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Review Article

Stapled Haemorrhoidopexy Compared with Conventional Haemorrhoidectomy--A Systematic Review.

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Abstract

Haemorrhoids are one of the most common anorectal disorders. Conventional haemorrhoidectomy (CH) is the most commonly practiced surgical technique. Stapled haemorrhoidopexy (SH) [procedure for prolapsed haemorrhoids (PPH)] is newly developed method for the surgical management of Haemorrhoids. This review looks at the surgical management of prolapsed haemorrhoids in light of this recent development and suggests a treatment approach based on this current evidence. A Medline, Pubmed and Cochrane data base search was performed using key words "haemorrhoid" or 'hemorrhoid' and staple. Relevant papers e.g. randomized controlled trials, review and meta-analyses from different parts of the world were collected. Data were analyzed and compiled. Though early small RCTs (stapled haemorrhoidopexy comparing with traditional excisional surgery) have shown stapled haemorrhoidopexy is less painful and it is associated with quicker recovery but recent large meta-analyses and long term follow up have shown SH is associated with a higher long term risk of haemorrhoid recurrence and symptoms of prolapse.

Key words: Haemorrhoids, Haemorrhoidopexy, Staple.

Introduction :

Haemorrhoids are one of the most common anorectal disorders. Haemorrhoids or piles are dilated veins of the anal canal and are more common in obesity, constipation and pregnancy. Classically they occur in the 3, 7 and 11 o'clock position with the patient in lithotomy position. Symptoms of haemorrhoids are per rectal bleeding and prolapse. Bleeding is bright red in colour and which is painless. Haemorrhoids can be classified into 4 groups according to degree of haemorrhoids. Treatment of haemorrhoids depends on degree of haemorrhoids. Injection sclerotherapy and banding for first degree and second degree haemorrhoids. Haemorrhoidectomy is indicated in third and fourth degree haemorrhoids. The Milligan-Morgan open haemorrhoidectomy is the most widely practiced surgical technique used for the management of third and fourth degree haemorrhoids and is considered the current "gold standard" though some early and late post operative complications like anal pain, acute retention of urine, anal stenosis and incontinence is evident[1-3].

Circular stapled haemorrhoidopexy (SH) was first described by Longo in 1998 as an alternative to conventional excisional haemorrhoidectomy (CH)[4]. Some study of randomized controlled trials comparing stapled haemorrhoidopexy with traditional excisional haemorrhoidectomy has shown it to be less painful and that it is associated with quicker recovery[5-8]. The reports also suggest a better patient acceptance and a higher compliance with day-case procedures potentially making it more economical. In some other randomized controlled trial study has reported that patients undergoing circular stapled haemorrhoidopexy were significantly more likely to have recurrent haemorrhoids in long term follow up as well as significantly higher proportion of patients with stapled haemorrhoidectomy complained of symptoms of prolapse than those receiving conventional haemorrhoidectomy (CH)[9-12]. None of these studies has gained universal acceptance. This article aims to review current available literature related to stapled haemorrhoidopexy and suggest a management approach based on the recent available evidence.

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A Medline, Pubmed and Cochrane data base search was performed using key words including combination of Haemorrhoids, Staple, Hemorrhoid, Prolapse, Piles and PPH. Relevant articles including randomized controlled trials, review articles, case series and individual case report relating to stapled haemorrhoidopexy were selected. Studies of non prolapsed piles were not considered.

Results:

The majority of studies were systematic review and meta analysis comparing the stapled haemorrhoidopexy (SH) and conventional haemorrhoidectomy (CH). Three studies were prospective randomized controlled trial (RCT) which were done in 2001, 2004 and 2005 involving 290 patients. Six systematic reviews and meta-analyses involving 135 RCTs which include 10563 patients. A significantly higher proportion of patients with SH complained of symptoms of prolapse, SH is associated with less post operative pain (81 trials, 6253 patients), short hospital stay (96 trials, 7330 patients). Operating time is significantly less in stapling procedure (123 trials, 9609 patients). Patients underwent SH returned to work faster than those of CH (69 trials, 5051 patients). Better wound healing was observed in SH group (25 trials, 1918 patients). Patients with SH were significantly more likely to have recurrent haemorrhoids than those with CH (96 trials, 7330 patients).

