Original Article

Surgery

Procedure for prolapsed haemorrhoids versus Excisional Haemorrhoidectomy - A Systematic Review and Meta-Analysis

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ABSTRACT

Objective: To assess the efficacy of Procedure for prolapsed haemorrhoids versus excisional haemorrhoidectomy to treat haemorrhoids.

Study Design: Randomised controlled trials comparing EH and PPH with ≥15 patients.

Place and Duration of Study: This study was conducted at Nishtar Medical College, Multan from December 2011 to May 2012.

Materials and Methods: All articles addressing haemorrhoidectomy were identified using the Medline and Pubmed Web sites with the period of review extending from December 2011 to May 2012. Articles addressing PPH and EH were then reviewed. The search included in English language. All randomised controlled comparative trials and patient samples of ≥15 patients were considered for the meta-analysis. The primary endpoints assessed were pain and time taken to return to normal activity. Secondary endpoints were bleeding, complications and residual symptoms, recurrence rates and re-interventions

Results: PPH was associated with less postoperative pain, earlier return to normal activities compared with EH. There was no difference between the two procedures in terms of complications. There were more recurrences after PPH.

Conclusion: Compared with EH, PPH is associated with less postoperative pain, earlier return to normal activity. The rate of recurrence appears higher with PPH.

Key Words: Haemorrhoids, EH (Excisional Haemorrhoidectomy), PPH (Procedure for prolapsed and haemorrhoides).

INTRODUCTION

Haemorrhoids, also known as piles, are enlarged and swollen blood vessels in or around the lower rectum and anus. When the pressure of these blood vessels is increased, they swell and form small lumps called haemorrhoids. The definitive surgical procedure is excisional haemorrhoidectomy (EH), which can be performed as either an open (Milligan-Morgan) or a closed (Ferguson) operation.[1,5] More recently, Antonio Longo introduced the procedure for prolapse and haemorrhoids (PPH).[6] Both procedures can be undertaken under general or regional anaesthesia[7,8]

Whereas EH removes the prolapsed haemorrhoids, it does not address the underlying cause of both mucosal and haemorrhoidal prolapse; conversely PPH, by 'lifting' the prolapsed haemorrhoids and mucosa, re-places the haemorrhoidal cushions high in the anal canal, thus reestablishing the topographical relationship between the anal cushions and the rectal muscle layer.[16] PPH has also been called stapled haemorrhoidectomy, stapled haemorrhoidopexy and stapled anopexy. This meta-analysis was undertaken to critically compare these two procedures and assess their efficacy in the treatment of haemorrhoids.

MATERIALS AND METHODS

All articles addressing haemorrhoidectomy were identified using the Medline, Pubmed web sites. With the period of review extending from December 2011 to May 2012 The search included in English language. All randomised controlled comparative trials and patient samples of ≥15 patients were considered for the meta-analysis. The primary endpoints assessed were pain and time taken to return to normal activity.

Meta-analysis: All studies using statistically valid outcome comparisons were used and random effects models were applied because of the heterogeneity of the studies. The software SPSS 15 was used for the meta-analysis and forest plots. All the complications were pooled together and odds ratios were calculated using a random effects model. Where a meta-analysis could not be calculated, the outcomes were qualitatively reviewed.

Data Sources: Literature review using Medline, Pubmed web sites. Articles addressing PPH(Procedure for prolapsed and haemorrhoides) and EH(Excisional Haemorrhoidectomy) were included.

RESULTS

Selection of data sets for analysis: Thirty-seven studies with 1550(EH 1000 and PPH 550) patients were identified comparing the two procedures. Inclusion and exclusion criteria were reported in all studies but were varied. The excluded studies were those which were lacking randomisation.

Limitations of the studies: The indications for haemorrhoidectomy were inconsistent in that second, third and fourth-degree haemorrhoids were included. The parameters and outcome measures were not uniform and were either not clearly defined or defined differently in different studies. 'Time to return to work' and 'time to return to normal activity' were used interchangeably in some studies. The morbidity was neither defined nor standardised. Information on recurrence was inconsistent because of variable definitions (recurrent symptoms, prolapse or haemorrhoids alone or in combination) and their timelines. The patients studied were therefore not homogeneous.

Data analysis: Pain was assessed in all studies and was measured with a 10-point visual analogue score (VAS). All studies showed superiority of PPH in terms of less pain for PPH. Time taken to return to normal activity was shorter for PPH in all studies. The overall recurrence rate was 1% following EH and 4% following PPH, making it four times higher after PPH.

