with a high inter-sphincteric fistula. It is important to avoid the pudendal nerve. The coccygeal attachments external to the EAS into the apex of the ischiorectal fossa. It is extensions. In this situation, it may be necessary to explore if the patient had had two or more previous repairs. Continence was worse in seven patients (30%) and improved in five patients. If the patient had had previous surgery for sepsis or repair and three patients (9%) had spontaneously discharged. There was a primary healing rate of 71% and this rose to 97% after further surgery. 33 of the patients had a single track, 20 trans-sphincteric, five supra-sphincteric, six ano-rectal, one extra-sphincteric and one inter-sphincteric. Two patients with trans-sphincter and supra-sphincteric fistulae had more than one track. Ten patients (29%) recurred. Two of these had an abscess with no obvious fistula. Nine of the ten patients healed. Four had a redo flap (after seton staging in two). Two had a fistulotomy (after seton staging in one) and two had abscess drainage only. Another two patients with ano-rectal fistulae had a direct repair and both of these had stomas. One of the latter remained unhealed. Only four patients (12%) had impaired continence. One patient who had recurrent abscess formation, one recurrent fistula, one had Crohn’s disease with a previous coloectomy and one had had seven previous operations for a supra-sphincteric fistula. In 1998, Kreis and his colleagues published the results of 24 full thickness flaps with early failure in four patients. All healed after repeat operation and there was a 38% recurrence rate at four years follow-up. Seven of the sixteen patients with Crohn’s disease recurred versus two of the eight without Crohn’s.

A recent alternative to cutaneous flap repair has been suggested with reports by Del Pino et al (1996), Kohler and Athanasiadis (1996), Robertson and Mangione (1998), Jun and Choi (1999) reporting recurrence rates ranging from 5-21% and good continence rates. However, Zimmerman and colleagues in 2001 reported less impressive results in 26 patients. 20 of these (77%) had had previous repair. 23 patients were assessed at a median follow-up of 25 months and successful healing was achieved in 12 (46%). There was a 78% success rate in patients with zero or one previous repairs failing to a 29% success rate if the patient had had two or more previous repairs. Continence was worse in seven patients (30%) and improved in five patients.

More recently, an alternative cutaneous flap repair has been suggested with reports by Del Pino et al (1996), Kohler and Athanasiadis (1996), Robertson and Mangione (1998), Jun and Choi (1999) reporting recurrence rates ranging from 5-21% and good continence rates. However, Zimmerman and colleagues in 2001 reported less impressive results in 26 patients. 20 of these (77%) had had previous repair. 23 patients were assessed at a median follow-up of 25 months and successful healing was achieved in 12 (46%). There was a 78% success rate in patients with zero or one previous repairs failing to a 29% success rate if the patient had had two or more previous repairs. Continence was worse in seven patients (30%) and improved in five patients.

3. Complex anal fistulae can be complicated by high horseshoe extensions. In this situation, it may be necessary to explore external to the EAS into the apex of the ischiorectal fossa. It is important to avoid the pudendal nerve. The coccygeal attachments of the EAS often need to be divided to gain access and the surgeon should beware the suprarectal horseshoe extension associated with a high inter-sphincteric fistula.

Ano-vaginal Fistulae are usually treated with an advancement flap repair. For recurrent fistulae after flap repair or if the sphincters have been damaged, I prefer a perineal approach through the sphincter complex to excise the fistula and repair the sphincters directly.

With the less common Extra-sphincteric Fistulae, rectal or colonic pathology should be addressed with appropriate resection. If the fistula has arisen in an infected anal gland, the anal gland origin in the inter-sphincteric plane should be dealt with conventionally after a covering stoma is constructed.

A temporary colostomy should be considered in recurrent fistulae after flap repair; recurrent ano or rectovaginal fistulae, selectively as an adjunct to formal repair in quiescent Crohn’s disease, and in extra-sphincteric fistulae.

Ano-vaginal fistulae associated with Crohn’s disease can be addressed under three headings namely Acute, in Remission, and Failed Medical Treatment. In the acute situation, conservative measures only are indicated with adequate drainage, usually with the help of a seton, plus medical treatment. If the Crohn’s disease is controlled by medical measures, selective repair using a rectal advancement flap can be considered. Alternatively, a long term draining seton can be used. McCourtney and Finlay in 1996 obtained satisfactory results with a cutting seton. Approximately 20% of patients who fail medical treatment will require proctocolectomy. In our 1999 series, three patients with enteric haemorrhoidectomies plus excision of the main secondary pile with subsequent mucocutaneous reconstitution or a modification of the whitehead or radical haemorrhoidectomy.

