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Surgical Management of Haemorrhoidectomy

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Abstract:

Hemorrhoidal disease is one of the most common anorectal disorders worldwide and represents a significant clinical burden. It results from the pathological enlargement and distal displacement of normal anal cushions due to vascular congestion and weakening of the supporting connective tissue. Although conservative and minimally invasive treatments are effective for early stages, surgical intervention remains the definitive management for advanced hemorrhoids, particularly grade III and IV disease. Several surgical techniques have been developed, including conventional excisional hemorrhoidectomy such as the Milligan–Morgan and Ferguson procedures, as well as newer approaches like stapled hemorrhoidopexy and Doppler-guided hemorrhoidal artery ligation. Each technique differs in operative method, postoperative pain, complication rates, and recurrence risk. This mini-review aims to summarize the current surgical approaches for hemorrhoidectomy, highlighting indications, operative techniques, advantages, and potential complications associated with each procedure.

Keywords: Hemorrhoids, Hemorrhoidectomy, Milligan-Morgan technique, Ferguson technique, Stapled hemorrhoidopexy, Surgical management.

Introduction:

Hemorrhoids are a very common anorectal condition defined as the symptomatic enlargement and distal displacement of the normal anal cushions. They affect millions of people around the world, and represent a major medical and socioeconomic problem. Multiple factors have been claimed to be the etiologies of hemorrhoidal development, including constipation and prolonged straining. The abnormal dilatation and distortion of the vascular channel, together with destructive changes in the supporting connective tissue within the anal cushion, is a paramount finding of hemorrhoidal disease. An inflammatory reaction and vascular hyperplasia may be evident in hemorrhoids.**(1)**

Hemorrhoids are clusters of vascular tissues, smooth muscles, and connective tissues that lie along the anal canal in three columns—left lateral, right anterior, and right posterior positions. Because some do not contain muscular walls, these clusters may be considered sinusoids instead of arteries or veins **(2)**

Operative treatment (Hemorrhoidectomy)

Hemorrhoids can have treatment with both medical and surgical interventions depending on their degree of prolapse and whether they are internal or external. The most effective treatment for recurrent, symptomatic grade III, or IV hemorrhoids, is surgical excision. Surgical procedures primarily include closed, also called Ferguson hemorrhoidectomy, which is the most common technique in the United States, or the open, also called Milligan-Morgan hemorrhoidectomy, used in the United Kingdom and Europe.**(3)**

Indication

Operative hemorrhoidectomy is necessary for large third- and fourth-degree hemorrhoids in the following situations:**(4)**

- Failed nonoperative management
- Advanced disease process unlikely to respond to conservative management

- Mixed hemorrhoids with a bulging external component
- Incarcerated internal hemorrhoids needing urgent intervention
- Coagulopathic patients requiring management of hemorrhoidal bleeding

Contraindications

Relative contraindications include the following:(4)

- Patients unable to undergo general anesthesia due to medical comorbidities
- Baseline fecal incontinence
- Rectocele
- Presence of inflammatory bowel diseases such as Crohn disease or ulcerative colitis
- Portal hypertension with rectal varices
- Uncontrolled bleeding disorder

Technique or Treatment

Surgical excision is performed primarily via a closed hemorrhoidectomy (Ferguson technique) or an **open hemorrhoidectomy (**Milligan-Morgan), which is more common in the United Kingdom and Europe. The Ferguson technique is the most common technique used in the United States, on which this article focuses.**(5)**

The Hill Ferguson retractor is inserted in the anal canal to assess all three of the hemorrhoidal columns. The excision can be limited to only one column, but all three can be excised during the same operation if clinically indicated. The clinician should address the largest of the pathologic columns first.**(6)**

The enlarged column should be compressed at the base with a DeBakey forceps to ensure the anoderm is tension-free. A 10-scalpel blade is used to make an elliptical incision around the hemorrhoidal column.

The pedicle is dissected off the surface of the internal anal sphincter using Mayo scissors up to the level of the pedicle. The pedicle is grasped with a large Kelly and is suture ligated with 3-0 Vicryl on a CT 2 needle. Deeper suture fixation of 3-0 Vicryl is used at the top of the anorectal ring to reduce the risk of recurrent prolapse. The suture is then used to close the rectal mucosa, anoderm, and perianal skin in a running fashion.**(7)**

