



SUTURE HEMORRHOIDOPEXY VS STAPLED HEMORRHOIDOPEXY: COMPARISON OF POST OPERATIVE COMPLICATIONS AND OUTCOMES

General Surgery

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ABSTRACT

INTRODUCTION: Suture hemorrhoidopexy (Trans anal suture mucorectopexy) is a new invention by an Indian surgeon for managing 2nd, 3rd and 4th degree hemorrhoids. It is based on principles of plication of vessels in the rectum above dentate line at two different levels by blocking of blood supply and preventing the neo vascularization and anchoring the rectal mucosa and submucosa to parks ligament.

MATERIALS AND METHOD: Data of patients who underwent suture hemorrhoidopexy and Stapled hemorrhoidopexy between November 2017 to December 2019 were evaluated. 30 patients were underwent suture hemorrhoidopexy (group A) and 30 patients underwent for Stapled hemorrhoidopexy (group B). Operative duration, first defecation after surgery, immediate, early, delayed post-operative complications and duration of hospital stay were evaluated.

RESULTS: Mean Operative duration for group A was 54 minutes and for group B, it was 37 minutes. Incidence of Postoperative pain i.e. VAS score > 2 is 40 % for group A and 66.66% for group B. Mean Hospital stay was 3 days for group A and 4 days for group B. Mean intraoperative blood loss is more in group B than group A (45ml & 25 ml). Incidence of Postoperative urinary retention is more in group B than group A (30% & 13.3%). Recurrence is more with group B than group A (20% & 6.6%).

CONCLUSIONS: Suture hemorrhoidopexy can be recommended as a safe and cheaper alternative approach for surgical treatment of Grade- 2 to Grade-4 hemorrhoids after adequate training compared to Stapled hemorrhoidopexy.

KEYWORDS

Hemorrhoids,,Suture hemorrhoidopexy, Stapled hemorrhoidopexy

INTRODUCTION

Hemorrhoids are considered one of the most common anorectal diseases with a prevalence of 4.4% up to 36.4% of the general population^{1,2}, and a peak incidence between 45 and 65 years.^{3,4}

Hemorrhoids are clusters of vascular tissue, smooth muscle, and connective tissue arranged in 3 columns along the anal canal. They are present in healthy individuals as cushions that help to maintain continence. Although hemorrhoids are normal structure, the term hemorrhoid has come to refer to a pathologic or symptomatic process. Hemorrhoidal disease presents with a prolapsed lump, painless bleeding, discomfort, discharge, hygiene problems, soiling, and pruritus.^{5,6} Sliding anal canal lining theory is the most accepted theory as a cause of hemorrhoidal disease; however, it is also associated with hyper-vascularity, and recently, with high level of several enzymes or mediators involved in the disintegration of the tissues supporting the anal cushions, such as matrix metalloproteinase.⁷

Treatment modalities includes conservative treatment (life style modification, oral medications, and topical treatment), office procedures (rubber band ligation, injection sclerotherapy, infrared and radiofrequency coagulation, bipolar diathermy and direct- current electrotherapy, cryosurgery, and laser therapy), as well as surgical procedures including diathermy hemorrhoidectomy, LigaSure hemorrhoidectomy, Harmonic scalpel hemorrhoidectomy, hemorrhoidal artery ligation, stapled hemorrhoidopexy and suture hemorrhoidopexy. Surgical procedures are effective at eliminating hemorrhoids but may be painful.⁸

Suture hemorrhoidopexy procedure was first described by Dr. Antonio Longo¹¹ in 1993. It avoids wound in sensitive perianal and anal areas and, as a result, has the advantage of significantly reducing postoperative pain. Longo's procedure depends on shortening of long prolapsing tissue and fixing of cushions to their original position by auto suturing above the dentate line. Dr Shantikumar Chivate¹⁰ modified this technique and termed it as Transanal Suture Mucorectopexy.

