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Original Research

EVALUATION OF STAPLER HAEMORRHOIDECTOMY

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ABSTRACT
Background: Haemorrhoids are defined as symptomatic enlargement and distal displacement of the normal anal cushions. Stapled haemorrhoidopexy (SH) represents the first dramatic change in the treatment of haemorrhoids in many years. **Aim:** To evaluate the clinical outcome in patients with Haemorrhoids who are treated with Stapler haemorrhoidectomy. **Materials and methods:** This study was conducted in the Department of Surgery at DMCH, Ludhiana among 35 Patients with grade 2, 3 and 4 haemorrhoids underwent stapler haemorrhoidectomy and clinical outcome was evaluated. Patients were assessed for defecation bleeding per rectum at 48 hours, 1 week, 1 month, 3 month and 6 months. **Results:** In the study mean age was 45.80 ± 17.07 years. The average time taken by patient to resume daily physical activities after stapler haemorrhoidectomy was 10.34±2.496 days. 17.6 % of patients had defecation bleeding per rectum at 48 hours after surgery which resolved on its own after conservative management. Only 1 patient had persistent bleeding for 6 months. Average hospital stay was 2.90 ±2.66 days. None of patients developed fecal incontinence during hospital stay. One patient had residual haemorrhoids. **Conclusion:** It has been observed that after stapler haemorrhoidectomy, there is short hospital stay and early resumption of the daily activities. There are less chances of the fecal urgency, anal stenosis or stricture in the long term follow up. In conclusion, treatment of haemorrhoids with a circular stapler appears to be safe, effective and rapid, bringing few postoperative complications.

KEYWORDS: Defecation bleeding; Haemorrhoids; Stapler haemorrhoidectomy

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INTRODUCTION

Haemorrhoid is derived from Greek word which means bleeding (Haem= Blood, Rhoos= Flowing). Piles derived from Latin word 'Pila' means 'Ball'. According to Parks, internal haemorrhoids are saccular dilatations of the terminal part of the haemorrhoidal venous plexus lying in the sub mucosa of the upper anal canal just above the mucocutaneous junction.[1]

Haemorrhoids are defined as symptomatic enlargement and distal displacement of the normal anal cushions.[2] These vascular cushions are usually found in three main locations: left lateral, right anterior and right posterior portions (3,7,11 o'clock).[3-5] Various non-operative as well as operative treatment options are available for management of haemorrhoids. Traditionally, first and second-degree haemorrhoids are treated by dietary modifications and non-operative techniques such as rubber band ligation, infrared photocoagulation and sclerotherapy.[6,7] Operative methods included Ferguson's (closed) haemorrhoidectomy,[8] The Milligan and Morgan open haemorrhoidectomy,[9] Park's (submucosal) haemorrhoidectomy,[10] Whitehead's haemorrhoidectomy,[11] Transanal Haemorrhoidal Dearterialization, Harmonic scalpel haemorrhoidectomy and Stapled haemorrhoidopexy (SH).[12] Stapled haemorrhoidopexy (SH) represents the first dramatic change in the treatment of haemorrhoids in many years. Stapled haemorrhoidectomy was introduced in 1993 as an alternative to traditional techniques for operative management of haemorrhoidal disease. This method was described and refined by Longo[12] in 1998.

The procedure was termed procedure for prolapse and haemorrhoids (PPH), haemorrhoidopexy, or stapled anopexy. It uses a transanal circular stapler to excise a complete circular strip of rectal mucosa above the dentate line which lifts the prolapsed haemorrhoidal tissue, removing the redundant mucosa and stapling off the end branches of the superior haemorrhoidal artery.[12,13] By avoiding multiple excisions and suture lines on the sensitive anal mucosa below the dentate line, the initial experience of several authors has shown that pain appears to be far less with stapled haemorrhoidectomy than with traditional techniques.[14-19]

Contraindications for PPH include anal abscess or gangrene, because the operation does not remove the source of sepsis. Anal stenosis is also considered a contraindication, because the procedure requires insertion of a circular anal dilator. Full thickness rectal prolapse is also considered a contraindication, because it is not adequately treated with PPH.[20]

The introduction of the stapled haemorrhoidectomy was received with much enthusiasm because it could offer patients a significantly improved postoperative comfort level. This is attributable to the fact that the mucosal incision and staple lines are positioned well above dentate line and the highly sensitive perianal skin is left intact.[20]The results of stapled haemorrhoidectomy have been assessed in some randomized controlled trials.[12,21-25] These studies have consistently shown a decrease in postoperative pain, analgesic requirement, length of surgical procedure, short recovery time and early return to normal activities. We present a prospective study to evaluate the clinical outcome in patients with Haemorrhoids who are treated with Stapler haemorrhoidectomy.