Table-I: Results of review and meta- analyses in study

No	Country	No of RCT in meta-analysis	No of patients	Result
1	China	29	2056	SH is associated with
2	UK	15	1077	1.Higher recurrence rate
3	Australia	25	1918	2.Shorter hospital stay
4	UK	12	954	3.Less post operative pain
5	South Africa	27	2279	4.Early return to work
6	UK	27	2279	
TOTAL		135	10563	

Discussion:

The Milligan- Morgan (MM) open haemorrhoidectomy is the most widely practiced surgical technique used for the management of haemorrhoids and is considered the current "gold standard"[13,14]. Circular stapled haemorrhoidopexy was first described by Longo in 1998 as alternative to conventional excisional haemorrhoidectomy. Early, small randomized-controlled trials comparing stapled haemorrhoidopexy with traditional excisional surgery have shown it to be less painful and that it is associated with quicker recovery. The reports also suggest a better patient acceptance and a higher compliance with day-case procedures potentially making it more economical.

A prospective, randomized, multicenter study published by Gravie JF et al treated 134 patients at 7 different hospitals[15,16]. Patients were evaluated preoperatively and at 6 weeks, 1 year, and a minimum of 2 years after treatment about symptoms, function, and overall satisfaction. The patients in the SH group experienced less postoperative pain/discomfort as scored by pain during bowel movement ($P<0.001$), and total analgesic requirement over the first 3 days. Hospital stay was significantly shorter in the SH group (SH 2.2 ± 1.2 [0; 5.0] versus MM 3.1 ± 1.7 [1; 8.0] $P<0.001$). At 1 year, no differences in the resolution of symptoms were observed between the 2 groups, and over 2 years, the overall incidence of complications was the same, specifically fecaloma ($P=0.003$) in the MM group and external haemorrhoidal thrombosis ($P=0.006$) in the SH group. Impaired sphincter function was observed at 1 year with no significant difference between the groups for urgency (12%), continence problems (10%), or tenesmus (3%). No patient needed a second procedure for recurrence within 2 years, although partial residual prolapse was detected in 4 SH patients (7.5%) versus 1 MM patient (1.8%) ($P=0.194$).

Senagore AJ et al done a prospective randomized controlled trial study[3,17,18]. A total of 156 patients (procedure for prolapse and haemorrhoids, 77; Ferguson, 79) completed randomization. One hundred seventeen patients (procedure for prolapse and haemorrhoids, 59; Ferguson, 58) returned for one-year follow-up. Demographic parameters, hemorrhoid symptoms, preoperative pain scores, and bowel habits were similar between groups. Postoperative pain during the first 14 days, pain at first bowel movement, and need for postoperative analgesics were significantly less in the procedure for prolapse and haemorrhoids group. Control of hemorrhoid symptoms was similar between groups.

Another prospective randomized multicenter control trial study done by Ganio E et al[4,19,20]. One hundred patients with symptomatic third and fourth-degree haemorrhoids were enrolled. After operation patients were completed 16 months follow up. They were evaluated in terms of postoperative pain control,

hospital stay and maintaining normal continence to liquid stool. Patients in CH group complained of moderate pain for a median of 5.3 (range 0-19) days compared with 3.1 (range 0-10) days in SH group (P=0.01). The median hospital stay was 2 days in CH group compared with 1 day in group SH (P=0.01). In the early days after operation, patients in SH group had greater difficulty in maintaining normal continence to liquid stools (P=0.01), but after 30 days the continence score was better in SH group (P=0.04). Long term follow up regarding symptoms recurrence was not evaluated.

A systematic review and meta analysis of large number of recent series from china were included performed by Shao WJ et al. A meta-analysis was conducted to examine long-term outcomes. Twenty-nine randomized clinical trials recruiting 2056 patients were identified[21-23]. Meta-analysis showed that stapled haemorrhoidopexy was less painful than conventional haemorrhoidectomy. Stapled haemorrhoidopexy required a shorter inpatient stay and operating time. It was also associated with a faster return to normal activities. No significant difference was noted between the two techniques in terms of the total incidence of complications. Stapled haemorrhoidopexy was associated with a higher rate of recurrent disease (RR-2.29(95 percent c.i.1.57 to 3.33); P<0.001).