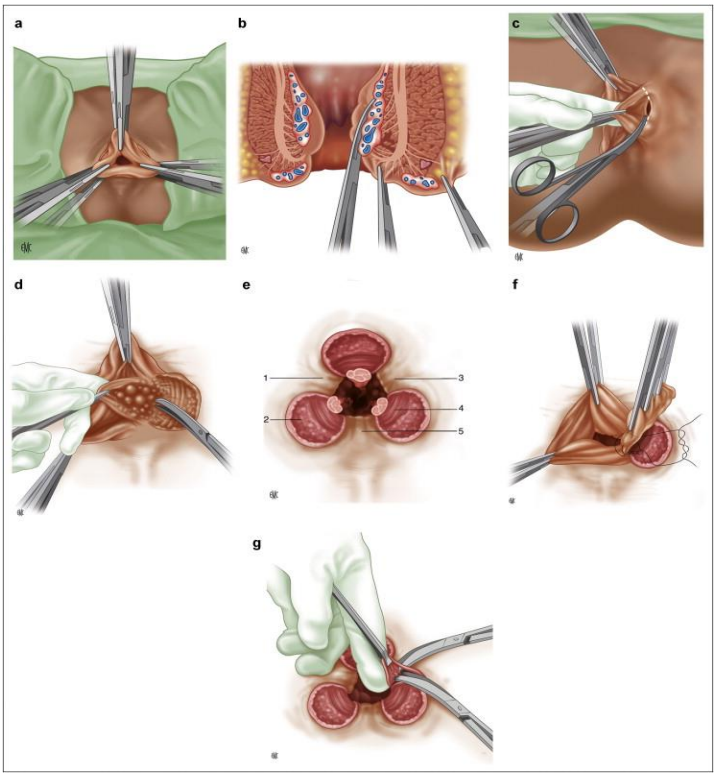

Figure 1: Dissected hemorrhoids prior to excision**(8)**

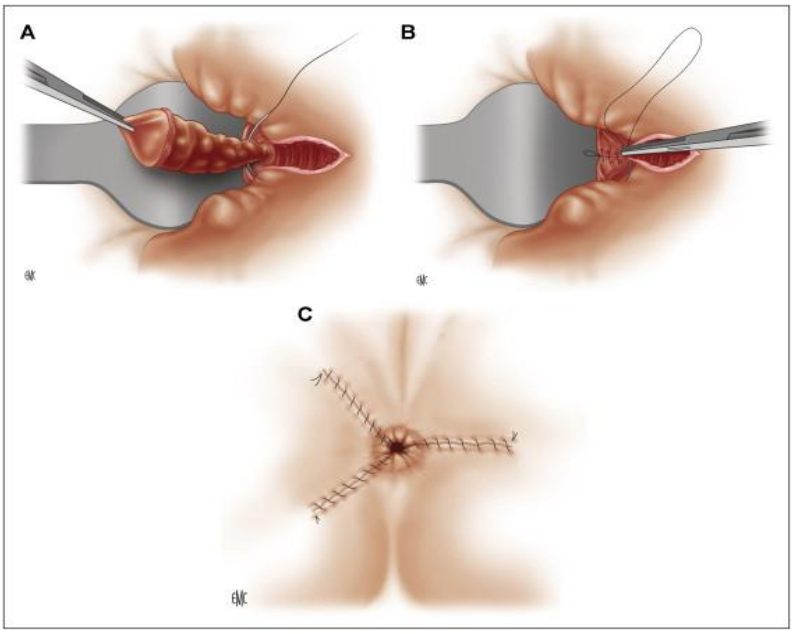

Figure 2: Closed hemorrhoidectomy **(8)**

In addition to these conventional techniques, an additional surgical procedure is the stapled hemorrhoidopexy. During this procedure, the hemorrhoidal columns are not excised but are lifted above the anal verge and attached to each other. Studies show high rates of recurrence as well as microscopic incorporation of sphincter muscle in the resection specimens, which leads to transient flatus incontinence.**(4)**

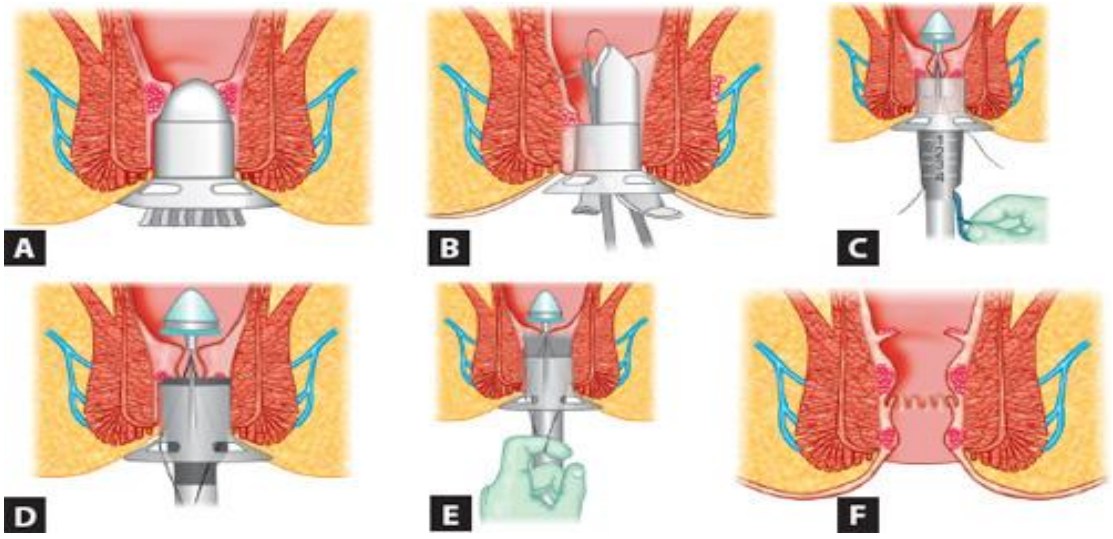

Figure 3: Circumferential staple line **(9)**

Complications

The patient should anticipate pain and anal fullness within the first week following hemorrhoidectomy and hemorrhoidopexy. Adequate pain control, as well as the use of stool softeners, are a priority in the postoperative period.