MATERIALS AND METHODS

This study was conducted in the Department of Surgery at Dayanand Medical College and Hospital Ludhiana, Punjab from a period starting from 1st January 2015 to 31st July 2016. The aims and objectives of the study were to evaluate the clinical outcome in patients with Haemorrhoids who are treated with Stapler haemorrhoidectomy.

35 Patients with grade 2, 3 and 4 haemorrhoids were randomly allocated in our study after fulfilling the inclusion and exclusion criteria. Inclusion criteria comprised of patients with symptomatic haemorrhoidal disease, which could be treated by elective surgical technique and cases of internal haemorrhoids grade 2-4. Exclusion criteria comprised of patients with thrombosed internal or external haemorrhoids, prior haemorrhoidectomy, grade 1 haemorrhoids, perianal abscess and full thickness rectal prolapsed cases.

After taking Informed written consents and a detailed history, Per rectum examination and proctoscopy was done to assess the degree of the haemorrhoids.

All patients were given Antibiotic prophylaxis. Preoperatively patient were started on Inj Cefuroxime 750 mg starting prior to induction before surgery and continued 8 hourly for 2 days postoperatively.

Post operative outcome was studied by follow up in OPD visits and by the telephonic interviews. Post operative, bleeding after defecation was assessed at 48 hours, 1 week, 1 month, 3 months and 6 months. Infection in the patient was assessed using following parameters after 48 hours: Pulse rate, Fever, TLC, Pus discharge from suture site. Patients were assessed for urgency symptoms, incontinence symptoms, Urinary Retention, hospital stay, residual haemorrhoids during follow up period. Patients were assessed for prolapse of rectum during the follow up period at 3 months, 6 months. The observations were tabulated and results compiled and analyzed. These results were expressed as mean ± standard deviation.

RESULTS

The age of the patients enrolled for stapler haemorrhoidectomy was between 20 to 70 years (table 1). In the study, mean age was 45.80 ± 17.074 years. Out of 35 patients undergoing stapler haemorrhoidectomy, 29 were males and 6 were females i.e 82.9% v/s 17.1% respectively. 68.6% (24 out of 35) of patients which underwent stapler haemorrhoidectomy had chief complaint of bleeding per rectum and 31.4% (11 out of 35) had chief complaint of mass per rectum. 68.6 % (24 out of 35) of patients had Grade 3 Haemorrhoids, 22.9% (8 out of 35) had Grade 2 Haemorrhoids and 8.6% (3 out of 35) had Grade 4 Haemorrhoids. The average time taken by patient to resume daily physical activities after stapler haemorrhoidectomy was 10.34±2.496 days. Average hospital stay was 2.90 ±2.66 days (table 1). Patients were assessed for defecation bleeding per rectum at 48 hours, 1 week, 1 month, 3 month and 6 months. 17.6 % of patients had defecation bleeding per rectum at 48 hours after surgery, which resolved on its own after conservative management (table 2, figure 1). None of patients developed fecal incontinence during hospital stay (table 3). Only 1 patient had persistent bleeding which persisted even at 6 months. The cause of persistent bleeding was residual haemorrhoids. He had large grade 4 haemorrhoids and there was incomplete resection of the haemorrhoids. 4 out of 35 patients i.e 11.4% had wound infection in the form of wound discharge who were managed conservatively and infection resolved . 2 out of 35 cases i.e 5.8% developed fecal urgency after stapler haemorrhoidectomy. None of patients undergoing procedure had fecal incontinence in the post operative period. One patient i.e 2.9% had residual haemorrhoids at 6 months follow up who had persistent bleeding per rectum. None of the patients had anal stenosis/stricture postoperatively. None of the patients had rectal prolapse postoperatively. 3 out of 35 cases i.e 8.6% had postoperative urinary retention after spinal anesthesia (table 3).