A review article published in 2004 from University Hospital, Nottingham, UK[24-26]. Fifteen trials recruiting 1077 patients were included. Follow-up ranged from 6 weeks to 37 months. Qualitative analysis showed that stapled haemorrhoidopexy is less painful compared with haemorrhoidectomy. Stapled haemorrhoidopexy has a shorter inpatient stay, operative time, and return to normal activity. Studies in a day-case setting do not prove that stapled haemorrhoidopexy is more feasible than conventional haemorrhoidectomy. Stapled haemorrhoidopexy has a higher recurrence rate at a minimum follow-up of six months. (odds ratio, 3.64; 95 percent confidence interval, 1.40-9.47; P=0.008)

A systematic review of randomized controlled trial done in 2007 from University of Western Ontario, London where twelve trials were included[27,28]. Follow-up varied from six months to four years. Conventional haemorrhoidectomy was more effective in preventing long-term recurrence of haemorrhoids (odds ratio (OR), 3.85; 95 percent confidence interval (CI),1.47-10.07;P<0.006). Conventional haemorrhiodectomy also prevents haemorrhoids in studies with follow-up of one year or more. Conventional haemorrhoidectomy is superior in preventing the symptom of prolapse. Conventional haemorrhoidectomy also is more effective at preventing prolapse in studies with follow-up of one year or more.

A review article published in 2007, by Tjandra JJ et al of University of Melbourne[29]. A total of 25 randomized, controlled trials with 1,918 procedures were reviewed. The follow-up duration was from 1 to 62 months. Stapled haemorrhoidopexy was associated with less operating time, earlier return of bowel function, and shorter hospital stay. There was less pain after stapled haemorrhoidopexy, as evidenced by lower pain scores at rest and on defecation and 37.6 percent reduction in analgesic requirement. The stapled haemorrhoidopexy allowed a faster functional recovery with shorter time off work, earlier return to normal activities and better wound healing. The patients' satisfaction was significantly higher with stapled haemorrhoidopexy than conventional haemorrhoidectomy. Although there was increase in the recurrence of haemorrhoids at one year or more after stapled procedure (5.7 vs. 1 percent; odds ratio, 3.48; P=0.02) and the overall incidence of recurrent haemorrhoidal symptoms.

Jayaramans et al reviewed randomized control trials from 1998 to May 2006[27]. Patients undergoing circular stapled haemorrhoidopexy (SH) were significantly more likely to have recurrent haemorrhoids in long term follow up at all time points than those receiving conventional haemorrhoidectomy (CH) (7 trials, 537 patients). There were 23 recurrences out of 269 patients in the stapled group versus only 4 out of 268 patients in the conventional group. Similarly, in trials where there was follow up of one year or more, SH was associated with a greater proportion of patients with hemorrhoid recurrence (5 trials, 417 patients). Furthermore, a significantly higher proportion of patients with SH complained of the symptom of prolapse at all time points (8 studies, 798 patients). In studies with follow up of greater than one year, the same significant outcome was found (6 studies, 628 patients,).

A recent review and meta-analysis done by chen JS et al from Taiwan[30]. They reviewed papers published between January 2000 and September 2009. These randomized, controlled clinical trials compared SH versus conventional haemorrhoidectomy. SH were superior to conventional haemorrhoidectomy with regard to operation time, early postoperative pain,

urinary retention, and time to return to normal activity. However, skin tags and recurrent prolapse occurred at higher rates in the SH group.

A large number of recent reviews studied 81 randomized control trials[31-33]. All these trials have shown a similar result in the long term follow up. There were no difference between stapled haemorrhoidectomy and conventional haemorrhoidectomy in terms of bleeding or post operative complications. SH resulted in shorter operating times, hospital stay, time to first bowel movement and return to normal activity. In the short term (between 6 weeks and a year) prolapse was more common after SH. There was no difference in the number of patients complaining of pain between SH and CH. In the long term (1 year and over), there was a significantly higher rate of prolapse after SH. There was no difference in the number of patients experiencing pain, or the incidence of bleeding, between SH and CH. Significantly more reinterventions were undertaken after SH for prolapse at 12 months or longer.