Early complications include:

Bleeding , Urinary retention , Thrombosed external hemorrhoids and Rare but life-threatening complications that must be recognized early include sepsis, abscess formation, massive bleeding, and peritonitis.**(10)**

Late complications include:

Anal stenosis, Skin tags, Recurrent hemorrhoids, Delayed hemorrhage and Fecal incontinence.

A major drawback of hemorrhoidectomy is postoperative pain. There has been evidence that Ligasure hemorrhoidectomy results in less postoperative pain, shorter hospitalization, faster wound healing and convalescence compared to scissors or diathermy hemorrhoidectomy, Other postoperative complications include acute urinary retention (2%-36%), postoperative bleeding (0.03%-6%), bacteremia and septic complications (0.5%-5.5%), wound breakdown, unhealed wound, loss of anal sensation, mucosa prolapse, anal stricture (0%-6%), and even fecal incontinence (2%-12%) **(11)**

Non-excisional operation for hemorrhoids includes **doppler-guided hemorrhoidal artery ligation (DG-HAL)** or known as transanal hemorrhoidal dearterialization (THD), and **plication of hemorrhoids** (or known as ligation anopexy or mucopexy).

DG-HAL has been introduced into a surgical practice to cut off the blood supply to hemorrhoids without the need of hemorrhoid removal. It involves the surgical ligation of terminal branches of superior hemorrhoidal artery causing shrinkage of hemorrhoid bundles.

Plication of hemorrhoids is often performed with DG-HAL to control the prolapse more effectively. However, the recurrence rate following DG-HAL was up to 60% for grade IV hemorrhoids. DG-HAL is therefore considered as one of the effective operations only for grade II-III hemorrhoids with a one-year recurrence rate of 10% for prolapse and 10% for bleeding. **(12)**

Notably, DG-HAL is not a totally painless operation as approximately 20% of patients experienced postoperative pain especially during the defecation. Meanwhile, a ligation anopexy or mucopexy was also demonstrated to be a good alternative to excisional hemorrhoidectomy for grade II-III hemorrhoids, with shorter operative time and lower postoperative pain. Given the fact that there is the possibility of revascularization and recurrent prolapse, further studies on the long-term outcomes of non-excisional operations for hemorrhoids are needed.**(13)**

Stapled hemorrhoidopexy, also known as a procedure for prolapse and hemorrhoids (PPH), is an alternative operation for treating advanced internal hemorrhoids. A circular staple device is used to excise a ring of redundant rectal mucosa just above hemorrhoid bundles - not hemorrhoids per se. By doing this, prolapsing hemorrhoids will be repositioning (hemorrhoidopexy) and shrinking (due to a partial interruption of blood supply to hemorrhoid plexus).**(14)**

A recent systematic review of 27 randomized controlled trials demonstrated that, compared with conventional hemorrhoidectomy, stapled hemorrhoidopexy had less pain, shorter operative time, and quicker patient's recovery of patient, but a significantly higher rate of prolapse and reintervention for prolapse.**(15)**

Interestingly, the latest meta-analysis comparing surgical outcomes between stapled hemorrhoidopexy and Ligasure hemorrhoidectomy in 2013 revealed that both surgical techniques were practically comparable - with a slightly favorable immediate postoperative results and technical advantages for Ligasure hemorrhoidectomy. **(3)**

Given the fact that stapled hemorrhoidopexy did not offer any significant advantages over Ligasure hemorrhoidectomy and it is a relatively expensive operation which may cause serious postoperative complications such as rectal stricture and rectal perforation as well as severe chronic anal pain, stapled hemorrhoidopexy should be reserved for patients with circumferential prolapsing hemorrhoids and it must be performed by a well-trained surgeon.**(3)**

- **Different ways in management of haemorrhoidectomy**

Hemorrhoids are engorged venous plexuses of the anal canal and can cause prolapse, bleeding, pain, thrombosis and prurities . Hemorrhoids are classified to four degrees, first degree if there is bleeding but do not prolapsed; second-degree hemorrhoids prolapsed with bowel movements, and then reduce spontaneously; third

degree hemorrhoids prolapsed on straining and need manual reduction; fourth-degree hemorrhoids prolapsed and cannot be reduced manually **(16)**.

The standard operation for grades III and IV hemorrhoids is Hemorrhoidectomy results are better than other conservative procedure like rubber band ligation, photocoagulation, cryotherapy and sclerotherapy.

