

A prospective evaluation of stapled haemorrhoidopexy/rectal mucosectomy in the management of 3rd and 4th degree haemorrhoids

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Abstract

Objective We have audited our 5 years experience of circumferential-stapled haemorrhoidopexy (PPH).

Method A prospectively collected electronic data base of our 5-year experience to September 2005 has been examined.

Results A total of 357 consecutive patients (220 – 62% women, median age 46 years; range 28–92) with symptomatic third- and fourth-degree haemorrhoids (ratio 222:135) have undergone a stapled haemorrhoidopexy/rectal mucosectomy. One hundred and thirty-two (37%) had failed previous banding; 42 (12%) had undergone a Milligan–Morgan haemorrhoidectomy in the past. All but one was performed under general anaesthetic. Mean duration of surgery was 15 min (range 11–40); 299 (84%) were planned day cases (three patients were admitted overnight for pain relief (2) and retention of urine) and 57 were planned successful overnight stays. Reactive postoperative bleeding requiring a blood transfusion occurred in three patients (0.8%): one returned to theatre (0.2%). Three patients (0.8%) had a secondary

haemorrhage requiring a hospital visit, one was admitted overnight. Four patients complaining of severe pain were managed in the community. Transient urgency was reported in 92 patients (26%); 58 (63%) were men, faecal impaction 4 (1.1%), minor staple line stenosis requiring dilatation 5 (1.4%), peri-anal sepsis from an associated untreated chronic anal fissure 1 (0.2%). Normal work was resumed between 3 and 31 days (median 7). Five patients re-presented with recurrent symptoms between 14 & 18 months: further treatment comprised a repeat PPH in three (one was very painful), banding 1 and reassurance alone. A further patient re-presented with minor soiling which responded to physiotherapy.

Conclusion Stapled haemorrhoidopexy/rectal mucosectomy is a safe, effective and predictable treatment of third- and fourth- degree haemorrhoids and in the majority of patients can be carried out on a day case basis.

Keywords Stapled haemorrhoidopexy, anoplasty, rectal mucosectomy, haemorrhoids

Introduction

Submucosal diathermy excision [1] or the more traditional Milligan–Morgan [2] haemorrhoidectomy remain the cornerstones of the surgical management of stage III (prolapse on straining and require manual reduction) and IV haemorrhoids because when skilfully performed, they produce consistently good results. Haemorrhoidectomy, however, has a justifiable reputation for being painful, has a risk of postoperative haemorrhage, long-term internal sphincter damage and anal stenosis. There is no evidence

that closure of the perineal wound, reduces pain [3]. Whilst there has been some enthusiasm for day case haemorrhoidectomy over the last decade, only 19.6% were performed as day cases in 2004 [4]. However, this still represents a significant rise from the 5.7% reported 7 years earlier.

Stapled haemorrhoidopexy [5] excises the mucosal prolapse and reduces the prolapsing haemorrhoid to its normal position and in doing so restores the anal mucosa and the perianal skin. Interruption of the haemorrhoidal blood supply probably also reduces their bulk. Reported advantages of the technique include; significant reductions in pain and complications, leading to an enhanced recovery [6–8]. Its suitability to the day case setting can lead to financial savings [9,10]. Follow-up studies suggest

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that it is equally effective [11] as the more traditional approach and that internal anal sphincter function is maintained [12]. The National Institute of Clinical Excellence (NICE) supports the use of stapled haemorrhoidectomy [13] and suggests a learning curve of 10–12 cases. We report our experience of this new and exciting technique.

Method

A prospectively collected electronic database identified all patients who had undergone a stapled haemorrhoidopexy. A total of 357 consecutive procedures were carried out (220 – 62% women, median age 46 years; range 28–92) for symptomatic third- and fourth-degree haemorrhoids (ratio 222:135) over a 5-year period. Thirty per cent of patients ($n = 107$) were aged 69 and above. One hundred and thirty-two (37%) had failed a previous banding and 42 (12%) had undergone a Milligan–Morgan excision haemorrhoidectomy within the previous 15 years.

All patients received phosphate enema bowel prep and all operations were performed by, or under the direct supervision of a consultant surgeon. All were performed in lithotomy using Allen stirrups with exaggerated hip flexion and abduction. All but one were performed under general anaesthesia. Anaesthesia was induced with propofol, 100 mcg of fentanyl, 10–15 mg morphine and maintained using air, oxygen and isoflurane. Three patients required endotracheal intubation, the others received intermittent positive pressure ventilation (IPPV) using a laryngeal mask airway. Brief, intense, paralysis was provided by 25 mg of atracurium in the earlier cases. The latter allows for safe and easy introduction of the anal dilator and obturator. As we became quicker with the surgery, atracurium's duration of action became excessive. We now use mivacurium administered a minute or two before surgery starts.

The anal sphincter is protected by digitally ensuring that none encroaches above the anal obturator. The anoscope is maintained in position against the anal retractor using a Rampley's forceps. A 2/0 polypropylene purse string begins and ends at the site of the maximum prolapse, usually 3–4 cm above the dentate line.