Conclusion:

Stapled haemorrhoidectomy is safe with many short term benefits like less post operative pain, early return from hospital and early return to their normal activity, but is associated with a higher long-term risk of hemorrhoid recurrence and the symptom of prolapse. It is also likely to be associated with a higher likelihood of long-term symptom recurrence and the need for additional operations compared to conventional excisional hemorrhoid surgeries. Patients should be informed of these risks when being offered the stapled haemorrhoidopexy as surgical therapy. If hemorrhoid recurrence and prolapse are the most important clinical outcomes, then conventional excisional surgery remains the "gold standard" in the surgical treatment of internal haemorrhoids.

References :

1. Jayaraman S, Colquhoun PH, Malthaner RA. Stapled versus conventional surgery for haemorrhoids. Cochrane Database Syst Rev. 2006. 18; (4):CD005393.

2. Mattana C, Coco C, Manno A, Verbo A, Rizzo G, Petito L, et al. Stappled haemorrhoidopexy and Milligan Morgan haemorrhoidectomy in the cure of fourth degree haemorrhoids: long term evaluation and clinical results. Dis Colon Rectum 2007; 50:1770-1775.

3. Senagore AJ, Singer M, Abcarian H. A prospective, randomized, controlled multicenter trial comparing stapled haemorrhoidopexy and Ferguson haemorrhoidectomy: perioperative and one-year results. Dis Colon Rectum. 2004; 47(11):1824-36.

4. Ganio E, Altomare DF, Gabrielli F, Milito G, Canuti S. Prospective randomized multicentre trial comparing stapled with open haemorrhoidectomy. Br J Surg. 2001; 88(5):669-74.

5. Longo A. Treatment of haemorrhoids disease by reduction of mucosa and haemorrhoidal prolapse with circular suturing device: a new procedure. 6th World Congress of Endoscopic Surgery; Rome; 1998:777-784.

6. Corman ML, Gravié JF, Hager T, Arnaud JP, Pessaux P, Huten N, et al. Stapled haemorrhoidopexy: a consensus position paper by an international working party-indications, contraindications and technique. Colorectal Disease. 2001; 3: 374-379.

7. Lan P, Wu X, Zhou X,Wang J, Zhang L. The safety and efficacy of stapled hemorrhoidectomy in the treatment of hemorrhoids: a systematic review and meta-analysis of ten randomized control trials. Int J Colorectal Dis 2006; 21:172-8.

8. Mehingan BJ, Monson JR, Hartley JE. Stapling procedure for haemorrhoids versus Milligan-Morgan haemorrhoidectomy: randomized controlled trial. Lancet.2000; 355:782-785.

9. Rowsell M, Bello M, Hemingway DM. Circumferential mucosectomy (stapled haemorrhoidectomy) versus conventional haemorrhoidectomy: randomised controlled trial. Lancet. 2000; 355:779-781.

10. Ho YH, Cheong WK, Tsang C, Ho J, Eu KW, Tang CL, Seow-Choen F. Stapled haemorrhoidectomy-cost and effectiveness. Randomized, controlled trial including incontinence score, anorectal manometry, and endoanal ultrasound assessments at up to three months. Dis Colon Rectum. 2000; 43:1666-1675.

11. Halaby R, Desoky A. Randomized clinical trial of stapled versus Milligan-Morgan haemorrhoidectomy. Br J Surg. 2001; 88:1049-1053.

12. Boccasanta P, Capretti PG, Venturi M, Cioffi U, De Simone M, Salamina G, et al. Randomised controlled trial between stapled circumferential mucosectomy and conventional circular haemorrhoidectomy in advanced haemorrhoids with external mucosal prolapse. Am J Surg. 2001; 182:64-68.

13. Wilson MS, Pope V, Doran HE, Fearn SJ, BroughWA. Objective comparison of stapled anopexy and open haemorrhoidectomy: a randomised, controlled trial. Dis Colon Rectum. 2002; 45:1437-1444.

14. Pavlidis T, Papaziogas B, Souparis A, Patsas A, Koutelidakis I, Papaziogas T. Modern stapled Longo procedure vs. conventional Milligan-Morgan haemorrhoidectomy: a randomized controlled trial. Int J Colorectal Dis. 2002; 17:50-53.

15. Gravie JF, Lehur PA, Huten N, Papillon M, Fantoli M, Descottes B, et al. Stapled Haemorrhoidopexy Versus Milligan-Morgan Haemorrhoidectomy; Ann Surg. 2005; 242(1): 29-35.