Conventional hemorrhoidectomy involves submucosal excision of hemorrhoidal plexuses and the residual wound healed by secondary intention (Miligan Morgan) or closed primarily (Ferguson). **(17)**

Unfortunately, it is often complicated with postoperative pain especially in the first week, bleeding, incontinence and anal stenosis that result in delayed convalescence. Therefore, this has stimulated continuous efforts and attempts to develop other new techniques and modifications which allow a less post-operative pain and faster recovery.**(18)**

The LigaSure Vessel Sealing System (LVSS) is an instrument conceived to upgrade the conventional treatment of hemorrhoids, it consists of a bipolar electro thermal device which permits an optimized combination of radiofrequency and pressure, seals blood vessels with diameter up to seven mm and generates an energy tailored to the tissue impedance and it's thermal injury is confined to two mm over the surgical site. **(3)**

This limited spread decreases anal pain, spasm and enables to do a bloodless hemorrhoidectomy with less postoperative pain and fast healing. So, this operation by the LVSS can be recommended as the ideal technique that reduces tissue trauma.**(14)**

Open Haemorrhoidectomy

Hemorrhoids, the most prevalent anal disease, are defined as collections of submucosal, fibrovascular, arterio-venous sinusoids that are part of the anorectum. Clinically, hemorrhoids are expressed by bright red bleeding from the rectum with mucous discharge, perianal irritation and pain, prolapse of the hemorrhoidal cushions, bulging masses, soiling, and non-hygiene.**(19)**

The paradigm about the treatment of hemorrhoids has changed over the years, and many options have been reported about hemorrhoid surgery.**(20)**

These options range from conservative treatment (dietary and sclerotherapy) to surgical methods like band ligation and excision according to the grade of hemorrhoids. The classification by Banov L et al., grade III and IV hemorrhoids are amenable to surgical treatment, and open hemorrhoidectomy is effective and seems to be the most common technique for grade III and IV hemorrhoids.**(21)**

Surgical treatment is the only truly curative method of hemorrhoidal disease. This is indicated in patients to whom conservative measures have failed and for those who have developed complications. Of the several surgical techniques, the Milligan-Morgan hemorrhoidectomy is still considered the treatment of choice, since it is the most radical one and it has the best results.**(19)**

One of the major problems associated with the technique remains postoperative pain. Studies reported severe pain occurred in 20–40% of patients.**(22)**

Local anesthesia (LA) is adequate for the majority of anal surgical procedures. LA produces sensory and motor blockade in the peri-anal region with an effect on peripheral nerve endings and therefore produces varying and unpredictable degrees of anal canal relaxation. Operative time has been shown to be different according to the anesthetic technique used in terms of time saved during operation according to studies done by Kushwaha and Baghel with their colleagues comparing the use of LA versus spine and GA for open hemorrhoidectomy **(23)**.

Despite producing interesting results presented in the literature, LA has been increasingly questioned, as to whether it brings more benefits to selected patients. It was found that open hemorrhoidectomy (OH) under general anesthesia (GA) or spine anesthesia (SA) showed a high-cost implication as compared to OH done under local anesthesia in different studies published **(24)**.

Open hemorrhoidectomy in most low- and middle-income countries (LMICs) is performed under saddle block which requires a trained anesthetic provider and is associated with delays in the initiation of surgery, postoperative urinary retention, neural injury, direct nerve and spinal cord injury, cauda equina syndrome, epidural hematoma post-dural puncture headache, failed block, epidural abscess, and hematoma . These complications increase the duration of hospital stay and morbidity. **(25)**

The few numbers of anesthetic providers in developing countries like Uganda (0.05 per 100,000 population compared to 17.85 per 100,000 in the UK) have been seen as a hindrance to access and performance of open hemorrhoidectomy especially at low-level facilities despite open hemorrhoidectomy being a very common surgical procedure. The costs of anesthetic procedures have become an important factor in the selection of the best technique for benign anal surgeries. **(26)**

Saddle block needs a trained anesthetist to administer the anesthesia in order to perform open hemorrhoidectomy and has been associated with a long hospital stay which increases the cost related to OH compared to OH done under local anesthesia.**(27)**

While open hemorrhoidectomy under local anesthesia has been shown to have lower complication rates and more cost-effective by saving anesthetics for other surgeries, it has been also found to increase patient turnover because of the shorter operative time. In spite of these benefits, LA is still not considered as a first-line technique in low-income countries like Uganda. To explore the applicability of LA for OH in a limited setting, a well-designed randomized controlled trial is needed. **(28)**

Open hemorrhoidectomy is traditionally viewed as a painful procedure. Most operations are performed under general or regional anesthesia.