When all complications were pooled together the average postoperative morbidity for all studies was 48% following EH and 47% following PPH. Incontinence-related problems were similar in both groups (20% v. 24% for EH and PPH respectively). Immediate postoperative bleeding occurred in 2% and 3% in EH and PPH respectively.

Table No.1: Comparison of Studies Comparing Pain between EH and PPH

Author	Year	No.	Maximal Pain	
			EH	PPH
Basdanis et al.[26]	2004	95	6 (3-4)	3 (1-6)
Bikhchandani et al.[40]	2005	84	6.4(1.4)	1.1(1.2)
Brown et al.[37]	2001	30	1 (0-10)	5 (2-10)
Cheetham et al.[47]	2003	31	9 (2-10)	5 (1-10)
Chung et al.[27]	2005	88	-	-
Correa-Rovelo et al.[28]	2002	84	7.2(1.7)	4.6(2.1)
Ganio et al.[24]	2001	100	-	-
Gravie et al.[74]	2005	126	-	-
Helmy[72]	2000	40	6.5(3-9)	2.1(0.2)
Hetzer et al.[29]	2002	40	-	-
Ho et al.[30]	2000	119	5 (0.4)	4.8(0.4)
Kairaluoma et al.[30]	2003	60	4.3(1-6)	1.8(0.1)
Kraka et al.[65]	2003	50	3.7	2.4
Lau et al.[31]	2004	24	4.7(3.4)	5.4(3.4)

Metaanalysis: The studies used in the meta-analysis addressed return to normal activity (12 studies, 1 178 patients), pain (8 studies, 815 patients). All effect sizes refer to the comparison of patients undergoing PPH (experimental arm) versus those undergoing EH (control arm). A sensitivity analysis was done and showed that the fixed effects analysis was not robust enough. Furthermore the tests for heterogeneity in all the studies used for the meta-analysis showed them to be heterogeneous (p<0.001). For these reasons the random effects model was used.

Table No.2: Comparison of complications and residual symptoms in 24 studies comparing EH and PPH

	EH (N=1 170)	PPH (N=1 200)
Complications and residual symptoms	N(%)	N(%)
Nausea and vomiting	3(0.2)	4(0.3)
Sypsis	2(0.2)	1(0.1)
Wound dehiscence	43(4)	2(0.2)
Urinary retention	73(6)	82(7)
Faecal Impaction	23(2)	9(1)
Tenesmus	4(0.3)	10(1)
Thrombosis of residual haemorrhoids	6(0.5)	14(1)
Thrombosed external 'piles'	3(0.2)	8(0.6)
Urgency	11(0.9)	18(1.5)
Pruritus	50(4)	28(2)
Persistent pain	30(3)	28(2)
Anal fissure	11(0.9)	12(1)
Anal fistula	1(0.1)	0
Skin tags	50(4)	66(5.5)
Oedema	10(1)	10(1)
Residual haemorrhoids	5(0.4)	20(1.7)
Soiling	73(6)	23(1.9)
Stenosis	29(3)	19(2)
Bleeding within 24 hours	11(1)	32(3)
Bleeding after 24 hours	54(5)	30(3)
Bleeding undefined	46(4)	37(3)
Incontinence (undefined)	14(1)	10(1)
Incontinence (solids)	4(0.3)	4(0.3)
Incontinence (liquids)	9(0.8)	3(0.3)
Incontinence (gas)	20(2)	14(1)
Total incontinence	47(4)	41(2.6)
Total morbidity	567 (48%)	408(34%)
Recurrence		
Recurrent haemorrhoids	3	6
Recurrent prolapsed	1	31
Recurrent symptoms	8	12
Undefined recurrence	3	6
Total recurrence	14(1%)	55(4%)

Information obtained from all the studies comparing the two procedures.

