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Research Article

**SURGICAL OPTIONS AND INDICATION OF  
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Hemorrhoid ailment is one of the most common factor patients seek analysis by a colon and anal specialist. Most of piles can be managed nonoperatively with medical management or office-based procedures. In this paper surgical treatment methods, their indications and complications are reviewed. Conducted a detailed search among electronic databases: MEDLINE, EMBASE, and Google scholar, searching in literature for articles related to surgical options and indication of hemorrhoidectomy. Studies were included as publication up to 2018. The surgical alternatives for the therapy of hemorrhoids are lots of; and although the majority of surgical strategies are based upon the ligation and excision principles, more recent methods are made to lessen tissue breakdown with the goal of decreasing postoperative discomfort and bleeding. Indications for surgical hemorrhoidectomy include symptomatic hemorrhoids too comprehensive for nonoperative management, failure of medical therapy, and concomitant conditions, such as anal fissures or ulcers, that call for surgery. Standard hemorrhoidectomy, including open and shut methods, is accepted as the gold-standard for surgical treatment of hemorrhoids worldwide.

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## INTRODUCTION:

Hemorrhoids, cushions of vascular tissue in the anus, are among the most general anal diseases. Hemorrhoids, or "piles", is one of one of the most popular anorectal conditions, with a prevalence of 39% of the populace, of whom 44.7% are symptomatic [1]. Etiologic factors for hemorrhoidal disease include bowel problems, diarrhea, long term stressing, maternity, heredity, erect posture, enhanced intraabdominal pressure with obstruction of venous return, aging, and interior sphincter irregularities. Patients with hemorrhoids may complain of bright red blood loss from the anus, anal pain, anal masses and protrusion, difficulties with perianal hygiene, and aesthetic defects. Patients with symptomatic piles that have fallen short nonoperative treatments might require surgical treatment. Standard surgical hemorrhoidectomy entails excision of the hemorrhoidal pillows and is one of the most effective treatment for hemorrhoids. The Milligan-Morgan and Ferguson hemorrhoidectomy are the most frequently made use of methods globally [2], [3]. However, there are a couple of usual difficulties related to conventional hemorrhoidectomies, such as urinary retention, postoperative blood loss, significant pain, rectal constriction, and incontinence. A number of adjustments have actually been suggested to upgrade the postoperative result, and particularly to minimize postoperative pain.

Hemorrhoid ailment is one of the most common factor patients seek analysis by a colon and anal specialist. Most of piles can be managed nonoperatively with medical management or office-based procedures. In this paper surgical treatment methods, their indications and complications are reviewed.

## METHODOLOGY:

Conducted a detailed search among electronic databases: MEDLINE, EMBASE, and Google scholar, searching in literature for articles related to surgical options and indication of hemorrhoidectomy. Studies were included as publication up to 2018, September with English language and human subject. Keywords used in search strategies were as following: "hemorrhoidectomy", "Hemorrhoids", "surgical methods". Furthermore, references list of each included study were scanned for more relevant articles to be included and support our review.

## DISCUSSION:

### • Anatomy And Physiology

Hemorrhoids are extremely vascular submucosal cushions that normally lie along the rectal canal in three columns - the left lateral, right anterior, and right posterior positions. These vascular cushions are composed of elastic connective tissue and smooth muscle mass, but because some do not include muscular walls, these cushions may be considered sinusoids as opposed to arteries or veins. Medically evident blood loss arises from the perisinusoidal arterioles and are for that reason arterial in nature [4]. Hemorrhoids play a significant physiologic part in safeguarding the anal sphincter muscular tissues and augment closure of the rectal canal during moments of increased abdominal pressure (e.g., coughing, sneezing) to prevent incontinence and add 15 to 20% of the relaxing rectal canal stress [4]. Increases in abdominal pressure raise the stress in the inferior vena cava that trigger these vascular cushions to engorge and avoid leakage. This tissue is additionally believed to help set apart stool, liquid, and gas in the anal canal [4].