These techniques however are not entirely satisfactory. Patients with large third- or fourth- degree circumferential prolapsed haemorrhoids deemed not suitable for conventional three piles haemorrhoidectomy, admitted between January 1992 and June 1993 under the care of one surgeon, were prospectively randomized to undergo either radical haemorrhoidectomy (group 1) or four piles haemorrhoidectomy (group 2) by opening sealed envelopes in the operating theatre.

In group 2, patients had diathermy excision of the three primary piles. The largest remaining pile bearing mucocutaneous bridge was then brought down by incising the proximal end of the bridge and dissecting it from the underlying circular sphincter muscle. Haemorrhoidal tissue and excess mucosa were excised. The mucocutaneous bridge was then reconstituted with 00 prolactin interrupted sutures.

In group 1, the anorectal mucosa was divided into thirds circumferentially and each third was dealt with in turn. Two pairs of artery forceps were used to cause further prolapse of the normal rectal mucosa above the pile-bearing area and to put this third of the anorectal circumference at a stretch. A suitable point above the dentate line was chosen and an incision made along this line for one-third of the circumference of the anal canal. The mucosal flap was then raised free from the underlying circular internal anal sphincter. Grossly evident haemorrhoidal tissue and excess mucosa were then removed. Devascularization of the flap by over-enthusiastic removal of haemorrhoidal tissue was carefully avoided. The flap was then stitched to the proximal divided edge of the rectal mucosa and circular internal sphincter at that point with interrupted 00 prolactin, thereby pulling the anal skin and mucosa upwards into the anal canal. This level was always at, or above that, of the previous dentate line. This procedure was repeated for the remaining two-thirds of the anal canal and haemorrhoids. Occasionally, when flap tension was excessive as a result of too much skin or mucosa, circumferential release incisions were made as required.

The results are not entirely satisfactory (Table 1). At 6 months, two patients with radical haemorrhoidectomy were disappointed with their outcome, ten were satisfied and two thought they had excellent surgery. In the four piles haemorrhoidectomy group, one patient was disappointed, seven satisfied and six had excellent results. Hence we concluded that four piles haemorrhoidectomy was significantly easier to perform and although residual tags and piles are left behind, the operation was preferred to radical haemorrhoidectomy. Currently however this discussion is immaterial as stapled haemorrhoidectomy adequately deals with most cases of circumferential prolapse.

Conventional surgical haemorrhoidectomy moreover is not based on a correction of pathophysiology but on ablation of symptoms. Hence if prolapsed piles are bleeding, painful or otherwise symptomatic, these piles are excised. Piles by themselves are normal vascular cushions and are not pathological. Prolapsed haemorrhoids are therefore not pathological unless symptomatic. Totally asymptomatic individuals can be made to engage their anal cushions during proctoscopy by straining down or by doing the Valsalva manoeuvre. This sort of engagement.
may be aggravated by straining in the squatting position. Once prolapse occurs, further engorgement of these vascular cushions occurs leading to pain and inflammatory response. Anal spasm then prevents reduction and pathological changes with thrombosis, oedema and inflammatory changes occur.

Chronicity is caused by repeated prolapse and congestion of these vascular cushions. The vascular cushions hence prolapse easily and allows the anal sphincters to constrict resulting in haemorrhoidal congestion, oedema and pain.

Conventional surgical haemorrhoidectomy attacks the symptoms alone without regards to restoration of normal physiology by fixation of the congested anal cushions. Stapled haemorrhoidectomy on the other hand corrects the primary pathology resulting in resolution of haemorrhoidal symptoms.

An elegant reduction of prolapsed haemorrhoidal tissue, the technique then excises redundant lower rectal mucosal and fixes the prolapse back into its proper place on the wall of the anal canal. Fixation of this prolapse into muscle may be important to help prevent subsequent re-displacement and recurrence.

As previously mentioned, once reduced, the engorged haemorrhoidal tissues rapidly decongest and shrink. This theory is borne out in clinical practice.

However, even stapled haemorrhoidectomy on its own cannot deal adequately with very massive haemorrhoidal prolapse. Massive haemorrhoids are prolapsed haemorrhoids more than 3 to 4 centimetres outside the anal verge. In this situation, there is not enough space within the staple housing to contain the massive redundant tissue of the prolapsed haemorrhoids. If stapling as originally described is performed, much residual haemorrhoids will remain prolapsed and hence symptomatic relief will not be obtained. Thankfully this situation is very rare. We have now encountered 10 cases out of more than 1400 cases of stapled haemorrhoidectomy done to date.

A modified stapled haemorrhoidectomy technique has been developed in the department to deal with massive haemorrhoidal prolapse with the use of one circular PPH staple and we have found it safe and efficacious. This procedure is currently being described.