Improvements in multimodal and preemptive analgesia, the introduction of stapled anopexy, and improvements in patient counseling have led to an increasing number of daycare hemorrhoidectomies. A further evolution in technique is daycare open hemorrhoidectomy under local anesthesia. There is a paucity of randomized controlled trials to support its routine use.**(29)**

We describe a technique for surgeons to administer local anesthesia themselves for open hemorrhoidectomy and also compare outcome and clinical perspectives of hemorrhoidectomy under local anesthesia (LA) with that after open hemorrhoidectomy under spinal anesthesia (SA).**(30)**

- **Operative Position**

Open hemorrhoidectomy can be performed either in the lithotomy or prone position. In the lithotomy position, the buttocks are raised by a firm pad to project over the edge of the table. In the prone position, the patient lies face down, hips on a 6-inch gel ridge, with the buttocks projecting upward. Although the prone position may help reduce venous circulation from the anorectal area, extra care should be taken to prevent restriction of breathing and ensure proper lung inflation during surgery. In both the positions, the buttocks are strapped back with an adhesive tape to facilitate access, especially for obese patients. Most surgeons perform LigaSure™ hemorrhoidectomy using an Eisenhammer retractor with the patient in the lithotomy position (Fig.4).**(31)**

Figure 4: A patient in lithotomy position with IV degree hemorrhoids.**(32)**

Operative Technique

- **Hemorrhoid Exposure**

The main hemorrhoidal masses are identified and delineated, usually in the "classical" locations corresponding to the sites of inferior hemorrhoidal vessels—left lateral right posterolateral, right anterior quadrants. The hemorrhoids are prolapsed out from the anal canal with an Allis clamp or forceps. Tension should be applied in order to visualize the mucocutaneous junction.**(33)**

- **Dissection and Hemorrhoid Removal**

A small V-shaped anodermal seal is formed by applying the precise LigaSure™ forceps close to the outer edge of the internal hemorrhoid (Fig. 5). The seal is then transected with scissors along the line of coagulum. Care should be taken in order to limit the amount of tissue removed to minimize the risk of stricture (Fig. 6). Repeated applications of the device are performed and the excision is continued into the anal canal, lifting the pile from the internal anal sphincter .The vascular pedicle is finally sealed by LigaSure™ and divided. **(34)**

Figure 5: LigaSure™ hemorrhoidectomy is performed by applying the precise LigaSure™ forceps close to the edge of each pile. Completion of coagulation is signalled by the feedback sensors.**(35)**

Figure 6: The tissue is excised along the line of coagulum.**(36)**

Surgical technique

The operation is carried out with the patient under spinal anaesthesia and placed in the lithotomy position. The operative technique consists of removing the three enlarged haemorrhoidal complexes and leaving

mucocutaneous bridges between the wounds. The technique of dissection for the haemorrhoidal cushion consists of three consecutive steps.**(37)**

First, the anterior right haemorrhoidal complex is taken with an Allis clamp and a triangular incision of the anoderm is performed at the base with a monopolar electrosurgery device (cutting mode 15 W), stopping at the external anal margin. With downward traction of the haemorrhoidal plexus, careful dissection towards its pedicle (coagulation mode 25 W) is done between the tissues of the external haemorrhoidal plexus and the fibres of the external anal sphincter.**(38)**

Second, at the level of the transitional zone of the anal mucosa, further excision is performed with the LigaSure™ Small Jaw Open Sealer. At this stage, the haemorrhoidal tissue is fully mobilized from the external anal sphincter and fixed only to the internal sphincter muscle. With the bipolar device applied as close to each side of the cushion as possible, both anal mucosa and submucosa are divided in the direction of the haemorrhoidal pedicle, narrowing the intra-anal wound. Further division of the anal mucosa and submucosa is carried out with the jaws as close to the anal canal wall as possible, dissecting the haemorrhoidal plexus off the fibres of the internal anal sphincter.**(39)**

Finally, with the LigaSure™ Small Jaw Open Sealer, the haemorrhoidal pedicle is reached and the haemorrhoidal tissue is freed from the internal sphincter muscle fibres at this level. With the jaws of the device applied perpendicularly, the pedicle is divided. The wound is checked for haemostasis (Fig. 7).**(40)**

