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**Stapled Hemorrhoidopexy, Initial Experience in Iran.**

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**Abstract:**

**Purpose:** we report initial experience of stapling hemorrhoidopexy in Iran.

**Methods:** Forty-nine patients with symptomatic hemorrhoids were treated in three medical centers; 29 with Procedure for Prolapse and Hemorrhoids (P.P.H) (Ethicon Endo-surgery), and 20 with Straightforward Trans Anal Mucohemorrhoidectomy (STRAM-kit) (Tyco Healthcare, Norwalk, US). Patients were prospectively evaluated for postoperative pain, anorectal functional status, morbidity and postoperative complications. The follow up period was at least 6 months.

**Results:** Forty-nine patients were evaluated. The mean age of the patients was 49.3 years. There were 23(46.9%) males and 26(53.1%) females. The median duration of symptom was 7.5 years. No mortality was reported. Urinary retention was the most common complication. Three patients had delayed bleeding. Postoperative pain was classified as painless, mild, moderate and severe. 39 cases (79.6%) had a mild to moderate pain relieved by an Acetaminophen® tablet or NSAID. Thirty-six patients (73.5%) were fully satisfied with the operation result. All patients except one (99%) had returned to their normal functional life and their normal activity within 48 hours post-operation.

**Conclusion:** Stapled hemorrhoidopexy is a safe effective procedure with low complication, minimal postoperative pain and early recovery.

**Key Words: Hemorrhoidopexy; Initial experience; Stapler**

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### Introduction:

Hemorrhoid has been a cause of human discomfort for many years. Nowadays many people suffer from this disease, and according to our present knowledge more than 50 percent of people above 50 years old, have some extent of problems associated with hemorrhoid.<sup>(1)</sup> Many patients have scarce knowledge about anorectal diseases that misleads us to significant bias in its prevalence estimation. Patients with hemorrhoid mostly complain of bleeding, itching, burning, mass sensation and pain. These symptoms may be due to other causes, such as benign and malignant anorectal tumors, mostly identifiable with a simple digital rectal examination. There are different medical and surgical therapeutic modalities in the treatment of hemorrhoids which can be performed through an outpatient or inpatient approach.

Excisional hemorrhoidectomy is the most effective treatment especially in grade 3 and 4, but has historically been considered a painful procedure.<sup>(2)</sup>

Goligher recalled a patient describing a bowel movement as "passing pieces of a broken glass".<sup>(3)</sup>

Nowadays various techniques of excision are available. We had previously compared surgical hemorrhoidectomy and rubber band ligation and also rubber band and ultroid technique in two distinct studies.<sup>(4)</sup>

In different trials the stapled hemorroid-

dopexy compared and evaluated with other surgical techniques, as well as Diathermy and Harmonic Scalpel.<sup>(5-6-7)</sup> Stapled hemorrhoidectomy (S.H.) is a new procedure described primarily by Antonio Longo in 1998.<sup>(8)</sup> Circular staplers are being used for hemorrhoidopexy. The device excises a ring of mucosa from upper anal canal and lower rectum and disrupts artery of piles, reduces inflow to hemorrhoid, and restore the anatomy of the hemorrhoid cushions.<sup>(9)</sup>

Several published reports, indicate that staple-used hemorrhoidopexy is a safe and effective procedure recommended because of its shorter operation time and lesser postoperative pain. It also has a shorter period of convalescence and earlier return to social activity in comparison with conventional hemorrhoidectomy.<sup>(2, 9-11)</sup>

As piles are not excised in the stapling procedure, recurrence might be a problem in this technique.<sup>(2, 7, 12)</sup>

The stapling hemorrhoidopexy can be performed under local anesthesia. In some studies, using local anesthesia supplemented with conscious sedation for the procedure yields results equivalent to those achieved with general or regional anesthesia.<sup>(3)</sup>

Stapling hemorrhoidopexy has become increasingly popular in recent years. This technique has been used in Hazrat-e-Rasoul hospital since November 2002. The aim of the present study is to evaluate the results and outcome of patients

treated by S.H. This study seems to be the first report on this issue from Iran.

#### **Patients and Methods:**

The study is a descriptive, cross-sectional study that has been carried out prospectively by one surgeon in Hazrat-e-Rasoul, Pars and Naft hospitals during November 2002 to September 2005. Forty-nine patients were enrolled during this period of time. Patients follow up period was at least 6 months.

The hospital's ethical committee approved the study. No sponsorship or financial supports were received for this study.

#### **Operative Technique:**

Patient's bowel prep was performed with Castrol Oil twelve hours prior to surgery. Preoperative antibiotic, Ceftriaxone (Rocephin)<sup>®</sup> 1 gram was intravenously administered thirty minutes before operation. Operations were all performed under general or regional anesthesia, in the prone jackknife position.