In 1998, Longo¹¹ proposed the use of a specially designed circular stapler for treatment of grade III and grade IV hemorrhoids. Stapled hemorrhoidopexy aims at reducing the hemorrhoidal prolapse by

excising a complete ring of mucosa and submucosa above the dentate line and fixing the hemorrhoids to the distal rectal muscular wall leading to repositioning the hemorrhoids into the anal canal. The main advantages of this procedure is the absence of perianal wounds and the reduction of pain as compared to Conventional Hemorrhoidectomy.^{9,12}

This study was planned to directly compare suture hemorrhoidopexy as a newer procedure with Stapled hemorrhoidopexy as an established procedure for the treatment of grade 2 to grade 4 hemorrhoids.

AIMS AND OBJECTIVES

To compare and analyze the immediate, early and delayed postoperative complications of suture hemorrhoidopexy and Stapled hemorrhoidopexy in the treatment of grade-2 to grade-4 hemorrhoids.

INCLUSION CRITERIA

- All Patients coming to surgical OPD with history of per rectal bleeding and confirmed after routine examinations, having grade II / III / IV hemorrhoids, are included in the study.

EXCLUSION CRITERIA

- Patients with thrombosed piles, perianal hematoma and ulcerated piles excluded after confirmation.
- Anal stricture
- Recto-sigmoid growth
- Perianal fistula and fissure.

METHODOLOGY

The study was conducted at department of general surgery, SMIMER, Surat, wherein patients presented to us with complaints of bleeding PR, diagnosed with 2nd, 3rd or 4th degree hemorrhoids were noted and list was made. Patients were divided into 2 groups by odd and even numbers. Odd numbers were assigned as group A (suture hemorrhoidopexy group) and even were assigned as group B (Stapled hemorrhoidopexy group).

All patients were examined for following parameters:

1. Presenting complaints
2. PR examination
3. Contributory Laboratory Findings
4. Intraoperative findings

5. Postoperative complications

FOLLOWING PARAMETERS WERE ANALYZED AND COMPARED:

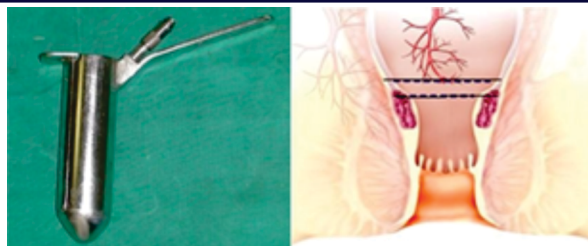
- 1) Operative duration
- 2) Intraoperative blood loss
- 3) First defecation after surgery
- 4) Immediate complications
 - a) Postoperative pain
 - b) Pain during defecation
- 5) Early complications
 - a) Postoperative bleeding
 - b) Urinary retention
 - c) Sphincter spasm
 - d) Fever
- 6) Delayed complications
 - a) Recurrence
 - b) Anal stricture
- 8) Cost of surgery

SUTURE HAEMORRHOIDOPEXY MATERIAL

The proctoscope is made up of a uniform metal tube of 3.6 cm inner and 3.8 cm outer diameters; along with fibro-optic connection. The tube is cut off its 1/8th circumference and sliding flap is prepared opposite to the fibro-optic connection. The leading end of the tube is conical and smooth that closes the tube, which facilitates the introduction of the proctoscope and prevents faecal matter to enter in the operation field. The sliding valve can be adjusted at any length. The proctoscope is calibrated at 1-cm marking over the inner aspect of the tube. The scope retracts the anus and rectum without excessive stretching.

METHOD

The bowel is prepared by oral liquids for 24 h; 30 ml of lactitol at night before surgery. Under saddle block/spinal anaesthesia, patient is positioned in lithotomy position with steep head low position, which helps in reducing piles mass in grade II, III and IV cases, and lax mucosal and submucosal tissues are replaced upwards to their original position. The anal canal is lubricated generously with lots of jelly and massaged. The Sim's speculum is used to compress and push the piles masses upwards, eventually lax mucosal and submucosal layers, containing vessels, are replaced up. A self-illuminated slit with sliding valve proctoscope is used. The sliding plate is removed. The dentate line and engorged mucosa is visualized. The replaced lax mucosa and submucosa are fixed to the deeper muscles of the rectum by 0.5–1 cm bites of tissue. The stitches are passed through the depth of the mucus-submucosa and part of muscle, started at three o'clock position at a distance of 4 cm proximal to the dentate line. For the stitch a 2/0 polyglactin on atraumatic 30 mm ½ circle needle is used. Precaution is taken that stitch should not pass through rectal wall, but only part of the rectal muscles is taken. The first stitch is tied and the next stitch is started 1–2 mm overlapping to the end of the first stitch and is double locked. The double locking is continued for every stitch to avoid purse string effect. Single locking is done intermittently at 3, 7, 11 o'clock position if bleeding occurs. The suturing is continued all along the complete circumference of the rectum at the same level. The second circumferential suture line is completed at 2 cm levels proximal to the dentate line. Both the suture lines are above the dentate line, which cause little or no pain in the postoperative period. Only two circumferential suturing lines are implemented at 2 and 4 cm proximal to the dentate line in the rectal wall in the procedure.