DISCUSSION

In our study, only 6 out of 35 cases (17.1%) had mild bleeding per rectal at 48 hours which resolved on its own. No blood transfusion or additional haemostatic sutures were needed.

Only 1 patient had persistent bleeding per rectum even till 6 months postoperatively. He underwent open haemorrhoidectomy after 6 months.

Similar results were seen in various studies as shown below.

In the study by Aggarwal H et al, 92 % had mild BPR and only 8% had moderate bleeding per rectal at 48 hours. [26] In the study by Lomanto et al, 4.2% had postoperative bleeding which resolved on its own and no blood transfusion was required. There was no patient who had bleeding at 6 months follow up.[27] Similary , in the study by Singh S et al, there was no post operative bleeding in the entire series to require any subsequent surgery.[28] In the study by Pergel et al, 20% had mild bleeding at 48 hours. At the end of mean follow-up period for nine months no complaints such as serious bleeding developed in any patient.[29] In the study by Jaiswal SS et al, Minor bleeding per rectum in the first 48 h, which did not require any intervention, was noticed in 18 (45%) patients. It was still present in 5 patients at 1 month and finally disappeared altogether at 3 months of follow-up.[30] In the study by Gajbhiye R et al, One patient

had bleeding per rectum 2 months post operatively which stopped with conservative management and on 6 months follow up there was no complaint.[31]

One of the most common problems with Stapler Haemorrhoidectomy (SH) is stapler line bleeding. It was reported to range from 0.01% to 25% in the literature. Bleeding, which has been shown to be more common with Circular Stapler Haemorrhoidectomy in two meta-analyses, can be decreased with meticulous hemostatic control during the operation. The operation should be considered finished only when the minor bleeding points are hemostatically controlled.[13,32]

We believe that the most effective way to control bleeding is meticulous control during the SH procedure. All bleeding points should be controlled with Vicryl sutures. We eventually discovered that waiting for some time after closing the jaws of the stapler device before firing was helpful for decreasing the number of bleeding points. It is important to recommend that the patients not to strain during defecation to prevent bleeding and pain due to edema and stapler line dehiscence.

In present study, 4 out of 35 cases i.e 11.4% had wound infection in the form of wound discharge. None of the patient had fever. Wound discharge was sent for culture and sensitivity and none of the cultures showed any growth. They were managed conservatively with iv antibiotics and it resolved completely in 2 to 3 days. No patient developed septicemia. In majority of patients there was no wound infection, pelvic sepsis or septicemia. The reason could be attributed to the antibiotic prophylaxis given to all patients and hot sitz bath. The infection rate of 11.4% in our study may be because of the associated co-morbidities like 2 patients had type 2 DM. This was noticed in patients with large, prolapsed haemorrhoids. Poor perineal hygiene also contributes to wound infection. Sometimes, patients scared of wound in the peri-anal area, do not take adequate hygienic measures leading to infection in that area.

Urinary retention is a rare complication after haemorrhoidectomy. In studies related to this, rates between 0.3% and 20% have been reported. [13,33]

In the present study, 3 out of 35 cases in whom spinal anesthesia was applied i.e 8.6% developed urinary retention postoperatively. The cause of post-operative urinary retention is uncertain. One of the reasons could be the spinal anesthesia.

In the present study 1 out of 35 patients i.e 2.9% had residual haemorrhoids. He had persistent bleeding per rectal even at 6 months follow up. He had large grade 4 haemorrhoids and there was incomplete resection of the haemorrhoids. The incomplete staple line may leave an inadequately treated area of haemorrhoidal tissue, which could remain symptomatic.

Inspection of the staple line will reveal a corresponding defect that may be over sewn with absorbable sutures.

There is no doubt that proper placement of the purse-string suture is the critical feature of this operation. It drives the entire procedure, but can also be the source of failure. It is essential that the purse-string suture be placed only as deep as the submucosa.