In IV degree haemorrhoids it is often easier to place the purse string external to the anal canal above the prolapsed anal cushions. Three artery forceps, applied to the ano-cutaneous junction as in a traditional Milligan–Morgan haemorrhoidectomy, are used to increase the degree of prolapse. The fully opened PPH circular stapler (Ethicon Endo-Surgery, Bracknell, UK) with covering anal retractor is inserted and the purse string tied. The gun is fired once the prolapse has been reduced and the

anal retractor inserted. In no case was additional surgery performed for other anal pathologies (e.g. skin tags). Staple line haemostasis was achieved where necessary using 3/0 dissolvable sutures.

Antimicrobial prophylaxis was provided by 1.2 g co-amoxiclav (cefuroxime/metronidazole when penicillin sensitive). Intravenous paracetamol, diclofenac, fentanyl and morphine provided intra-operative analgesia. The extra sphincteric plane was infiltrated with 0.5% bupivacaine. Patients were discharged with a 14-day supply of fybogel, diclofenac and paracetamol.

The first 50 patients were reviewed at 4–6 weeks and after a further 3 and 6 months. Once the operation had become predictable, the subsequent 307 patients were only reviewed at 4–6 weeks. They then underwent a telephone consultation at 6 months. All 357 patients had free access to an open outpatient appointment during the first postoperative year. All were encouraged to return to the clinic if any problems occurred in the future.

Results

Two hundred and ninety-nine (84%) operations were carried out as day cases. Fifty-seven patients (16%) were discharged after a planned overnight stay. Three planned day case patients were admitted overnight, two for pain relief and one with acute retention of urine.

The procedure was carried out under general anaesthetic in all but one case where a spinal saddle block was employed. The mean duration of surgery was 15 min (range 11–40). Reactive postoperative bleeding requiring a blood transfusion occurred in three patients (0.8%): one returned to theatre (0.2%) for a brisk staple line arterial bleed 4 h postsurgery. Three patients (0.8%) had a secondary haemorrhage within 5 days of surgery requiring a visit to hospitals A&E department, one was admitted overnight. None required a further surgical intervention.

Four patients complaining of severe pain were managed by their GP in the community following a telephone consultation using a combination of reassurance, early outpatient review, oral morphine (10–20 mg prn) augmented by a 28-day course of amitriptyline 10–20 mg nocte. All 357 patients were followed up at 6–8 weeks. Transient urgency was reported in 92 patients (26%); 58 (63%) were men. Four patients developing early faecal impaction (1.1%) responded to a phosphate enema. Five patients (1.4%) developed symptomatic (frequency, urgency) staple line stenosis. Each responded to a gentle dilatation under a general anaesthetic. A final patient (0.2%) developed a substantial peri-anal abscess from an associated, untreated chronic anal fissure.

Normal work was resumed at between 3 and 31 days (median 7). Five patients have re-presented with

recurrent symptoms between 14 & 18 months: further treatments comprised a repeat PPH in three (one of which was very painful), banding, and reassurance alone. A final patient re-presented at 11 months with minor soiling which responded to a course of pelvic floor physiotherapy; endo-anal ultrasound and anorectal physiology studies were normal.

When asked directly at 6 months, all 50 patients reviewed in outpatients and all 289 who underwent a telephone consultation were very satisfied with their surgery. Eighteen patients did not respond to a written communication. This positive response was particularly so in the six patients who had experienced a previous Milligan–Morgan excision haemorrhoidectomy. No objective visual assessments were made postoperatively.

Discussion

Symptomatic haemorrhoids are the clinical manifestations of the downward disruption of normal anal cushions from their suspensory ligaments [14]. Ambulatory rubber band ligation remains the cornerstone of treating secondary degree haemorrhoids. It is not so good for third degree haemorrhoids and in the long term is associated with a high recurrence of symptoms [15,16]. Whilst stapled haemorrhoidopexy follows many of the principles that apply to banding, it differs in providing for a circumferential restoration of the prolapsed cushions its normal physiological position. Associated fibrosis may further assist in its maintenance. The mucosectomy can be targeted/maximized in that downward traction of the purse string preferentially pulls in more mucosa at its entry and exit point.

Our experience confirms that there is a definite learning curve to the technique in optimizing the ease of performing the stapled haemorrhoidopexy and in minimizing pain and complications. Although we present no data to support it, experience has taught us that a figure of 30 cases to be more realistic than the 10–12 suggested by NICE [13]. We abandoned the prone jack-knife position in favour of lithotomy and fully paralysed our patients early on in our experience. The change arose out of necessity in an anaemic 22 stone male patient with recurrent fourth-degree haemorrhoids, post two previous excision haemorrhoidectomies. The combination of paralysis and exaggerated hip flexion – knee extension obtained using Allen stirrups allows for easy introduction of the anal dilator/obturator and overcomes any potential problem from intrusion of the ischial spines against the outer ring of the obturator. The ease of the surgery and subsequent outcome caused us to abandon our initial scepticism of the new technique which we had, up to then, considered a passing fad. Views of the anterior

mucosa are optimized using a combination of Trendelenberg tilt, exaggerated hip flexion and a Rampley forceps clamped to the anoscope and anal retractor angulated against the end of the theatre table i.e. no assistant is required.