We have used two types of staplers for this purpose. Twenty-nine patients has been operated with Procedure for Prolapse and Hemorrhoids, PPH<sup>®</sup> (Ethicon Endosurgery, Johnson & Johnson Company) and 20 patients operated with Straightforward Trans Anal Mucohemorrhoidectomy, STRAM<sup>®</sup>- kit (Tyco Healthcare, Norwalk, US).

In order to use PPH (figure 1), after an accurate lubrication of the anal margin, a finger anal dilation was performed. The Circular Anal Dilator (CAD33), with the

obturator in place, was introduced with a short rotary movement. After removing the obturator, the prolapsed mucosa fell into the lumen of the CAD33 which was fixed to the perineum with four stitches.

The Purse-string Suture Anoscope (PSA33) was introduced through the CAD33. It was carried out 4-5 cm above the dentate line by rotation via a 2(0) monofilament suture material on 25-30 mm curved needle. The stapler was opened to its maximum diameter and its anvil was placed beyond the purse-string. The stapler was slightly withdrawn to ensure the purse-string could be visualized and tied. The end of the suture was pulled out of the lateral holes of the PPH, and being knotted externally using a suture thread (ST100). During this step the stapler should be gently pushed in, while the thread was pulled by the surgeon or assistant, so that the prolapsed mucosa began to be accommodated. The instrument was then tightened to the end, by the full rotation of the stapler knob, clockwise. The stapler was then fired and held closed for one minute to assist in hemostasis. The stapler's head was then opened and removed through two full rotations. The specimen was retrieved from the stapler and inspected to verify the complete doughnut excision of the tissue. A digital examination confirmed that the stapler line was circumferential. A purse-string anoscope or a Hill-Ferguson retractor was inserted into the anus to inspect bleeding at the staple line. A 2(0) Vicryl suture was used to oversee the bleeding site.

The alternative method has been done using STRAM-kit (Tyco Healthcare, Nor-

walk, US). Disposable sterile Kit of STRAM consisted of (figure 2) an atraumatic valve with a window on it, at 6 cm for purse string and suture passage, light inside the handle of the valve to illuminate surgical field, spatula for retraction and keeping away mucosa in purse string, cap with petals to protect anal skin and sphincter during circular stapler insertion and quadrijet for local anesthesia injection.

The patients were being prepared by the same method as PPH. We did not use quadrijet because all patients had undergone general anesthesia.

All patients were placed in prone jack-knife position. After anal dilation, the valve with light was inserted into the rectum. Before inserting the valve, the suture's needle was passed through the window being prepared for purse string. The spatula was introduced into the rectum, opposite to the valve in order to

provide an open field for purse string. The prolapsed mucosa would fall into the valve window. Purse-string suture was carried out in mucosa, by rotating the valve around the entire rectal circumference. The stapler anvil was separated and being kept with towel clips, then placed beyond the purse-string and tied the suture. While the anvil kept with clamp, shaft of the stapler with cap on the head introduced into rectum and connect to the anvil. During this step the stapler should be gently pushed in, while the cap was pulled out and tightened the stapler, by the knob's full rotation clockwise. Finally the stapler was fired. After one minute waiting for hemostasis, the

head of the stapler was opened and the stapler had withdrawn. The specimen was checked and the stapling line was inspected for bleeding. Stitches with Vicryl were performed if necessary.



Figure 1, PPH (Ethicon Endo-surgery) instruments, circular stapler, the circular anal dilator, and purse string suture anoscope and suture thread prepared for stapling hemorrhoidopexy.



Figure 2, STRAM-kit (Tyco Healthcare, Norwalk, US) instruments and one circular 34 stapler (Tyco Healthcare), prepared for operation.

#### Statistical Analysis:

Data were entered and analyzed using SPSS® for Windows version 11.05. Quantitative variables described as mean (SD) and qualitative ones as frequency. A 95% confidence interval was calculated in the

description of variable's relative frequency.

### **Results:**

Patients underwent stapled hemorrhoidopexy during the period of November 2002 to September 2005. A single colorectal surgeon in three medical centers performed the operations. The mean age of the patients was 49.3 years, with a range of 16 to 80. Among patients, 23 (46.9%) were male and 26 (53.1%) were females. 38(77.6%) of patients received general anesthesia and 11 (22.4%) received regional anesthesia. Choice of anesthesia was related to the surgeon's preferences and medical necessity. The operation protocol was identical. Patients experienced symptoms from 10 months to 30 years with a mean of 7.5 years and a median of 8 years. The most frequently referral symptoms were bleeding (83.8%) and prolapse (23%), followed by constipation (14.3%), pain (4.1%) and itching (2%). The combination of patient's histories and physical examinations revealed that 3 (6.2%) had first-grade hemorrhoids, 7(14.3%) had second degree, 38 (77.5%) had grade III and 1(2%) had grade IV hemorrhoids. There were three cases with grade III hemorrhoids and posterior anal fissure, and two patients who had external thrombotic hemorrhoids (mixed type). In addition to hemorrhoidopexy with stapler device we have done lateral internal sphincterotomy for fissures and excision for external hemorrhoids. All of these cases postoperatively demand more analgesics.

