earlier return to work³⁹, although these results require to be confirmed by larger trials⁴⁰⁻⁴¹. In our experience, in agreement with the findings of other authors, the presence of metallic staples along the suture edge of the stapler used in the stapled haemorrhoidopexy can cause recurrent bleeding, continuous pain which exacerbates during defecation, foreign body sensation, urgency, and sometimes rectal stenosis⁴²⁻⁴⁴. The use of LigasureTM sometimes can be made impossible by the presence of sclerosis often attributable to the previous use of sclerosing agents³⁸.

Conclusions

Despite our limited experience, it is our view that diathermy haemorrhoidectomy is to be favoured over stapled haemorrhoidopexy, which we deem more indicated for the management of uncomplicated rectal prolapse.

Our results show, that the advantages of diathermy haemorrhoidectomy in the management of haemorrhoids of 2nd, 3rd, and 4th degree (with reconstruction of skin bridges whenever is not possible to preserve them) are numerous^{45,46} and can be summarized as follows:

- 1) minimal necrotic damage to surrounding tissues;
- 2) good haemostasis;
- 3) good visualization of the sphincters;
- 4) low postoperative pain;
- 5) short operating time;

6) low cost;

7) good cosmetic results.

None of our patients had postoperative haemorrhage, complete anal stenosis or sphincter disturbances.

Riassunto

PREMESSA: L'emorroidectomia sec. Phillips con diatermo-coagulatore è un valido metodo per il trattamento delle emorroidi di II - III - IV grado, ed anche se la nostra esperienza non è ampia, lavorando in un Dipartimento dedicato all'Emergenza, possiamo già esprimere un giudizio definitivo sulla metodica dopo aver sottoposto i pazienti ad un follow-up da 1 a 4 anni. Riteniamo che questa tecnica rappresenti la soluzione a molti problemi legati a questo tipo di chirurgia (dolore post-operatorio, recidiva, complicanze, costi e ripresa dell'attività lavorativa).

METODO: Dal Settembre 1999 al settembre 2003 abbiamo operato 84 pazienti portatori di emorroidi di II - III e IV grado (72 primitive e 12 recidive) con la suddetta tecnica che consiste nell'individuazione della sottomucosa con soluzione adrenalinica 1/200.000 e successiva asportazione dei noduli emorroidari mediante diatermo-coagulazione senza legatura dei peduncoli vascolari.

RISULTATI: I pazienti sono stati dimessi nel pomeriggio o al massimo il giorno dopo. Il dolore post-operatorio è stato lieve o assente. Al momento della dimissione sono stati dati ai pazienti un opuscolo con un elenco di norme dietetiche e igieniche e 2 questionari riguardanti l'intensità e l'aspettativa del dolore per le sei settimane successive all'intervento. Non si sono verificate emorragie né stenosi post-operatorie né disturbi della funzionalità sfinterica.

CONCLUSIONI: Il metodo che utilizziamo ci sembra sicuro ed affidabile perché riduce notevolmente il dolore post-operatorio, non espone a recidiva e, se correttamente eseguito, non altera l'attività sfinterica. Inoltre ha un bassissimo costo.

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