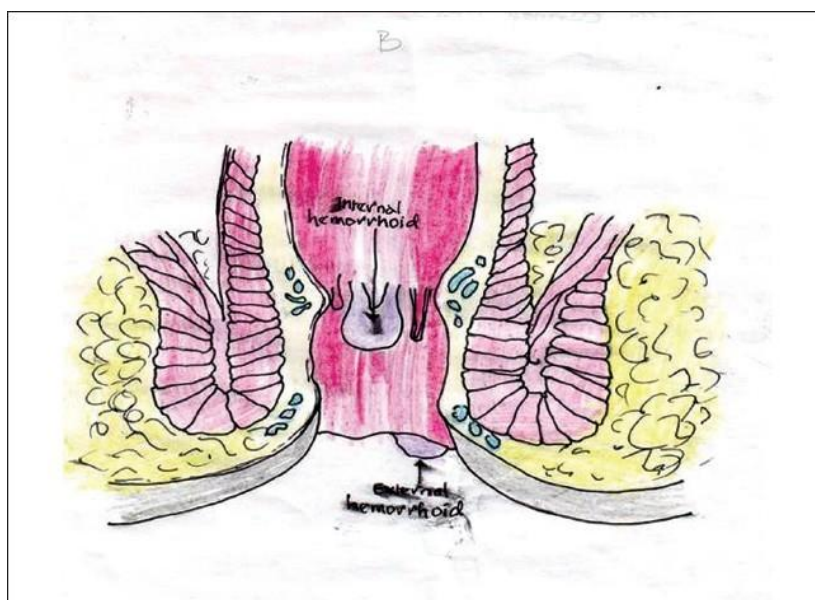
The dentate line separates outside and interior hemorrhoids. Outside hemorrhoids are located listed below the dentate line and drain via the inferior rectal veins into the pudendal vessels and then right into the internal iliac vein. These vessels are covered by anoderm that is included modified squamous epithelium. As a result, these tissues have ache fibers and affect just how patients present and are dealt with. Internal piles exist above the dentate line and are covered by columnar cells that have natural innervations. These drainpipe through the middle rectal veins right into the interior iliac vessels. Inner hemorrhoids are identified additionally into the level of prolapse. First-degree hemorrhoids extend into the rectal canal, however do not prolapse out of the canal. Second-degree hemorrhoids prolapse beyond the canal, however reduce spontaneously. Third-degree piles prolapse out of the canal and call for hands-on decrease; fourth-degree hemorrhoids are irreducible.

### • Classification

Piles can either be exterior or internal [Figure 1] The external variety is covered by skin below the dentate line, while the interior variety exists proximal to the dentate line. Mix of the two varieties comprises interoexternal hemorrhoids. Interior hemorrhoids are further classified into the adhering to grades:

**Table 1.** Classification of internal hemorrhoids [5].

Grade	Definition
I	Normal appearance externally, bleeding but not prolapsing
II	Anal cushions prolapse on straining but reduces spontaneously
III	Anal cushions prolapse on straining or exertion and require manual reduction
IV	Permanent prolapse, irreducible

**Figure 1.** Internal and external hemorrhoids in relation to dentate line [5].

There is no similar classification for exterior hemorrhoids; they are taken into consideration to be swellings of the skin and endoderm around the rectum.

The main issues are bleeding during or after defecation, pain, prolapse, itching and peri-anal mess. Diagnosis is made by examining the rectum and rectal canal, and it is important to omit even more serious causes of bleeding, like anal cancer.

#### • Indications

The initial approach to dealing with most patients with piles is conventional. Patients who fall short medical management might be candidates for a nonsurgical office-based treatment before calling for surgical therapy. Recurring symptoms even with traditional or office-based treatment normally require

surgical treatment.

Surgical excision of piles continues to be a very efficient technique for treatment of symptomatic hemorrhoids but is booked for chosen patients [6]. A formal hemorrhoidectomy in properly selected patients can solve the patient's signs and symptoms and lessens persistent condition when carried out correctly. Patients with grade III or IV piles, and those with extreme external disease, show up to benefit one of the most from surgery. Patients who are not able to tolerate office-based treatments because of significant comorbidities or taking anticoagulation medication would likewise take advantage of an excisional hemorrhoidectomy. Some patients might choose surgical therapy earlier instead of later on, after a frank conversation of various other treatment choices and the benefits and dangers of surgical treatment.