In the literature, various results such as 1-10% with respect to recurrence rates were reported in studies comparing stapled haemorrhoidopexy and conventional haemorrhoidectomy. In some studies comparing these two methods, no statistically significant difference was determined.[19,22,34] In a study done by Jayaraman et al. by considering 12 studies, they reported high recurrence rates in the long term after stapled haemorrhoidopexy particularly in 4th degree haemorrhoid cases.[35]

In the present study, 2 out of 35 cases i.e 5.8% developed fecal urgency. Transanal introduction of stapling devices has been shown to result in internal anal sphincter injuries, as the 33mm diameter circular anal dilator of PPH set distends the anal canal all over its circumference, it is likely that the more extensive and prolonged anal dilatation increased the rate of anal sphincter injury although asymptomatic anal sphincter injuries have been reported previously after stapled haemorrhoidectomy.None of the patients in our study developed anal stenosis/stricture.

CONCLUSION

The present study was conducted to study the outcome of stapler haemorrhoidectomy. It has been observed that after stapler haemorrhoidectomy results in short hospital stay and early resumption of the daily activities. There are less chances of the fecal urgency, anal stenosis or stricture in the long term follow up. In conclusion, treatment of haemorrhoids with a circular stapler appears to be safe, effective and rapid, bringing few postoperative complications.

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Table 1: Patient characteristics and clinical outcome

Characteristics	N	Minimum	Maximum	Mean	SD
Age	35	22	80	45.80	17.074
Grading	35	2	4	2.86	.550
Time taken to resume activities	35	6	15	10.34	2.496
Hospital stay	35	1	15	2.94	2.600

Table 2: Post operative bleeding per rectum

Defecation bleeding	Frequency(n=35)	Percentage (%)
D. BPR 48HRS	6	17.14
D.BPR 1 WK	1	2.86
D.BPR 1MONTH	1	2.86
D.BPR 3 MONTH	3	8.57
D. BPR 6 MONTH	1	2.86

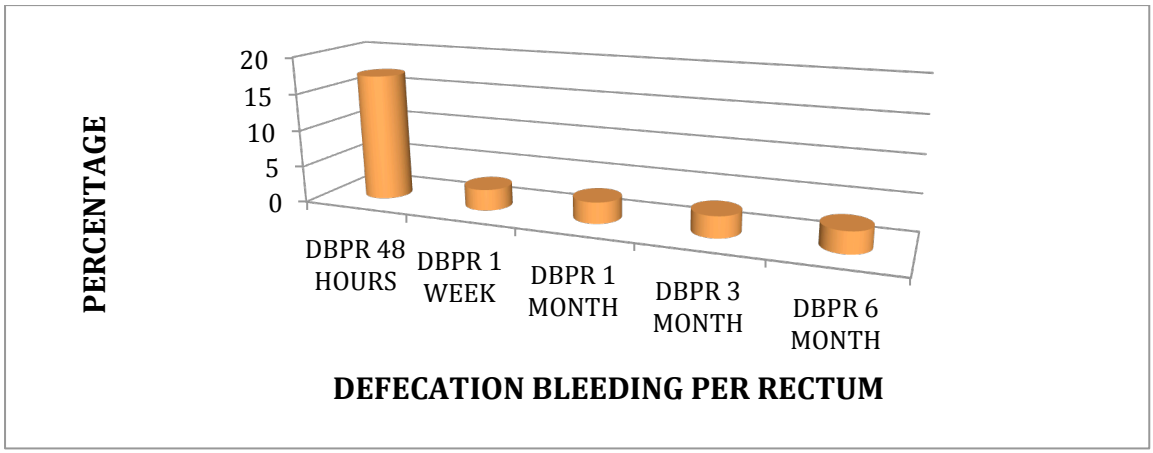

Figure 1: Bar graph representation of defecation bleeding per rectum at 48 hours, 1 week, 1 month, 3 months and 6 months. Only 1 patient had persistent bleeding per rectum till 6 months. Majority having bleeding per rectum at 48 hrs

Table 3: Complications after Stapler haemorrhoidectomy

Complications	Yes	No
Infection	4 (11.4%)	31 (88.6%)
Fecal Urgency	2 (5.7%)	33 (94.3%
Fecal Incontinence	0	35 (100%)
Residual haemorrhoids	1 (2.9%)	34 (97.1%)
Anal stenosis	0	35 (100%)
Rectal prolapse	0	35 (100%)
Urinary retention	3 (8.6%)	32 (91.4%)

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