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

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, and a peak incidence between 45 and 65 years. Hemorrhoids are clusters of vascular tissue, smooth muscle, and connective tissue arranged in 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. 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.

Treatment modalities include conservative treatment (life style modification, oral medications, and topical treatment), office procedures (rubber band ligation, injection sclerotherapy, infrared photocoagulation, bipolar electrotherapy, cryosurgery, and laser therapy), as well as surgical procedures including diathermy hemorrhoidectomy, Harmonic scalpel hemorrhoidectomy, hemorrhoidal artery ligation, stapled hemorrhoidopexy and suture hemorrhoidectomy, etc.

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 one of the most common diseases with a prevalence of 4.4-36.4% of the general population, and a peak incidence between 45 and 65 years. Hemorrhoids are clusters of vascular tissue, smooth muscle, and connective tissue arranged in 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. 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.

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

Suture hemorrhoidopexy procedure was first described by Dr. Antonio Longo 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 Chivate modified this technique and termed it as Transanal Suture Mucorectopexy.

In 1998, Longo 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 advantage of this procedure is the absence of perianal wounds and the reduction of pain as compared to Conventional Hemorrhoidectomy.

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.

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) Duration of Hospital stay
7) Delayed complications
   a) Recurrence
   b) Anal stricture
8) Cost of surgery

SUTURE HEMORRHOIDOPEXY MATERIAL

The proctoscope is made up of a uniform metal tube of 3.6 cm inner and 3.8 cm outer diameters; along with fiberoptic connection. The tube is cut off its 1/8th circumference and sliding flap is prepared opposite to the fiberoptic 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 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-submucus 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/o polyglactin on atraumatic 30 mm ½ circle needle is used. Precaution is taken that stitch should not passed 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 hemorrhoidopexy

STAPLED HEMORRHOIDOPEXY MATERIAL

The preparation of the patient was same as for a conventional hemorrhoidectomy. Te 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 shaf 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 fred. 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- 2: image of operative proctoscope and suture line

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.
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 mucous-submucus 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 passed 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 hemorrhoidopexy or stapled hemorrhoidopexy 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**

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Suture Hemorrhoidopexy</th>
<th>Stapled Hemorrhoidopexy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative Duration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;45 min</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>≥45 min</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Suture Hemorrhoidopexy</th>
<th>Stapled Hemorrhoidopexy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intraoperative Mean Blood loss (ml)</td>
<td>24.8333 (15-40)</td>
<td>45.1666 (30-65)</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

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

**C) FIRST DEFECATION AFTER SURGERY**

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Suture Hemorrhoidopexy</th>
<th>Stapled Hemorrhoidopexy</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Defecation after Surgery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 0</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>Day 1</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

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

**D) POSTOPERATIVE PAIN ON DAY 1**

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Suture Hemorrhoidopexy</th>
<th>Stapled Hemorrhoidopexy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postoperative Pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present VAS &gt; 2</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Absent VAS &lt; 2</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

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 DEFECATION**

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Suture Hemorrhoidopexy</th>
<th>Stapled Hemorrhoidopexy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postoperative Bleeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Absent</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Suture Hemorrhoidopexy</th>
<th>Stapled Hemorrhoidopexy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postoperative Bleeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Absent</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Suture Hemorrhoidopexy</th>
<th>Stapled Hemorrhoidopexy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postoperative Urinary Retention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Absent</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

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

**H) OSTOPERATIVE SPHINCTER SPASM**

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Suture Hemorrhoidopexy</th>
<th>Stapled Hemorrhoidopexy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postoperative Sphincter Spasm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>1</td>
<td>08</td>
</tr>
<tr>
<td>Absent</td>
<td>29</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

P value came out <0.05 which showed that statistically there is significantly significant difference in the 2 groups based on spincter spasm.
The authors suggested this as a possible cause for prolonged operating time. The largest trial describing the experience with 3,711 stapled hemorrhoidopexies 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 hemorrhoidopexy group is 24 ml and 45 ml in Stapled Hemorrhoidopexy group. Thus, suture hemorrhoidopexy is better than Stapled Hemorrhoidopexy 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 spur that was managed by electrocautery initially and, if deemed necessary, was controlled by suture re-inforcement 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 DEFAECATION 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 hemorrhoidopexy is better in terms of first day defecation than Stapled Hemorrhoidopexy due to less intraoperative blood loss and less postoperative pain which was also observed by Solife 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 Society10. 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 management14.

In our study, postoperative pain (VAS score > 2) incidence was 66.7 % in suture hemorrhoidopexy group and 40 % in Stapled Hemorrhoidopexy group. Thus, suture hemorrhoidopexy is better in terms of postoperative pain during the postoperative period in Group A as compared to Group B. As suture line is confined 2 cm and 4 cm above the dentate line, there is less incidence of pain in suture hemorrhoidopexy group as compared to Stapled Hemorrhoidopexy group.

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

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

Solife et al. (2008) and Cheetham et al. (2000) also reported more pain during defecation in Stapled Hemorrhoidopexy.

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 hemorrhoidopexy is better than Stapled Hemorrhoidopexy 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 hemorrhoidopexy compared to Stapled Hemorrhoidopexy.

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 recurrence. 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 day.13

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 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 STRUCTURE

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 mucosa. 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 hemorrhoidectomy.26

11. RECURRENCE ON LONG TERM FOLLOW UP

Recurrent 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 collateral and recurrence. Although Recurrences were noted in suture hemorrhoidopexy group, it may be due to inadequate suture bite (inadequate mucocutaneum) or due to initial learning curve. So the procedure is skill dependent.10

Jayaraman S, et al Cochrane Database Syst Rev. in 200623 on Stapled Hemorrhoidopexy. Jayaraman S, et al Cochrane Database Syst Rev. in 200623 on Stapled Hemorrhoidopexy. Another study done by same author also shows low hospital stay for suture hemorrhoidopexy group compare to open hemorrhoidectomy.26

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 postoperative 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.12

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, as follows.

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) 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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