

Current Trends in the Management of Haemorrhoids

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Abstract

Haemorrhoidal disease represents one of the most common conditions, for which there are numerous treatment strategies, both surgical and non-surgical. This paper aims to present evidence from the literature for the current trends in the management of haemorrhoids.

Introduction

Treatment of haemorrhoids makes up a large proportion of a both General Practitioner's and General Surgeon's workload. They represent one of the common proctology conditions, although the exact prevalence is difficult to quantify due to patients' reluctance to consult because of embarrassment or fear. One study reported a prevalence of 4.4% in the USA, with a peak prevalence occurring in both sexes between the ages of 45-65.¹

Haemorrhoids are symptomatic dilated anal cushions, which have a normal physiological role in maintaining continence. A combination of ageing, resulting in degeneration of the connective tissue framework ("suspensory ligaments of Parks"²) supporting the anal cushions, together with the repeated passage of hard stools, leads to their descent and prolapse. This in turn results in venous engorgement that can be exacerbated by further straining or conditions in which there is raised intra-abdominal pressure, such as pregnancy. Localized trauma to the prolapsing tissue

causes bleeding.³

Haemorrhoids are generally classified as external or internal with relation to the dentate line, whilst internal haemorrhoids (arising above the dentate line) are further subdivided according to the degree of prolapse. First degree piles remain internal but bleed. Second degree piles prolapse on defaecation, but reduce spontaneously, whilst third degree require manual reduction. Fourth degree haemorrhoids are permanently prolapsed and cannot be reduced.⁴ Other than being descriptive, haemorrhoid grade has relevance for the most appropriate treatment option; the remainder of this paper will focus on current management strategies. Newer treatments (stapled haemorrhoidectomy) have lead to further descriptive terms of circumferential haemorrhoids and anal prolapse.⁵

Conservative treatment

Lifestyle modifications, including dietary measures (increased fibre and water intake), reduced straining, and improved hygiene are an integral part in the management of haemorrhoids. Fibre supplements have been shown in a meta-analysis to improve overall symptoms and bleeding,⁶ although there is little supportive evidence for the other measures. There are no randomized trials to support the use of over the counter preparations that contain combinations of

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local anaesthetic, steroids and antiseptics.

Office-based procedures

Injection sclerotherapy

5 ml of oily phenol is injected submucosally at the base of the haemorrhoid, resulting in an inflammatory reaction and intravascular thrombosis that creates submucosal fibrosis and scarring, thus minimizing the extent of mucosal prolapse. Complications are rare, but include local infections, portal pyaemia, prostatitis and erectile dysfunction,⁷ the latter two demonstrating the need to only inject into the submucosal space as opposed to too deeply. Conservative treatment with fibre supplementation may be as effective as injection sclerotherapy.⁸

Rubber band ligation

Ligation of the haemorrhoidal tissue was first described in 1963,⁹ and results in ischaemic necrosis, ulceration and scarring that tethers connective tissue to the rectal wall, preventing further anal cushion prolapse. It is important to apply the band to the base of the haemorrhoid, above the dentate line, to minimize the risk of post-procedural pain. Other complications include haemorrhage, either primary or secondary (occurring 5 to 10 days post-procedure), and more rarely urinary retention, liver abscesses and perianal sepsis.¹⁰ A prospective, randomized trial, in which patients with grade I to II haemorrhoids were randomized to receive either consecutive one-site bandings or three-sites banded in one sitting, demonstrated both methods were effective treatment options, with similar incidences of complications and pain.¹¹

The efficacy of rubber band ligation has been compared to injection sclerotherapy and surgical excision in a number of studies. A meta-analysis of 18 trials¹² comparing treatment options for grade I to III

haemorrhoids found that patients who underwent haemorrhoidectomy had a better response to treatment than those whose haemorrhoids were banded. However, complications and pain were higher in the haemorrhoidectomy group. When compared with injection sclerotherapy, banding resulted in a better response to treatment, while the complication rates were similar for both. Although containing only 3 trials and a total of 216 patients with grade I to III haemorrhoids, a recent systematic review suggested that, whilst haemorrhoidectomy has a better long-term efficacy than rubber band ligation, the latter option results in less postoperative pain and complications (including urinary retention, haemorrhage and anal stenosis).¹³

Surgical treatment

Surgical treatment of haemorrhoids should be reserved for patients who have not responded to outpatient treatment, patients with large external haemorrhoids, and patients with grade III to IV mixed (internal and external) haemorrhoidal disease. There are a number of different options available. The conventional procedure aims to excise the external and internal haemorrhoidal tissue, either closing the anorectal mucosa or leaving the wound open. Numerous instruments are used to perform haemorrhoidectomy, including scissors, electrocautery, bipolar scissors, LigaSure (Valleylab, Covidien), or Harmonic Scalpel (Ethicon Endo-Surgery, Inc). More recently, stapled haemorrhoidectomy has gained favour in certain circumstances.