**A hemorrhoidectomy is performed in the following settings:**

- Symptomatic grade III, grade IV, or mixed internal and external hemorrhoids
- Where there are additional anorectal conditions that require surgery
- Strangulated internal hemorrhoids
- Some thrombosed external hemorrhoids
- Where patients who cannot tolerate or fail minimally invasive procedures

**Types of hemorrhoidectomies and related procedures performed during surgery:**

- Closed Hemorrhoidectomy
- Open Hemorrhoidectomy
- Stapled Hemorrhoidectomy (Procedure for Prolapse and Hemorrhoids - PPH)
- Rubber band Ligation
- Lateral Internal Sphincterotomy
  - **Operative Procedures**

Bowel preparation before operation minimizes fecal contamination and keeps the colon quiet for the first few days of the operative period.

**Clamp and cautery hemorrhoidectomy**

This approach is currently out-of-date but has the advantage in not having any form of dissection of tissue planes. The pile is realized in-between the insulated blades of Smith's pile clamp. The majority of the hemorrhoid mass is after that cut away with scissors, leaving just a stump, which is melted with heated copper cautery to arrest bleeding [7]. The copper cautery is usually heated up over a gas ring, which is hardly ever offered in a contemporary procedure theatre today. The electric cautery or diathermy knives are unsuitable replacements due to the fact that they are ineffective in arresting hemorrhage and because the coagulating current might pass through tissues too deeply. The procedure is scheduled for second- to fourth-degree piles and it is done under general anesthesia.

**Open hemorrhoidectomy (Milligan-Morgan method)**

This is one of the most commonly made use of technique and is widely considered to be the most efficient medical technique for treating piles [8]. Adotey and Jebbin in PortHarcourt, Nigeria, revealed that open hemorrhoidectomy was the predominant surgical technique for dealing with piles [9]. Uba et al. in Jos, Nigeria, also concluded in their studies that open hemorrhoidectomy was risk-free, straightforward and affordable, with postoperative

discomfort, acute urine retention and bleeding being the commonest complications [10].

This method was developed in the United Kingdom by Drs. Milligan and Morgan in 1937, generally for piles of grades II-IV [11]. A V-shaped incision by the scalpel in the skin around the base of the hemorrhoid is adhered to by scissors dissection in the submucous area to strip the entire pile from its bed. The dissection is brought cranially to the pedicle, which is ligated with solid catgut and the distal part excised. Various other piles are similarly treated, leaving a skin bridge in-between to stay clear of stenosis. The wound is exposed and a hemostatic gauze pad left in the anal canal. The procedure is done under general or epidural anesthesia. Postoperative discomfort and acute pee retention prevail problems.

**Closed hemorrhoidectomy (Ferguson's technique)**

Created in the United States by Drs. Ferguson and Heaton in 1952, this is an alteration of Milligan-Morgan technique described above [11]. The indications for this treatment resemble those of Milligan-Morgan treatment. Below the cuts are totally or partially closed with absorbable running stitch, following surgical excision of the hemorrhoids. The Ferguson technique has no benefit in terms of wound healing due to the high rate of stitch breakage at bowel movement [11]. There are several alterations of this approach.

**Submucosal hemorrhoidectomy (Parks procedure)**

This treatment was created in the 1950s by Parks, who published outcomes and information of the technique in 1956 [12]. It was created to lower postoperative discomfort and stay clear of rectal and anal stenosis. It is shown for second- to fourth-degree hemorrhoids. A Parks retractor is placed. A factor simply below the dentate line at the hemorrhoid is comprehended with a hemostat. A 30-40- mL saline including 1:400,000 parts adrenaline is infused submucosally to open tissue planes and to lower bleeding. Scissors are utilized to excise a tiny diamond of rectal epithelium around the hemostat. The incision is proceeded cranially for 2.5 cm, creating 2 mucosal flaps on each side, which are each comprehended with further hemostats, and submucosal breakdown is begun to get rid of the hemorrhoidal plexus from underlying interior sphincter muscle and overlapping mucosa. This dissection is continued right into the rectum, where the resulting wide base of tissue is suture-ligated and split. The mucosal flaps are after that allowed to flop back right into setting. No suture or any kind of intra-



anal dressing is used. Parks supported use suture for only prolapsed pile to reconstitute the mucosal ligament,' however most modern descriptions promote suturing the mucosal flaps loosely with each other and to the underlying interior sphincter. The very same procedure is accomplished on the other hemorrhoids. Parks hemorrhoidectomy is done under general or epidural anesthesia. It is risk-free and related to reduced rates of complications and reoccurrence<sup>[12]</sup>. It nevertheless takes longer time and is harder to learn. A recent research study by Yang et al., 2005, wraps up that the modified lift-up submucosal hemorrhoidectomy is a simpler operative method compared to the treatment initially developed by Parks [13].