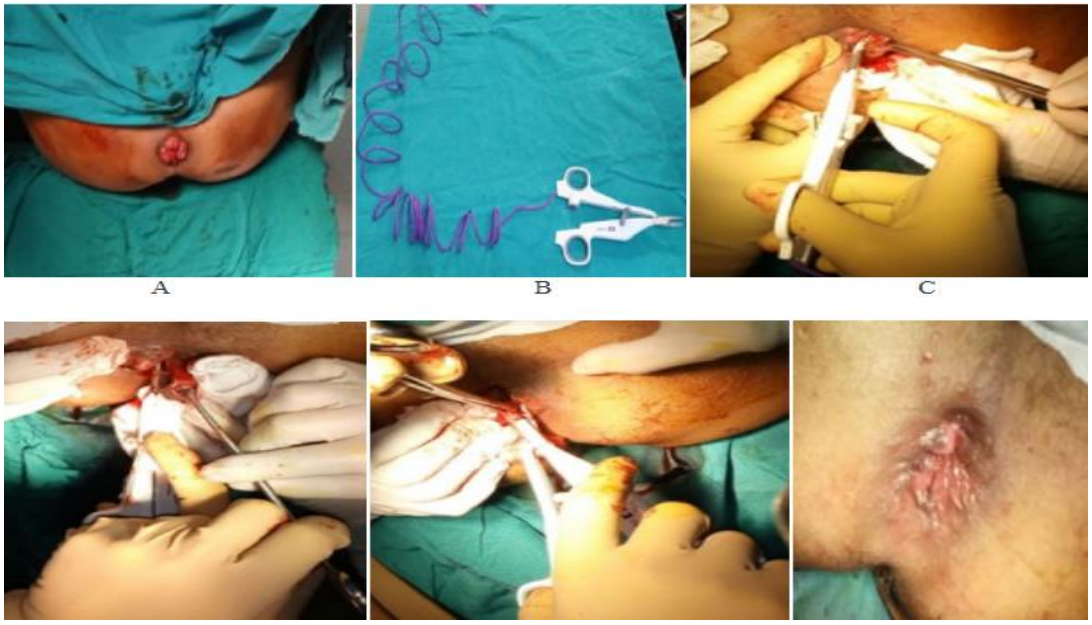

Figure 7: Steps of LigaSure haemorrhoidectomy (A, B, C, D, E, F) **(41)**

Before the skin is prepared and the drapes applied, the anal canal and lower rectum should be digitally cleansed of faecal residues using soft moist tissues or cotton wool pledgets. The swabbing should be done gently to avoid starting bleeding. If significant residues are encountered they may need to be sucked out through a proctoscope, or a rectal washout may even be performed. **(12)**

While digital cleansing proceeds, there is a final opportunity for observing the size and location of the haemorrhoids and the presence of an (unexpected) adjuvant condition. Once the ano-rectum and surrounding skin have been thoroughly cleaned, antiseptic preparation of the entire area (buttocks, perineum and perianal skin) is performed; the solution used should be water-based and inert (the author uses Betadine). **(42)**

This point may seem trivial but is important because the solution has a tendency to pool around the periphery of the operative field, and a spirit-based solution many ignite with, for example, subsequent use of the diathermy. Allergenic or chemical preparations must also be avoided as pooled concentrations of these may cause

severe dermal blistering or sensitivity reactions. Next, the drapes are put on in such a way as to allow generous unimpeded exposure of the operative field. Towels made to provide a preformed "window", often with leg drapes attached.**(42)**.

After deciding on the skin bridges to be preserved (which can be marked out to good effect in difficult cases), the haemorrhoids are teased out gently to their full extent with the index finger. Any skin tags to be included in the dissection are noted. In most cases, an anal dilation is unnecessary as sphincter tone is not initially high, and has often been reduced even further by the anaesthetic, especially if spinal, epidural or caudal techniques have been utilised. In a few cases, anal sphincter tone remains high and a gentle two-finger anal stretch is indicated. A fourfinger dilatation is not only unnecessary but may contribute to loss of continence postoperatively, although this is usually temporary. Small artery forceps are now applied to the base of each haemorrhoid, and they are pulled down to expose their apices (identifiable by their pinkish rectal-type mucosa) (Fig. 8). **(14)**

A second clip is now applied to each base. Consistent with the usual distribution of haemorrhoids, three separate pile masses have now been demarcated; gentle traction on each set of forceps produces a triangular shape to the pulled down piles, with the apex of each in the upper anal canal. This is the so called "triangle of exposure", which marks out the shape of the haemorrhoid tissue to be removed (Fig. 9).**(42)**

It is important not to extend upward dissection of the haemorrhoids above the apex of the triangle, as this is known to result in narrowing (and even stricturing) of the upper anal canal postoperatively, and haemorrhoidal disease is developed in the lower half (Le., below the dentate line). Commencing at the skin just outside the anal verge, each triangular mass of haemorrhoidal tissue is dissected free of the underlying sphincter muscles of the lower anal canal (Fig. 10).

This is done slowly in the submucosal plane, and small blood vessels are dealt with as they present. In fact, the dissection should not be particularly bloody if the recommended infiltration with weak adrenaline has been carried out. If large skin tags are being removed along with the internal haemorrhoids, the exterior line of dissection commences slightly farther out on the perianal skin; skin tags on the bridges are not dealt with at this point, but are removed last of all.

At conclusion of the dissection of each of the (three) haemorrhoidal masses, three triangular shaped wounds are created with a wide base 1.0 cm or so outside the anal verge, which narrows down to a smaller apex, with the haemorrhoids still attached, just above the dentate line. Keeping the haemorrhoids elevated, time is now spent achieving a completely dry wound. If the dissection has been carried out just superficial to the internal anal sphincter, identifiable by its whitish circular muscle fibres, minimal use of diathermy or plain catgut ligatures will provide a dry field without difficulty. Finally, dissection excision of the haemorrhoid masses is completed by transfixion/ligation and division of their apices. This is done with vicryl , which is supplemented by an additional tie if the base is bulky.