**Figure- 1: preop and postop image of suture hemrrhoidopexy****Figure- 2: image of operative proctoscope and suture line****STAPLED HEMORRHOIDOPEXY MATERIAL**

The preparation of the patient was same as for a conventional hemorrhoidectomy. The procedure was performed under general or spinal anesthesia and the patient was positioned in the lithotomy position. The equipment, which is available from a kit, consists of a 33mm stapling gun with a non detachable/ detachable anvil, a purse-string speculum, a transparent anal dilator with an operator, and a purse-string suture threader or crochet hook. The anal dilator was inserted into the anal canal and secured in place with heavy sutures to the perianal skin. The purse-string speculum was then inserted into the anal dilator. By rotating the speculum, a purse-string of 2–0 Prolene was placed in the rectum 4–5 cm above the dentate line in the rectal ampulla, incorporating only the mucosal–submucosal layer.

The stapler with the anvil fully extended was then inserted and positioned proximal to the purse string, which was then tied over the shaft of the anvil. The purse-string suture tails were retrieved through the ports in the stapler gun using the crochet hook. With moderate traction on the purse string, the prolapsed mucosa and submucosa were drawn into the casing of the stapler and the stapler tightened and fired. Compression on the gun was maintained for about 60 seconds for hemostasis before the stapler was opened and removed. Active bleeding points, if present, were sutured with an absorbable suture.

**Figure- 3: Instruments used for stapled**

hemorrhoidopexy. (A) Pursestring suture anoscope; (B) circular anal dilator; (C) suture threader (crochet hook); (D) 33mm hemorrhoidal circular stapler.

**Figure-4: Instruments for stapler hemorrhoidopexy****Figure- 5: Pre-op Grade-3 haemorrhoids.**



Figure- 6: Complete doughnet after surgery



Figure- 7: Post-op picture of same patient.

hourly. Under saddle block/spinal anaesthesia, patient is positioned in lithotomy position with steep head low position, which helps in reducing piles mass in grade II, III and IV cases, and lax mucosal and submucosal tissues are replaced upwards to their original position. The anal canal is lubricated generously with lots of jelly and massaged. The Sim's speculum is used to compress and push the piles masses upwards, eventually lax mucosal and submucosal layers, containing vessels, are replaced up. A self-illuminated slit with sliding valve proctoscope is used. The sliding plate is removed. The dentate line and engorged mucosa is visualized. The replaced lax mucosa and submucous are fixed to the deeper muscles of the rectum by 0.5–1 cm bites of tissue. The stitches are passed through the depth of the mucus-submucosa and part of muscle, started at three o'clock position at a distance of 4 cm proximal to the dentate line. For the stitch a 2/0 polyglactin on atraumatic 30 mm ½ circle needle is used. Precaution is taken that stitch should not pass through rectal wall, but only part of the rectal muscles is taken. The first stitch is tied and the next stitch is started 1–2 mm overlapping to the end of the first stitch and is double locked. The double locking is continued for every stitch to avoid purse string effect. Single locking is done intermittently at 3, 7, 11 o'clock position if bleeding occurs. The suturing is continued all along the complete circumference of the rectum at the same level. The second circumferential suture line is completed at 2 cm levels proximal to the dentate line. Both the suture lines are above the dentate line, which cause little or no pain in the postoperative period. Only two circumferential suturing lines are implemented at 2 and 4 cm proximal to the dentate line in the rectal wall in the procedure.