N= Total number of patients with complication

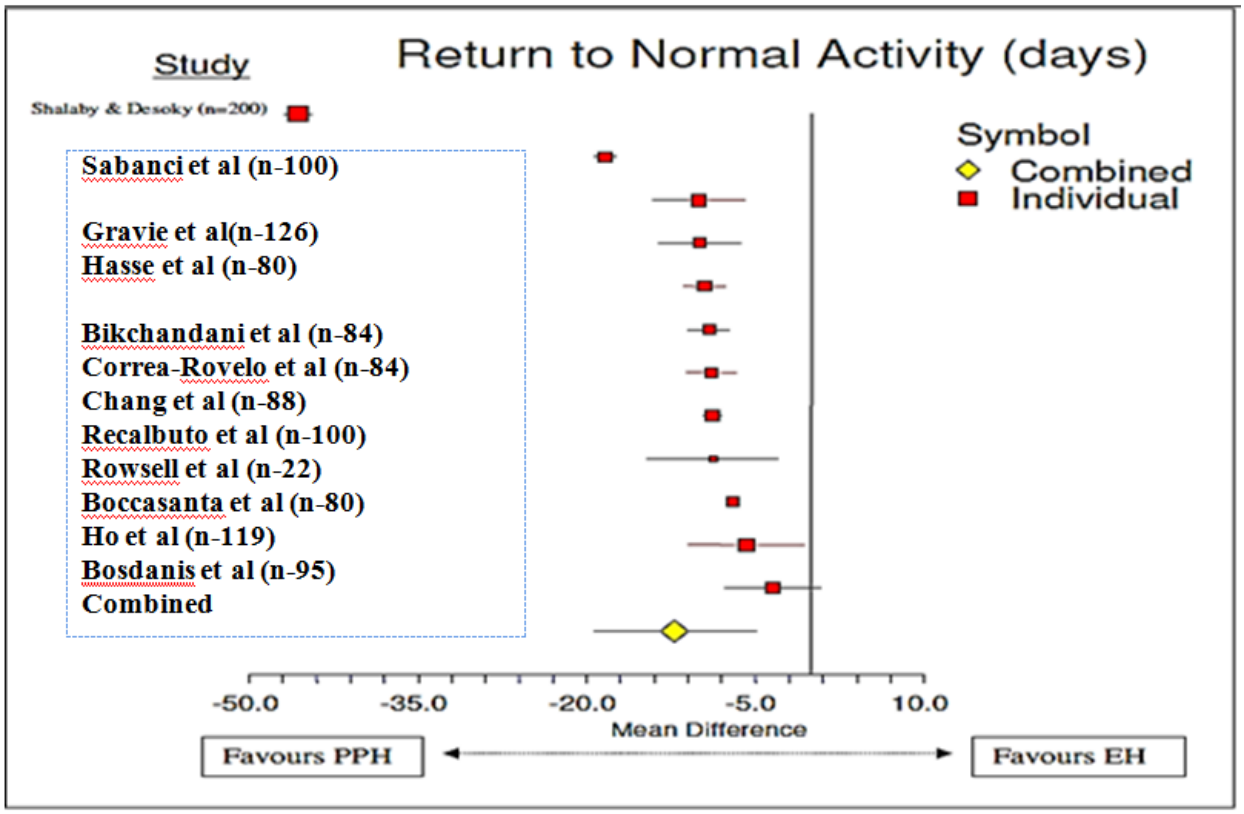

Figure No.3: Forest plots of mean difference for time to return to normal activity.

DISCUSSION

PPH shows superiority over EH in that it is associated with less postoperative pain and more rapid return to normal activity. Both procedures were followed by a number of complications and residual symptoms but certain complications tend to occur more after one procedure than the other and vice versa.

The higher stenosis rate following EH was not surprising as this is a known complication of EH.

The presence of more prolapses after PPH was unexpected considering that PPH is designed to limit mucosal prolapse.

The cause of persistent anal pain after PPH in some patients remains uncertain.[32] Significant complications specifically associated with PPH have been reported. These include rectal stenosis (10)[24,17]persistent pain (5),[33]rectal perforation (5),[16-25]anal sphincter injury (1),[34]. With the exception of bleeding, none of these complications was readily found in any of the studies included in the meta-analysis. They may therefore be expected more during the early learning phase of the procedure. Although none of the studies had recurrence as a primary endpoint it should be a focus of future studies since from the data presented here the rate of recurrence was four times higher following PPH. Most of the studies have had short-term follow-up, with only four having >24 months' follow-up.[19-21,37].

The earlier return to normal activity after PPH is multifactorial and although some of the purely operation-dependent factors such as reduced pain, shorter hospital stay and reduced soiling play a role, other social and cultural practices also affect this parameter.[22]

CONCLUSION

Short-term results demonstrate superiority of PPH over EH in terms of pain, earlier return to normal activity .This must be tempered by what appears to be a higher risk of recurrence which may or may not require further surgery. PPH cannot surpass EH as the best long-term cure for haemorrhoids. There are compelling reasons for EH which cannot be met by PPH including acutely incarcerated and thrombosed haemorrhoids and presence of gangrene.

Since both operations are associated with satisfactory results and since failure of PPH can be managed by EH it is advisable that all surgeons learn both techniques. Surgeons should be aware that PPH may result in damage to the internal anal sphincter and other complications which although exceptionally rare may be life-threatening, and that EH is associated with its own set of more common but highly disturbing problems such as postoperative pain and anal stenosis

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