Stapled haemorrhoidectomy or one of its modifications is an excellent method of dealing with circumferential prolapsed haemorrhoids and indeed is our procedure of choice if surgical therapy for haemorrhoids is deemed necessary.

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4. Seow-Choen F.


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**Table 1 Results of radical and four piles haemorrhoidectomy.**

<table>
<thead>
<tr>
<th>Age (years)*</th>
<th>Group 1 (n = 14)</th>
<th>Group 2 (n = 14)</th>
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<tbody>
<tr>
<td>&lt; 30</td>
<td>28%(7-56)</td>
<td>34%(5-56)</td>
</tr>
<tr>
<td>30-50</td>
<td>42%(5-56)</td>
<td>46%(5-56)</td>
</tr>
<tr>
<td>&gt; 50</td>
<td>24%(5-56)</td>
<td>8%(5-56)</td>
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**CURRENT POSITION ON PHARMACOLOGICAL SPHINCTEROTOMY**

Robin Phillips

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Anal fissure hurts and surgical relief is prompt and mostly for keeps. Historically a dorsal sphincterotomy directly into the fissure was used, but this then evolved into lateral anal sphincterotomy, arguably to avoid a ‘gutter’ deformity alleged at the time to result in minor incontinence in some. But even lateral anal sphincterotomy had some problems, otherwise surgeons would not have tried modifications, such as partial bilateral sphincterotomy.

The cat was really firmly set among the pigeons by Khubchandani and Reed’s report in a large series of 1355 patients of flatus incontinence after lateral anal sphincterotomy in 35%, and accidental bowel movements in 5% (1). Not everyone would agree with incidences of incontinence as high as this, and might plump for a ballpark figure for any incontinence around 5%. Nonetheless many patients would feel it their right to be informed of such a surgical risk, and might take successful action if not adequately counselled.

Women have a much shorter anal sphincter than men, and surgical sphincterotomy often divides the entirety of it, whatever the surgeon’s actual intention. For example, 9 out of 10 women after lateral anal sphincterotomy at St Mark’s Hospital had had complete division of their internal anal sphincter (2). As up to 35% of women undergoing their first vaginal delivery can be shown on ultrasound examination to have occult damage to their anal sphincter (3). It is not hard to see how the added injury of sphincterotomy might not lead to significant faecal incontinence in some of them.

As a result of these worries regarding incontinence, there has been a rush to try new, pharmacological therapies, which, although less effective than surgery, nevertheless cannot lead to permanent incontinence. First off the blocks was nitroglycerine paste (4), followed rapidly by intra-sphincteric injection of botulinum toxin (5), and later by newer, second generation creams such as dioctrem 2% and bethanechol 0.1%, both of which drop resting anal pressure but without the side effect of headache (6).

How effective have these creams been? Many studies have shown healing rates between 60-70% with nitroglycerine, but headache is frequent and relapse relatively common (7-9). Our own experience with placebo has around 30% healing (9); another trial using 2% lignocaine gel found just under 44% healed (10). One randomised study had an unusually low rate of fissure healing on placebo at 8% (11), not in my view really compatible with most surgeon’s experience in their office practice when treating fissures with bulk laxatives and local anaesthetics alone, nor with much of the rest of the literature.

Botulinum A toxin is perhaps more effective, in one recent randomised study healing 96% of fissures at 2 months, compared to 60% on nitroglycerine paste (12). But there are issues with injecting ‘one of the most potent poisons known to man’ into the anal sphincter for a benign condition, and antibodies to botulinum A toxin may develop in up to 10% of patients so treated, raising the possibility that repeated therapy may not always be possible (13).

It is really against this background that the Canadian study by Richard et al in this issue can be considered. Only 82 patients were treated, of whom 38 underwent lateral anal sphincterotomy. A 5% chance of flatus or worse incontinence on a sample size of 38 patients is hardly likely to be demonstrated, and predictably it was not. Furthermore, the gender bias in the randomisation acts to obscure any disadvantage in females where the greatest concern lies. There were 22 men treated by internal anal sphincterotomy compared to only 16 women, whereas the potentially less damaging nitroglycerine was used in only 15 men and nearly twice as many women (29). A 5% risk of incontinence in only 16 women treated by sphincterotomy was even less likely to emerge.

The other problem with this paper is the very poor response to nitroglycerine, really equivalent at 30% with what we and others have achieved with placebo (9,10) (although not Lund and Schofield’s trial mentioned earlier (11) and far less than the 60-70% response generally experienced by others using nitroglycerine (7-9, 14). The primary outcome measure was healing at 6 weeks, whereas nearly all other research has looked at healing at 8 weeks. In Lund and Schofield’s trial (11) only 45% had healed at 6 weeks compared with 68% at 8 weeks. In our own randomised trial (9) only 25% of fissures had healed at 6 weeks.