OBSERVATION AND RESULTS

A Total of 60 patients who underwent either suture hemorrhoidectomy or stapled hemorrhoidectomy in Department of Surgery, SMIMER hospital, Surat were included in this study from November 2017 to December 2019 and following results were obtained:

TESTING VARIABLES-

A) OPERATIVE DURATION

		Surgery	
		Suture Hemorrhoidectomy	Stapled Hemorrhoidectomy
Operative Duration	<45 min	10	20
	>45 min	20	10
Total	30	30	
Mean duration in surgery (minute)	53	37	

These results were compared statistically using chi-square test which showed p-value of <0.05 stating that there is a significant difference between the two groups based on operative procedure.

B) INTRAOPERATIVE BLOOD LOSS

		Surgery	
		Suture Hemorrhoidectomy	Stapled Hemorrhoidectomy
Intraoperative Mean Blood loss (ml)		24.8333 (15-40)	45.1666 (30-65)
Total		30	30

Intraoperative blood loss was very high in stapled Hemorrhoidectomy group. Mean blood loss in suture hemorrhoidectomy group is 24 ml and 45 ml in Stapled Hemorrhoidectomy group.

C) FIRST DEFECTION AFTER SURGERY

		Surgery	
		Suture Hemorrhoidectomy	Stapled Hemorrhoidectomy
First Defecation after Surgery	Day 0	18	13
	Day 1	12	17
Total	30	30	

P value came out <0.05 which showed that there is statistically a significant difference in the 2 groups based on first defecation after surgery.

D) POSTOPERATIVE PAIN ON DAY 1

		Surgery	
		Suture Hemorrhoidectomy	Stapled Hemorrhoidectomy
Postoperative Pain	Present VAS > 2	12	20
	Absent VAS < 2	18	10
Total		30	30

P value came out <0.05 which showed that statistically there is a significant difference in the 2 groups based on postoperative pain.

E) POSTOPERATIVE PAIN DURING DEFECTION

		Surgery	
		Suture Hemorrhoidectomy	Stapled Hemorrhoidectomy
Postoperative Bleeding	Present	5	10
	Absent	25	20
Total		30	30

P value came out <0.05 which showed that statistically there is a significant difference in the 2 groups based on postoperative pain.

F) POSTOPERATIVE BLEEDING

		Surgery	
		Suture Hemorrhoidectomy	Stapled Hemorrhoidectomy
Postoperative Bleeding	Present	5	10
	Absent	25	20
Total	30	30	

P value came out <0.05 which showed that statistically there is a significant difference in the 2 groups based on postoperative bleeding.

G) POSTOPERATIVE URINARY RETENTION

		Surgery	
		Suture Hemorrhoidectomy	Stapled Hemorrhoidectomy
Postoperative Urinary Retention	Present	4	9
	Absent	26	21
Total		30	30

P value came out <0.05 which showed that there is statistically significant difference in the 2 groups based on urinary retention.

H) POSTOPERATIVE SPHINCTER SPASM

		Surgery	
		Suture Hemorrhoidectomy	Stapled Hemorrhoidectomy
Postoperative Sphincter Spasm	Present	1	08
	Absent	29	12
Total		30	30

P value came out <0.05 which showed that there is statistically a significant difference in the 2 groups based on sphincter spasm.

I) POSTOPERATIVE FEVER

		Surgery	
		Suture Hemorrhoidopathy	Stapled Hemorrhoidopathy
Postoperative Fever	Present	2	4
	Absent	28	26
Total		30	30

P value came out <0.05 which showed that there is statistically significant difference in the 2 groups based on postoperative fever.

J) DURATION OF HOSPITAL STAY

		Surgery	
		Suture Hemorrhoidopathy	Stapled Hemorrhoidopathy
Duration of Hospital Stay	< 2 Days	22	15
	> 2 Days	8	15
Total		30	30
Mean Hospital Stay (days)	2.8333	4.1	

P value came out <0.05 which showed that there is statistically significant difference in the 2 groups based on duration of hospital stay.