In 29 patients (59.2%), PPH Stapler and in 20 (40.8%) STRAM<sup>®</sup>-kit Stapler was

used. Intra-operative bleeding from the staple line was seen in 33 (67.3%). None of the resected specimens were evaluated for the presence of muscle in pathology.

During the postoperative follow-up period, 34 (69.4%) had reported no complications and did not require any further treatment. Bleeding (6.1%), constipation (4.1%), pain (4%), difficulty in defecation (2%), anal abscess (2%) and incontinency (2%) were among the reported postoperative complains. Fourteen patients complained of urinary retention. Among those, 8 (57%) were self-limited and 6 (43%) were relieved by a single catheterization. In this study, postoperative pain was classified as painless, mild, moderate and severe. Painless group were 7 patients (14.3%), who did not demand painkillers at postoperative course. Thirty-four cases (69.4%) were in the mild group which their pain was relieved by Acetaminophen<sup>®</sup> 325 mg, tablet. Five patients were in the moderate group, using NSAIDs for their pain and only 3 patients (6.1%) were in the severe group which their pain was relieved with a single dose of 50 mg Mepridine (Pethidine)<sup>®</sup>. Twenty-seven (55.1%) patients returned to work or housework on postoperative day 1 and another 20 (40.8%) returned to work on Day 2. In an overall view, 99% of patients, all except one, had returned to their normal functional life, including their normal activity. Thirty-six patients (73.5%) were fully satisfied with the operation result. Eleven (22.4%) were mild to moderately satisfied and only 2 (4.1%) were not satisfied at all with the result of the operation.

After a six months follow-up, 42 (85.7%) patients were fully satisfied and 7 (14.3%) were mild to moderately satisfied. (Table 1)

Table 1: Operative and post Operative Characteristics.

Characteristics	Total (n=49)
Anesthesia, no (%)	
General	38 (77.6)
Regional	11 (22.4)
Stapler Type, no (%)	
STRAM-kit	20 (40.8)
PPH	29 (59.2)
Post Op Pain	
Painless	7 (14.3)
Mild	34 (69.4)
Moderate	5 (10.2)
Severe	3 (6.1)
Return to work	
Day 1	27 (55.1)
Day 2	20 (40.7)
Day 3	1 (2.1)
After 3 Days	1 (2.1)
Complications	
No Complications	34 (69.4)
Bleeding	3 (6.1)
Constipation	2 (4.1)
Pain	2 (4.1)
Difficulty in defecation	1 (2)
Anal Abscess	1 (2)
Incontinency	1 (2)
Urinary Retention	14 (28.5)
Satisfaction	
Fully Satisfied	36 (73.5)
Mild to Moderate	11 (22.4)
Not Satisfied	2 (4.1)
6 months Satisfaction	
Fully Satisfied	42 (85.7)
Mild to Moderate	7(14.3)

### Discussion:

This is the first experience of stapling hemorrhoidopexy in Iran. Stapled mucosectomy and hemorrhoidopexy is not a technically difficult procedure but placing the purse string suture at the correct height and depth is an important step of the procedure. We used two types of circular staplers; PPH (Ethicon Endo-

surgery) and STRAM-kit (Tyco Healthcare, Norwalk, US). Purse string suture should be placed in one layer circumferentially as deep as the submucosa, 4-5 cm above dentate line. It should be considered that the needle does not pass inadvertently through the rectal wall which may draw neighbor structures (posterior wall of vagina) into the anastomosis. Placement of purse string suture in different level of rectal mucosa may induce stapling line in traversing level. This problem may cause post operative complication which seems to be what is called as rectal pocket syndrome (RPS).<sup>(12)</sup> In our study we had two cases with rectal pocket syndrome, which were related to the placement of purse string suture inadvertently in different levels. The first patient was a senile man who had difficult evacuation, without serious complication but in the second patient this problem has induced post anal pus collection that led to reoperation after 4 months.

Bleeding at the stapling line was seen in most of the patients. In 67% of our patients, bleeding was identified and sutured with absorbable suture material. In some cases with minor amount of bleeding, compression was enough for control. The surgeon should meticulously inspect the staple line to be absolutely sure that all bleedings has been adequately stopped.<sup>(9)</sup>

Delayed bleeding is not a common complication in stapling hemorrhoidopexy. In three of our patients delayed bleeding occurred between days 7 to 20 post operatively. In one of the cases, bleeding was stopped after discontinuing Aspirin.