Open haemorrhoidectomy

Open haemorrhoidectomy, also known as Milligan Morgan haemorrhoidectomy, is popular in the U.K and Europe. Haemorrhoidal tissue and vessels involved

are excised from the underlying internal anal sphincter muscle up to the base, or pedicle, of the anal cushion, leaving the mucosal defect open to heal by secondary intention. Most surgeons use electrocautery, with or without ligation of the pedicle. It is important to leave adequate bridges of anoderm to prevent anal stricturing. Numerous strategies to minimize postoperative pain have been investigated since the procedure is now routinely performed as a day case. A combination of adequate peri- and postoperative anaesthesia and analgesia, combined with laxatives and a diet high in fibre and fluid intake, helps minimize pain; oral metronidazole,¹⁴ topical diltiazem¹⁵ or injected botulinum toxin¹⁶ have marginal benefit. Complications of open haemorrhoidectomy include pain, primary or secondary haemorrhage, urinary retention, anal stenosis, and anal sphincter damage (demonstrated in symptomatic patients after haemorrhoidectomy by endo-anal ultrasound¹⁷) resulting in incontinence. There is no place for anal stretch or lateral sphincterotomy in modern haemorrhoid surgery.

Closed haemorrhoidectomy

The technique of closed haemorrhoidectomy (also known as Ferguson's haemorrhoidectomy) is more popular in the USA, and involves the excision of haemorrhoidal tissue, as in the open procedure, followed by closure of the mucosal defect by sutures. Post-operative management principles and potential complications are similar to those for open haemorrhoidectomy.

A prospective randomized trial that compared open versus closed haemorrhoidectomy in patients with grade III or IV haemorrhoids (40 patients in each group) demonstrated less postoperative pain in the closed group (assessed by linear

analogue scale, $p < 0.05$) and faster wound healing ($p < 0.001$).¹⁸ Another prospective study concluded that closed haemorrhoidectomy lead to faster wound healing ($p < 0.05$), although there was no difference in postoperative pain or complications.¹⁹

LigaSure and Harmonic Scalpel haemorrhoidectomy

Both LigaSure (Valleylab, Covidien) and Harmonic Scalpel (Ethicon Endo-Surgery) have been used more recently for haemorrhoidectomy due to their ability to coagulate and cut tissue. LigaSure is a bipolar electrothermal device, while Harmonic Scalpel relies on ultrasonic waves that have their effect locally with reduced lateral thermal effect; the theoretical advantage of using such devices being a reduction in tissue damage adjacent to the excised haemorrhoidal tissue. Results from trials comparing Harmonic Scalpel with more traditional methods of haemorrhoidectomy have generated differing conclusions. A prospective study revealed no advantage for Harmonic scalpel over closed haemorrhoidectomy in terms of operative time, postoperative pain, or faecal incontinence,²⁰ whilst another prospective study showed harmonic scalpel to result in less postoperative pain and hence greater patient satisfaction.²¹

Stapled haemorrhoidectomy

Developed in the 1990s, stapled haemorrhoidectomy has numerous acronyms: procedure for prolapsing haemorrhoids (PPH), circular stapler haemorrhoidopexy, and stapled anopexy, among others. The technique relies on a specially designed circular stapler that excises a circumferential ring of mucosa approximately 2-3 cm above the dentate line,

which hitches up the prolapsed mucosa and divides the feeding arteries to the haemorrhoid.²² Indications for stapled haemorrhoidectomy include grade III and grade IV haemorrhoids that are reducible at operation, circumferential haemorrhoids, and in patients in whom other treatments have failed,²³ whilst contraindications include perianal sepsis, anal stenosis and full-thickness rectal prolapse. Complications include pain, usually due to a staple line too close to the anal verge, rectal perforation, anastomotic dehiscence, rectal stricture, and rectovaginal fistula.²⁴