K) RECURRENCE AFTER LONG TERM FOLLOW UP AT 3MONTH,6MONTH,AND 1YEAR

		Surgery	
		Suture Hemorrhoidopathy	Stapled Hemorrhoidopathy
Duration of Hospital Stay	< 2 Days	22	15
	> 2 Days	8	15
Total		30	30
Mean Hospital Stay (days)	2.8333	4.1	

Recurrence after long term follow up at 3month, 6month and 1 year was 6.66% in suture hemorrhoidopathy group and 20% in Stapled Hemorrhoidopathy group. P value came out <0.05 which showed that there is statistically significant difference in the 2 groups based on recurrence on long term follow up.

L) ANAL STRICTURE AFTER LONG TERM FOLLOW UP AT 3MONTH,6MONTHAND 1YEAR

		Surgery	
		Suture Hemorrhoidopathy	Stapled Hemorrhoidopathy
Duration of Hospital Stay	< 2 Days	22	15
	> 2 Days	8	15
Total		30	30
Mean Hospital Stay (days)	2.8333	4.1	

Anal stricture after long term follow up was studied and compared in both the groups. Statistical analysis by chi-square test revealed that there is no any incidence in suture hemorrhoidopathy group and 16.7% in Stapled Hemorrhoidopathy group. Out of 5 patients of anal stricture 2 patients were treated conservatively with stool softeners, high fiber diets and anal dilatation, 2 patients were undergone sphincterotomy and 1 patient was undergone for anoplasty.

DISCUSSION

In this study we've extensively studied and analyzed the two surgical procedures :

Stapled Hemorrhoidopathy and Suture Hemorrhoidopathy.

TESTING VARIABLES-**1. OPERATIVE DURATION –**

In our study, mean duration of surgery is 53 minutes in Group A and 37 minutes in Group B. Stapled Hemorrhoidopathy procedure requires less time for surgery than suture hemorrhoidopathy. (P value <0.05)

This is similar to that observed in other studies. However, the duration was 5-10 minutes different than observed by others (Khalil KH, 2000; Bikhchandani J, 2005)15,16. Tjandra JJ (2007)17 published a systemic review on stapled hemorrhoidopathy of all randomized, controlled trials until August 2006.

Hetzer et al (2002)18 also observed a mean of 30 min. Dilatation of the anal sphincter before stapler introduction was routinely performed. The authors suggested this as a possible cause for prolonged operating

time. The largest trial describing the experience with 3,711 stapled hemorrhoidopathies was published recently by Ng et al (2006)19. The median operation duration was 15 min (range: 5-45 min), much lower than the other studies.

2. INTRAOPERATIVE BLOOD LOSS

Mean blood loss in suture hemorrhoidopathy group is 24 ml and 45 ml in Stapled Hemorrhoidopathy group. Thus, suture hemorrhoidopathy is better than Stapled Hemorrhoidopathy in bleeding as it has less intraoperative bleeding.

We found that there was an increased incidence of intraoperative bleeding in the stapled hemorrhoidectomy group. Our results were in line with previous studies conducted by Koh et al. 20 that reported a high incidence of staple line bleeding, up to 44% with various reasons put forth. When the stapler is deployed in an intact bowel lumen during the Longo technique, the stapler actually cuts across well-vascularized tissue, including submucosal blood vessels, under relatively high pressure. The rectal wall is notoriously vascular, with vessels situated just beneath the mucosa. Similar intraoperative bleeding results have been noted by Manfredelli et al.21 that observed a high percentage of staple line bleeding compared to an open group. In this study, most of the staple line bleeding was from an active arterial spurt that was managed by electrocautery initially and, if deemed necessary, was controlled by suture reinforcement by a figure-of-eight suture. The rest of the bleedings were ooze-managed by topical hemostats and gauze packings. We conclude that it is imperative to review the staple line after completion of the procedure to avoid any bothersome after effects from bleeding of the suture line.

3. FIRST DAY OF DEFECACTION AFTER SURGERY

In our study, 60 % patients of Group A passed stool on day 0, compared to 43.33 % in Group B (P value <0.05). As there is less pain in postoperative period in Group A as compared to Group B, patient pass stool easily on day 0. Thus, suture hemorrhoidopathy is better in terms of first day defecation than Stapled Hemorrhoidopathy due to less intraoperative blood loss and less postoperative pain which was also observed by Solfie et al, (2008) and Cheetham et al, (2000).