The most important postoperative complication, bleeding (reactive and secondary) was observed in six patients (2%), three of which were significant and one life threatening. Whilst alarming and dramatic when it occurred, this is very low compared with published data where rates varying between 6–25% [3,6,7,17,18]. It is difficult to explain this difference other than to say that the three reactive haemorrhages occurred within our first 50 cases. We quickly learnt the importance of releasing the circular stapler as it was fired and the need to actively examine the suture line with a swab for signs of haemorrhage. The narrower closed circle height of the newer PPH03 tends to be associated with venous bleeds compared to arterial bleeding with the wider PPH01. Any bleeding point is secured with an isolated figure-of-eight absorbable suture.

We believe that the cases of minor rectal stenosis seen in our early experience occurred as a result of our tendency to place the purse string, as we had been taught, a little too high at 5 cm. This has not been a problem since modifying our technique. We do offer open outpatient follow-up to any patient who continues to experience excessive pain, frequency and urgency suggestive of possible stenosis. Early concerns about the risks of rectal or vaginal perforation [19] and pelvic sepsis [20] have not materialized, possibly due to the slow and as yet limited uptake of the technique. The latter has probably arisen out of financial constraints rather than concerns about the technique itself.

Transient self-limiting faecal urgency with occasional incontinence was reported in 26% of our patients and did not appear to relate to grade of prolapse. This figure is considerably higher than the 5% recently reported from a substantially smaller series [17] yet comparable with the 31% reported in a small series from St Marks [10]. This difference probably is a function of time and reporting. Urgency and incontinence may have arisen through a combination of tissue oedema/thrombosis and disruption of the anatomy and function [14] of the normal anal cushions as follow-up examination of the staple line demonstrated no abnormality (malposition or sepsis) other than some deep tenderness of the puborectalis to digital pressure posteriorly. The anal dilator and obturator may in some individuals have contributed to the development of these symptoms through dilating the internal anal sphincter.

Whilst postoperative discomfort does occur it appears to be considerably less than our experience with other

techniques. It certainly did not preclude day surgery, which was carried out successfully in 81% of our cases. Three male patients were admitted overnight for pain control and urinary retention [1]. The rate of day case surgery for excision haemorrhoidectomy in our institution over the same study period was 24%. The financial savings arising through improved theatre utilization, reduced bed days and small financial gain from tariff payment, as worked out by our hospital's finance department when concerns were made about the cost of the procedure, more than compensates for the cost of the instrumentation. As a result of this business planning our Trust has allowed us to continue providing the service. High rates (87%) of successful day case haemorrhoidopexy have been reported [21]. This latter study also reported high levels (89%) of patient satisfaction.

Four patients with pain were managed successfully in the community with reassurance, oral morphine, amitriptyline and early review. We have had no problems with patients going on to develop persisting rectal pain as reported by Cheetham *et al* [10]. Pain associated with urgency has in all cases responded to reassurance, low-dose amitriptyline and time. If we now perform PPH in a patient in whom we would consider highly susceptible to the effects of postoperative pain we discharge them with a short supply of oral morphine and a 4-week course of amitriptyline.

What has been clear from our experience is the very good short to medium term results. The median time for return to work following surgery was 1 week (range 3–31 days), longer than the 4 days recently reported from a substantial yet smaller series [21]. To date only five of the 357 patients have represented, as requested, with recurrent symptoms; three underwent a repeat procedure and one banding. This is significantly better than the 19% and 7% reported recurrence for 4th and 3rd degree reported by others [17]. We believe that that our reported modifications of technique, lower placement of the purse string suture, occasional resort to a second circular device and insistence on full paralysis has played an important role in achieving the above. Since adopting and learning how to carry out PPH we have abandoned excision diathermy haemorrhoidectomy. Provided that patients are appropriately selected and counselled, high rates of successful day case surgery and rapid return to work are achievable.

As this paper was first submitted, a massive series of 3711 patients has been reported from the department of colorectal surgery, Singapore General Hospital [22]. Whilst the patients were of similar age, they were equally split between the sexes and only 59% had either grade III or IV prolapse. However, time for surgery, percentages of patients with pain requiring readmission, perianal sepsis and anorectal stricturing requiring intervention was

exactly the same as in our smaller series. This would suggest that these are a function of surgical technique. Their higher rates of urinary retention (4.9%), bleeding (4.3%) and short-term recurrence (0.3%) probably reflect the enormous size of their series and the higher proportion of male patients. There is no mention of the faecal urgency that we observed in 26% of patients. Our study confirms the Singapore experience that stapled haemorrhoidectomy is a safe, predictable and effective treatment of symptomatic III and IV degree haemorrhoids that would have traditionally been managed by excision surgery.

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