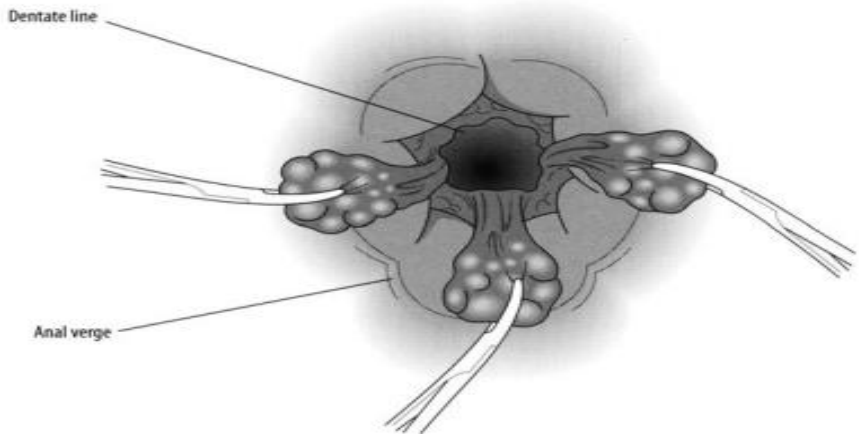

Figure 8 : Dissection of each individual haemorrhoid.**(28)**

- Step 1 The haemorrhoids are gently teased out (no anal dilatation involved) and clips applied to their lowest prominence (bases).
- Step 2 The haemorrhoids are pulled down, and a second clip is put on at a higher level (not shown).
- Step 3 Traction on both sets of forceps exposes the full length of the haemorrhoids as a triangle ("triangle of exposure") with their apices at the mid-point of the anal canal.

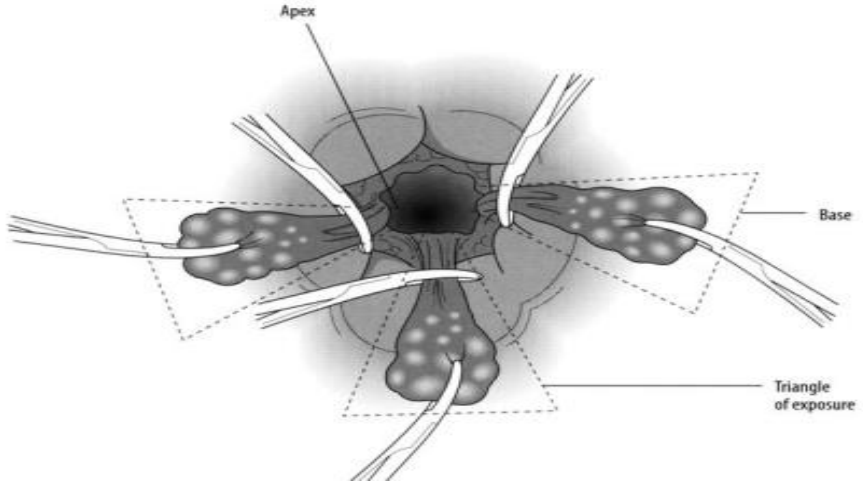

Figure 9: Exposing the haemorrhoids.**(43)**

1) Starting at the wider external base of the haemorrhoid close to the anal verge, each haemorrhoid is freed from the underlying anal sphincter muscle (x).
2) Traction on the other undissected haemorrhoids keeps them out of the way and exposes the field to view.
3) A dry field is achievable, using diathermy spot coagulation or the occasional ligature, as dissection proceeds.
4) Dissection is not continued beyond the narrow apex of the haemorrhoid adjacent to the dentate line. 5. The apex of the haemorrhoid is transfixion ligated (see text) before it is cut through. 6. Any bleeding is stopped before proceeding.