In the second patient, a polyp was identified in rectum that was removed. No specific source of bleeding could be identified in the third patient. Bleeding was stopped spontaneously after one week. As mentioned above proper placement of the purse string suture was the main critical feature of this operation. Urinary retention is another common complication to all ano-rectal operations. It is also one of the most frequent early complications of S.H. which is likely to be improved by minimizing intravenous fluids and providing adequate postoperative analgesia.<sup>(9)</sup>In our study we had a 15% frequency of urinary retention, in which a few of them needed catheterization. Minimal postoperative pain is one of the stapled hemorrhoidectomy's advantages.<sup>(2)</sup> In our study 14.3% of the patients did not demand painkillers and 39 cases (79.6%) had a mild to moderate pain relieved by an Acetaminophen<sup>®</sup> tablet or a NSAID. Only 3 patients (6.1%) were in the severe group which their pain was relieved with a single dose of 50 mg Pethidine<sup>®</sup>.

The pathologist were not instructed to search for muscle fibers, in three cases pathology report reveals that doughnuts contain muscle fibers. We did not identify any specific postoperative complication in these cases.

Thirty-six patients (73.5%) were fully satisfied with the operation result and all patients except one (99%) had returned to their normal functional life and their normal activity within 48 hours post-operation. No long term complications and complains were reported during the 6 month follow-ups. The study demonstrates a favorable result in these issues.

### Conclusion:

Stapling hemorrhoidopexy is safe, effective with less complication and in comparison with traditional surgical hemorrhoidectomy; there is minimal postoperative pain. Early return to social activity and early recovery are among the advantages of this technique.

### References:

1. Corman ML, Colon & Rectal surgery, Fifth Ed; Lippincott Williams & Wilkins: 2005: 177.
2. Nisar PJ, Acheson AG, Neal KR, Scholefield JH. Stapled hemorrhoidopexy compared with conventional hemorrhoidectomy: systematic review of randomized, controlled trials. *Dis Colon Rectum* 2004; 47 (11): 1837-45.
3. Esser S, Khubchandani I, Rakhmanine M. Stapled Hemorrhoidectomy with Local Anesthesia can be Performed Safely and Cost-Efficiently. *Dis Colon Rectum* 2004; 47 (7): 1164-9.
4. Azizi R, Zarghami-Fard Z. Comparison of surgical method with Rubber Band Ligation method in treatment of internal hemorrhoid. *Anns Iran Med* 2005; 2 (4): 5-11.
5. Chung CC, Cheung HY, Chan ES, Kwok SY, Li MK. Stapled hemorrhoidopexy vs. Harmonic Scalpel hemorrhoidectomy: a randomized trial. *Dis Colon Rectum* 2005; 48 (6): 1213-19.
6. Kairaluoma M, Nuorva K, Kellokumpu I. Day-case stapled (circular) vs. diathermy hemorrhoidectomy: a randomized, controlled trial evaluating surgical and functional outcome. *Dis Colon Rectum* 2003; 46 (1): 93-9.
7. Cheetham MJ, Cohen CR, Kamm MA, Phillips RK A randomized, controlled trial of diathermy hemorrhoidectomy vs. stapled hemorrhoidectomy in an intended day-care setting with longer-term follow-up. *Dis Colon Rectum* 2003; 46 (4): 491-7.
8. Longo A. Treatment of hemorrhoid disease by reduction of mucosa and hemorrhoidal prolapse with a circular suturing device: a new procedure. In: proceedings of the 6th World Congress of Endoscopic surgery, Rome, Italy. Monduzzi Editore, Bolona, 1998: 777-84.

9. Singer MA, Cintron JR, Fleshman JW, Chaudhry V, Birnbaum EH, Read TE, Spitz JS, Abcarian H. Early experience with stapled hemorrhoidectomy in the United States. *Dis Colon Rectum* 2002; 45 (3): 360-7.

10. Peng BC, Jayne DG, Ho YH. Randomized trial of rubber band ligation vs. stapled hemorrhoidectomy for prolapsed piles. *Dis Colon Rectum* 2003; 46 (3): 291-7.

11. Beattie GC, McAdam TK, McIntosh SA, Loudon MA. Day case stapled hemorrhoi-

dopexy for prolapsing hemorrhoids. *Colorectal Dis* 2006; 8 (1): 56-61.

12. Pescatori M, Spyrou M, Cobellis L, Bottini C, Tessera G. The rectal pocket syndrome after stapled mucosectomy. *Colorectal Dis* 2006; 8 (9): 808-11.