16. Picchio M, Palimento D, Attanasio U, Renda R. Stapled vs open haemorrhoidectomy: long term outcome of a randomized controlled trial. Int J Colorectal Dis. 2006; 21: 668-669.

17. Smyth EF, Baker RP, Wilken BJ, Hartley JE, White TJ, Monson JR. Stapled versus excision haemorrhoidectomy: long-term follow-up of a randomized controlled trial. Lancet. 2003; 361:1437-1438.

18. Min-Hoe C, Ming-Hian K, Jit-Fong L, Kok-Sun K, Boon-Swee O. The evaluation of CEEA 34 for stapled haemorrhoidectomy: results of a prospective clinical trial and patient satisfaction. Am J Surg. 2009; 197:695-701.

19. Dixon MR, Stamos MJ, Grant SR, Kumar RR, Ko CY, Williams RA, et al. Stapled hemorrhoidectomy: a review of our early experience. Am j Surg. 2003; 69:862-5.

20. Habr-Gama A, Silva-e-Sousa AH, Rovelo JMC, Souza JS, Benício F, Regadas FS. Stapled haemorrhoidectomy: initial experience of a Latin American group. J Gastrointest Surg. 2003; 7: 809-813.

21. Shao WJ, Li GC, Zhang ZH, Yang BL, Sun GD, Chen YQ. Systematic review and meta-analysis of randomized controlled trials comparing stapled haemorrhoidopexy with conventional haemorrhoidectomy. Br J Surg. 2008; 95(2):147-60.

22. Nahas SC, Borba MR, Brochado MC, Marques CF, Nahas CS, Miott-Neto B. Stapled haemorrhoidectomy for the treatment of haemorrhoids. Arq Gastroenterol. 2003; 40:35-39.

23. Sutherland LM, Burchard AK, Matsuda K, Sweeney JL, Bokey EL. A systematic review of stapled haemorrhoidectomy. Arch Surg. 2002; 137:1395-1406.

24. Nisar PJ, Acheson AG, Neal KR, Scholefield JH, Stapled hemorrhoidopexy compared with conventional haemorrhoidectomy: systematic review of randomized, controlled trials. Dis Colon Rectum. 2004; 47(11):1837-45.

25. Milligan ET, Morgan CN, Jones LE, Officer R. Surgical anatomy of the anal canal and operative treatment of haemorrhoids. Lancet 1937; 1119-1124.

26. Ferguson JA, Heaton JR. Closed haemorrhoidectomy. Dis Colon Rectum 1959; 2:1176-1179.

27. Jayaraman S, Colquhoun PH, Malthaner RA. Stapled haemorrhoidopexy is associated with a higher long-term recurrence rate of internal haemorrhoids compared with conventional excisional hemorrhoid surgery. Dis Colon Rectum 2007; 50(9):1297-305.

28. Hetzer FH, Demartines N, Handschin AE, Clavien PA. Stapled vs. excision haemorrhoidectomy long-term results of a prospective randomized trial. Arch Surg. 2002; 137:337-340.

29. Tjandra JJ, Chan MK. Systematic review on the procedure for prolapse and haemorrhoids (stapled haemorrhoidopexy). Dis Colon Rectum 2007; 50(6):878-92.

30. Chen JS, You JF. Current status of surgical treatment for haemorrhoids--systematic review and meta-analysis. Chang Gung Med J. 2010; 33(5):488-500.

31. Burch J, Epstein D, Baba-Akbari A, Weatherly H, Fox D, Golder S, et al. Stapled haemorrhoidectomy (haemorrhoidopexy) for the treatment of haemorrhoids: a systematic review and economic evaluation. Health Technol Assess. 2008; 12(8):iii-iv, ix-x, 1-193.

32. Madiba TE, Esterhuizen TM, Thomson SR. Procedure for prolapsed haemorrhoids versus excisional haemorrhoidectomy--a systematic review and meta-analysis, S Afr Med J. 2009 99(1):43-53.

33. Burch J, Epstein D, Sari AB, Weatherly H, Jayne D, Fox D, Woolacott N. Stapled haemorrhoidopexy for the treatment of haemorrhoids: a systematic review. Colorectal Dis. 2009; 11(3):233-43.