4. POSTOPERATIVE PAIN ON DAY 1

In our study, postoperative pain was managed according to the guidelines of French Anaesthesia Society 10. Pain was assessed using a Visual analogue scale (VAS). The aim was to keep the VAS score below 3 with adequate analgesia using the world health organization (WHO) guidelines for pain management 14.

In our study, postoperative pain (VAS score > 2) incidence was 66.7 % in Group B and only 40 % in Group A (P value <0.05), which suggest that postoperative pain is more in Group B as compared to Group A. As suture line is confined 2 cm and 4 cm above the dentate line, there is less incidence of pain in suture hemorrhoidopathy group as compared to Stapled Hemorrhoidopathy group 10.

Solfie et al, (2008), also reported as pain in first two postoperative days in Stapled Hemorrhoidopathy group. Cheetham et al (Lancet, 2000) a study that reported significantly more pain in stapled group 22

5. PAIN DURING DEFECACTION :

Incidence of Pain during defecation was 43.33 % in Group A as compared to 60 % Group B (P value <0.05). Thus, suture hemorrhoidopathy is better in terms of postoperative pain during defecation as compared to Stapled Hemorrhoidopathy.

Solfie et al, (2008) and Cheetham et al, (2000) also reported more pain during defecation in Stapled Hemorrhoidopathy.

6. POSTOPERATIVE BLEEDING

Postoperative bleeding was compared and statistically analyzed which showed 16.64 % incidence of bleeding in Group A as compared to 33.34 % in Group B (P value <0.05). Thus, suture hemorrhoidopathy is better than Stapled Hemorrhoidopathy in bleeding as it has less intraoperative bleeding and also less chances of postoperative bleeding.

Manfredelli et al.21 observed less postoperative bleeding in suture hemorrhoidopathy compared to Stapled Hemorrhoidopathy.

7. POSTOPERATIVE URINARY RETENTION

Postoperative Urinary retention was compared and statistically

analyzed which showed 13.33 % incidence of urinary retention in Group A as compared to 30 % in Group B(P value <0.05). Thus, suture hemorrhoidopexy is better than Stapled Hemorrhoidopexy as it has less chances of urinary retention. This complication may arise due to postoperative pain, or may be due to effect of spinal anaesthesia, so further evaluation and studies are required to assess this complication by avoiding spinal anaesthesia and giving regional perianal block/pudendal block. Other recommendation is foley catheterization preoperatively, and removed on first postoperative day13.

Esser et al, 24 observed postoperative urinary retention in stapled Hemorrhoidopexy.

8. POSTOPERATIVE SPHINCTER SPASM

Postoperative Sphincter Spasm was compared and statistically analyzed which showed 3.34 % incidence of sphincter spasm in Group A as compared to 26.7 % in Group B(P value <0.05). Main etiologic factor behind sphincter spasm is pain. As there is more pain in Stapled Hemorrhoidopexy procedure, there is more incidence of postoperative sphincter spasm.

Mascagni et al,25 observed postoperative urinary retention in stapled Hemorrhoidopexy.

9. ANAL STRICTURE

Anal stricture was compared and statistically analysed which shows no incidence of anal stricture in Group A as compared to 16.66% incidence in Group B. So in terms of postoperative anal stricture, suture hemorrhoidopexy is far better than Stapled Hemorrhoidopexy. In this, the normal pliable anoderm is replaced by cicatrized tissue due to excessive removal of the anoderm and distal rectal mucosa9. Mild stricture can be treated with dietary modifications. The regular passage of stool provides the most natural stretching possible.

Moderate to severe stricture can be managed by lateralsphincterotomy or flap surgery. All patients of postoperative anal stricture were treated conservatively with stool softeners and high fiber diet. Out of 5 patients of anal stricture 2 patients were treated conservatively with stool softeners, high fiber diets and anal dilatation, 2 patients were undergone sphincterotomy and 1 patient was undergone for anoplasty.

10. DURATION OF HOSPITAL STAY

Duration of hospital stay was compared and statistically analysed. 50% patients discharged in less than 2 days in Group B as compared to 73.33 % patients in Group A(P value <0.05). Suture hemorrhoidopexy requires less hospitalization than Stapled Hemorrhoidopexy and thus patient can pursue his routine work early than Stapled Hemorrhoidopexy. Another study done by same author also shows low hospital stay for suture hemorrhoidopexy group compare to open hemorrhoidectomy26.