#### **Whitehead's circumferential hemorrhoidectomy**

This procedure, additionally referred to as overall or circumferential hemorrhoidectomy, was first explained by Dr. Walter Whitehead in 1882 [14]. After preliminary success, the treatment was later on deserted because of the high issue rates experienced: hemorrhage, rectal stenosis, and ectropion (Whitehead's deformity). The treatment requires circumferential elimination of the hemorrhoid, hemorrhoid-bearing, rectal mucosa just proximal to the dentate line. Cuts are made by curved double-operating scissors simply proximal to the dentate line and continued along this path around the rectal canal in stages. Clamps are made use of to lift the cut side of the hemorrhoid rectal -bearing mucosa and mucosal prolapse. The hemorrhoidal masses are after that suture-ligated and excised, followed by closure of the lacerations by stitch. Below, a retractor is made use of to stretch the interior sphincter, to ensure that the stitch experiences the endoderm to the neo-dentate line. A hemostatic sponge is left in the anal canal. The treatment is scheduled just for circumferential piles, and it is done under general or epidural anesthesia. Current jobs by Maria et al. have shown that the Whitehead's hemorrhoidectomy still has a place in picked situations of circumferential hemorrhoids [14].

#### **Stapled hemorrhoidectomy**

This procedure is likewise referred to as circumferential mucosectomy or 'procedure for prolapse and hemorrhoids' (PPH). It was first described in 1998 by Longo for prolapsing second- to fourth-degree piles [15]. He recommended that stapled resection of a full circular strip of mucosa over the dentate line raises the hemorrhoidal cushions right into the rectal canal [15]. In PPH, the prolapsed tissue is pulled right into a circular stapler that permits the excess tissue to be gotten rid of while the

staying hemorrhoidal tissue is stapled. A circular anal dilator is presented into the anal canal. The prolapsed mucous membrane layer comes under the lumen after removing the dilator. A purse-string suture anoscope is after that presented via the dilator, to make a submucosal purse-string suture around the whole rectal canal circumference. The circular stapler is opened to its maximum position. Its head is presented and placed proximal to the purse-string suture, which is after that linked with a closing knot. The entire casing of the stapler is then pushed into the anal canal, tightened up and terminated to staple the prolapse. Firing the stapler launches a double-staggered row of titanium staples via the tissue. A round knife excises the redundant tissue, therefore eliminating a circumferential column of mucosa from the upper rectal canal. The staple line is after that analyzed with the anoscope for blood loss, which if present may be controlled by placement of absorbable sutures. The staple line must be kept at a distance of 3-3.5 cm from the rectal brink to avoid postoperative rectal stenosis and discomfort. Patients experience much less discomfort and achieve a quicker return to work contrasted to traditional treatments; and bleeding is less<sup>[15]</sup>.

#### **Radiofrequency ablation and suture fixation of hemorrhoids**

It is an innovative treatment made in 1998 by Gupta for hemorrhoids of grades III and IV [16]. The procedure involves using an Ellman dual-frequency, 4-MHz radiofrequency generator for ablation of hemorrhoids. Radiofrequency waves ablate tissue by converting radio waves right into warm. The rotating current produces modifications towards ions within the tissue liquid. This creates ionic agitation and frictional home heating, leading to coagulative death of tissue. After that, the hemorrhoids are plicated making use of solid absorbable sutures. The plication begins from the most distal end of the pile at the rectal verge and is brought towards the pedicle in a continuous securing way and knotted at the pedicle, consequently dealing with the hemorrhoidal mass. It provides better lead to terms of postoperative pain and blood loss than stapled hemorrhoidectomy and Doppler-guided hemorrhoidal artery ligation [17].