A recent systematic review examined a total of 25 randomized, controlled trials comparing stapled with conventional haemorrhoidectomy.²⁵ Stapled hemorrhoidopexy was associated with less operating time, earlier return of bowel function, shorter hospital stay, and less pain, as evidenced by lower pain scores at rest and on defaecation. It also allowed a faster functional recovery with shorter time off work, earlier return to normal activities, and better wound healing, and had higher patient satisfaction. However, there was an increase in haemorrhoid recurrence at one year or more after the stapled procedure (5.7 vs. 1 per cent; odds ratio, 3.48; $p = 0.02$), while the overall complication rate did not differ significantly due to stapled haemorrhoidopexy having less postoperative bleeding (odds ratio, 0.52; $p = 0.001$), wound complications (odds ratio, 0.05; $p = 0.005$), constipation (odds ratio, 0.45; $p = 0.02$), and pruritus (odds ratio, 0.19; $p = 0.02$). The overall conclusion of the review was that stapled haemorrhoidectomy is safe with many short-term benefits and long-term results that are similar to conventional haemorrhoidectomy. The findings of this study have subsequently been replicated in a larger meta-analysis of 29 randomized clinical trials.²⁶

Newer techniques

Doppler guided haemorrhoidal artery ligation

A technique still in its infancy, Doppler guided haemorrhoidal artery ligation uses a specially adapted proctoscope with an in-built Doppler probe which is used to detect the feeding haemorrhoidal artery that is subsequently ligated. A study that reported results of the technique for 308 patients, predominantly with grade II and III haemorrhoids, demonstrated that there was little pain, minimal morbidity and around 60% patient satisfaction in terms of resolution of symptoms.²⁷

Cryosurgery

Cryosurgery is based on tissue damage caused by very low temperatures that result in ice crystal formation within cells and disruption of the cell membrane. It was proposed that destruction of sensory nerve endings would result in less postoperative pain; however, trials assessing its uses have shown otherwise,²⁸ and it is recognized now to be associated with more complications including prolonged healing and anal discharge.

Infrared coagulation

Infrared light is used to coagulate the haemorrhoidal tissue, ultimately leading to fibrosis. A meta-analysis of 5 trials comparing infrared coagulation, injection sclerotherapy, and rubber band ligation to determine the optimal non-operative haemorrhoid treatment demonstrated that similar numbers of patients were asymptomatic 12 months after treatment, regardless of initial therapy. However, infrared coagulation was associated with both fewer and less severe complications, hence, the study suggests infrared coagulation may be the optimal non-operative haemorrhoid treatment.²⁹

However, further randomized studies are required to assess the short and long term outcomes of these new techniques.

Conclusion

There appears to be a consensus in the literature that most haemorrhoidal disease can be managed with simple lifestyle adaptations, including dietary and bowel habit modifications. Grade I, II and sometimes III haemorrhoids can be treated successfully in a large proportion of patients by office based procedures, either rubber band ligation or injection sclerotherapy, depending on the clinician's usual practice. Grade IV and some grade III haemorrhoids, together with those that fail to respond to office based procedures, are most effectively treated by traditional haemorrhoidectomy, although there is increasingly compelling evidence to support the use of stapled haemorrhoidectomy. We feel stapled haemorrhoidectomy should be used selectively for circumferential prolapse and in the absence of external tags for best outcome. Other less common procedures have their advocates, but further evidence is required before their use becomes more widespread.

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APPROPRIATE USE OF DRUG-ELUTING STENTS : BALANCING THE REDUCTION IN RESTENOSIS WITH THE CONCERN OF LATE THROMBOSIS

Restenosis is a serious occurrence that can lead not only to recurrent angina and repeat revascularization but also to acute coronary syndromes. Drug-eluting stents revolutionized interventional cardiology owing to their pronounced ability to reduce restenosis compared with bare-metal stents. Attention has now shifted to safety of these devices because of evidence suggesting an association with late stent thrombosis. Findings of randomised clinical trials have not shown that drug-eluting stents result in excess mortality after 4-5 years of follow-up. Current recommendations are that individuals with a drug-eluting stent should receive at least 12 months of uninterrupted dual antiplatelet treatment; patients must understand the importance of this long-term regimen. Patients' assessment should focus on bleeding abnormalities, pre-existing disorders that need anticoagulation treatment, and possible future surgical procedures, since these factors could all contraindicate use of drug-eluting stents. Many people will do well with a bare-metal stent, whereas for individuals with a high likelihood of restenosis and late thrombosis, medical management or surgical revascularization might be preferred options.

The Lancet, 2008; 371 : 2134.