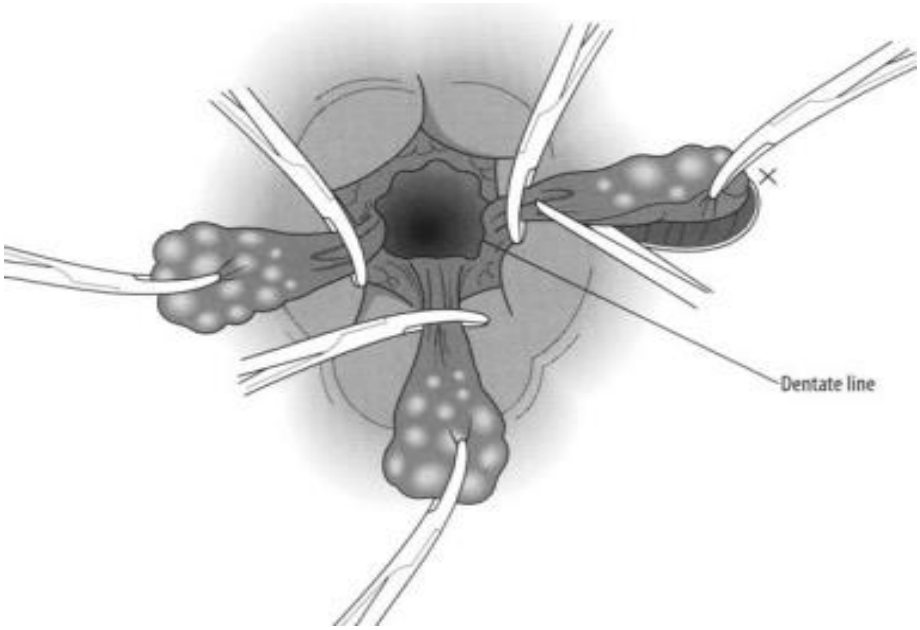

Figure 10: Dissection of each individual haemorrhoid. **(28)**

Stapled Haemorrhoidectomy

Stapled hemorrhoidopexy has gained wide attention in recent years, stimulating a large number of academic presentations, editorials, retrospective reviews, and prospective clinical trials. This new operation has the potential to transform the treatment of internal hemorrhoids as it represents a fundamental change in the surgical management of hemorrhoids. **(44)**

A substantial body of evidence now exists to support the fact that stapled hemorrhoidopexy causes less postoperative pain than excisional hemorrhoidectomy while achieving equivalent postoperative results. This review examines the mechanism of action, operative technique, clinical data, and complications of stapled hemorrhoidopexy that have been published to date. **(45)**

Stapled hemorrhoidopexy is clearly an operative technique and therefore should be considered an alternative to excisional hemorrhoidectomy. Any discussion of stapled hemorrhoidectomy must be centered around the other operative therapies available for hemorrhoids. The Ferguson closed hemorrhoidectomy and the Milligan-Morgan open hemorrhoidectomy have been demonstrated to be equally effective while causing similar postoperative pain. **(46)**

The substantial postoperative pain caused by these operations is related to the wounds on the anoderm, postoperative inflammation, edema, sphincter spasm, secondary bacterial infection, passage of hard stools, psychological background, and pain tolerance. A variety of techniques used in the perioperative time have been closely examined in clinical trials; however, none have become convincingly effective at significantly reducing postoperative pain after excisional hemorrhoidectomy. **(47)**

Stapled hemorrhoidopexy makes use of a specifically designed circular stapling device that differs from traditional circular staplers used for the purpose of creating full-thickness anastomoses. The Proximate® HCS Hemorrhoidal Circular Stapler (Ethicon Endo-Surgery, Cincinnati, OH) is the only device recommended for this operation. Although conventional circular staplers have been used to treat hemorrhoids, we do not recommend this practice because of the risk of creating a full-thickness anastomosis.**(48)**

The housing around the head of the hemorrhoidopexy stapler can accommodate the redundant mucosa while excising and stapling only the mucosa-submucosa of the rectum. The operation can be safely performed in the prone, lithotomy, or left lateral position, depending on the surgeon's preference. In our practice, prone jackknife is used because we believe it allows the most thorough assessment of the anal canal. Furthermore, placement of the purse-string suture can be awkward if the patient is in the lithotomy position, particularly while operating on the anterior aspect of the anal canal. However, any position would be acceptable as long as the surgeon is comfortable placing the circumferential purse-string suture.**(49)**

The stapled hemorrhoidopexy is not a true hemorrhoidectomy. The stapling device excises a circumferential strip of the redundant mucosa-submucosa at the proximal aspect of the internal hemorrhoids. The excised tissue contains only a small portion of the internal hemorrhoidal tissue. The stapled anastomosis returns the internal hemorrhoids to their anatomic position within the anal canal, thereby serving as a neosuspensory ligament that is ultimately replaced by native fibrotic tissue.**(50)**

Thus, the stapled hemorrhoidopexy is primarily a suspensory, or fixative, technique. By restoring the internal hemorrhoids to this position and avoiding prolapse, venous drainage is improved and the remaining hemorrhoidal tissue will decrease in size back to the normally present vascular cushions. In addition, the circumferential division of the submucosal plane interrupts the terminal branches of the superior hemorrhoidal arteries (i.e., the arterial inflow to the hemorrhoids), further contributing to the reduction in size of the hemorrhoids. The reduction of arterial inflow to the hemorrhoids is probably a secondary contribution.**(42)**

The stapler haemorrhoidectomy procedure After anal dilatation and insertion of the anal ring and fixing it, we made a purse-string suture 2 cm above the dentate line using prolene 2/0 to include only mucosa and submucosa. Haemorrhoidal circular stapler (HCS) was then inserted and the suture was tightened. Closure of the circular stapler was done and kept closed for 30 s then firing it and gentle withdrawal of the stapler, including the

doughnut. Examination of the stapler line for any bleeding and controlling it. Finally, diclofenac suppositories were kept, and gentle anal packing was done. The pack was removed after 12 h. **(51)**

Postoperative follow-up Patients were discharged home after the removal of the anal pack and ensuring hemostasis. Daily antibiotics and oral analgesics were instructed; three-time sitz baths with disinfectant and then local healing cream was advised to be used. Daily lactulose was instructed for 3 weeks in addition to Daflon tablets for 1 week. Patients were advised to avoid excessive movement for the first few days and not to worry if any minor bleeding happened.**(51)**

PROXIMATE® PPH Hemorrhoidal Circular Stapler Set. **(51)**

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