#### **Pile 'suture' method**

Also called the pile stitching technique, it was first explained in 1978 by Faraq for hemorrhoids of grades II and III. The approach involves use of three disrupted sutures to protect the piles in position without excision [18].

Reappearance is a typical postoperative issue of this

treatment.

### **Bipolar diathermy hemorrhoidectomy**

This operation is indicated primarily for second- to fourth-degree piles. With the help of a bipolar diathermy set on reducing and coagulation, breakdown is carried from a V-shaped cut in the skin around the base of the pile unto the pedicle, which is dissected and divided. The diathermy is set on coagulation only throughout dissection and division of the pedicle. No ligature is used. A randomized trial study by Andrews et al. revealed that diathermy hemorrhoidectomy has no substantial advantage over the Milligan-Morgan treatment [19].

### **Ligasure and Starion hemorrhoidectomy with submucosal dissection**

The ligasure vessel-sealing generator is an isolated-output electrosurgical generator that gives power for vessel sealing and bipolar surgical treatment [20]. It offers accurate thermal energy delivery and electrode pressure to vessels to accomplish full and long-term blend of the vessel lumen. The Starion thermal welding system is similar to the ligasure generator however utilizes the tissue-welding technology to all at once fuse vessels and tissue structures shut. The operating temperature is less than 100 ° C, therefore generating less warmth and collateral tissue damage. The operation is done under general or epidural anesthetic. A V-shaped cut at the joint of the pile and the peri-anal skin is made by a scalpel, adhered to by dissection of the hemorrhoidal bundles off the underlying sphincter. The ligasure or Starion handset is put on the dissected hemorrhoids and turned on to secure mucosal edges and split the pedicle. A hemostatic sponge is placed into the anal canal. Wang et al. showed that the Starion hemorrhoidectomy has much less postoperative pain and parenteral analgesic need than ligasure hemorrhoidectomy, however both have the very same benefits of shorter operating time and much less blood loss [20].

### **Complications After Hemorrhoidectomy**

Early- serious postoperative pain lasting 2-3 weeks; wound infection; blood loss; edema of the skin bridges; major short-term incontinence; difficult urination or urinary retention; postponed hemorrhage, generally 7-16 days postoperatively, which is probably due to sloughing of vascular pedicles or infection [21]. Late - anal stenosis, development of skin tags, reappearance [21].

### **CONCLUSION:**

Hemorrhoid ailment is a prevalent, complex, and multifaceted entity. Patients offering with symptoms and signs of piles need to be thoroughly and completely reviewed to leave out various other ailments. There is a selection of nonoperative and operative therapies that have their very own advantages and drawbacks. Each patient needs to be treated individually based upon the kind and degree of their symptoms along with considering their other medical problems.

The surgical alternatives for the therapy of hemorrhoids are lots of; and although the majority of surgical strategies are based upon the ligation and excision principles, more recent methods are made to lessen tissue breakdown with the goal of decreasing postoperative discomfort and bleeding.

Indications for surgical hemorrhoidectomy include symptomatic hemorrhoids too comprehensive for nonoperative management, failure of medical therapy, and concomitant conditions, such as anal fissures or ulcers, that call for surgery. Standard hemorrhoidectomy, including open and shut methods, is accepted as the gold-standard for surgical treatment of hemorrhoids worldwide. Nevertheless, the major disadvantage of traditional hemorrhoidectomy is extreme postoperative pain, especially when excreting. The problems of conventional hemorrhoidectomy are generally small, including urinary retention, blood loss, infection, constriction, and incontinence.

The ideal medical choice for the treatment of piles must be able to give relief of signs, produce few issues and have a low reappearance rate. With traditional surgical procedure, whatever the method or product used, the danger of reoccurrence is lower, i.e., it is connected with a more definitive therapy. Conversely, patients are confronted with more postoperative pain and longer healing time. Regardless of brand-new surgical choices, hemorrhoidectomy stays the therapy of choice and the gold criterion for a lot of situations. In this context, an essential aspect to be thought about by cosmetic surgeons is the ideal management of postoperative pain, with anesthetic infiltration connected with oral analgesics, or perhaps with use topical muscular tissue relaxants.

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