11. RECURRENCE ON LONG TERM FOLLOW UP

Recurrence on long term follow up at 3 month, 6 month and 1 year was compared and statistically analysed which showed 6.67 % incidence of recurrence on long term follow up in Group A as compared to 20 % in Group B(P value <0.05). Suture hemorrhoidopexy is better in terms of long term follow up as compared to Stapled Hemorrhoidopexy because there is less long term recurrence and better long term satisfaction of patient. In chivate's procedure, the vessels are blocked at two sites at the distance of 2 cm, which reduces the chances of development of the collaterals and recurrence. Although Recurrences were noted in suture hemorrhoidopexy group, it may be due to inadequate suture bite (inadequate mucorectopexy) or due to initial learning curve. So the procedure is skill dependent10.

Jayaraman S, et al Cochrane Database Syst Rev. in 200623 on Stapled versus conventional surgery for hemorrhoids noted that stapled hemorrhoidopexy is associated with a higher long-term risk of hemorrhoid recurrence and the symptom of prolapse.

Tjandra JJ, Chan MK., (2007) systematic review stated that there was increase in the recurrence of hemorrhoids at one year or more after stapled procedure.

12. COST OF SURGERY

Overall cost of the surgery at our institute is very very high in case of Stapled hemorrhoidopexy in compare to suture hemorrhoidopexy.

Approximate cost of suture hemorrhoidopexy is around 1500-1700 Rupees only Where as approximate cost of stapled hemorrhoidopexy is around 15000-17000 Rupees which is ten times high compare to suture hemorrhoidopexy.

Our another study to compare suture hemorrhoidopexy with open hemorrhoidectomy also shows that suture hemorrhoidopexy resulted in less post-operative pain, less post-operative requirement of analgesia, early post-operative ambulation, less hospital stay, early return to work with no added postoperative complications with comparable operative time, intraoperative complications²⁶.

CONCLUSION

We studied the advantages and disadvantages of suture hemorrhoidopexy and Stapled Hemorrhoidopexy of 60 patients in our study, without compromising any safety of the patients. We have found both advantages and disadvantages of both the techniques,

ADVANTAGES OF SUTURE HEMORRHOIDOPEXY IN OUR STUDY:

- 1) Less postoperative pain
- 2) Less post-operative requirement of analgesia.
- 3) Early post-operative mobilisation.
- 4) Early Return to Work.
- 5) Early bowel movements.
- 6) Less postoperative bleeding.
- 7) Less chances of postoperative urinary retention.
- 8) Less chances of postoperative sphincter spasm.
- 9) Less chances of anal stricture.
- 10) Less duration of hospital stay.
- 11) Less long term recurrence and other complications.
- 12) Cheap procedure

DISADVANTAGES OF SUTURE HEMORRHOIDOPEXY IN OUR STUDY:

- 1) Long learning curve for precise suturing of procedure and require higher skill level.
- 2) More operative duration.

ADVANTAGES OF STAPLED HEMORRHOIDOPEXY IN OUR STUDY:

- 1) Less time required for procedure.

DISADVANTAGES OF STAPLED HEMORRHOIDOPEXY IN OUR STUDY:

- 1) More post-operative analgesia requirement in early post-operative period as compare to suture hemorrhoidopexy.
- 2) Late post-operative mobilisation (ambulation)
- 3) Prolonged hospital stays.
- 4) Late return to work.
- 5) More intraoperative and postoperative bleeding.
- 6) More chances of urinary retention.
- 7) More chances of postoperative sphincter spasm.
- 8) More chances of anal stricture.
- 9) More long term recurrence and complications.
- 10) Costly procedure.
- 11) Need higher skill
- 12) Depends on instruments(stapler)

Hence, suture hemorrhoidopexy resulted in less post-operative pain, less post-operative requirement of analgesia, early post-operative ambulation, less hospital stay, early return to work with no added postoperative complications with comparable operative time, intraoperative complications, when compared to Stapled Hemorrhoidopexy. Thus, suture hemorrhoidopexy can be recommended as a safe and cheap alternative procedure than Stapled Hemorrhoidopexy after adequate training.

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