Surgical Rounds

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Hemorrhoids—To staple or not to staple: that is the question

With the advent of modern surgical stapling techniques, circular stapled hemorrhoidectomy has emerged as a possible treatment of hemorrhoids. The authors review the anatomy, etiology, symptoms, and classification of hemorrhoids, as well as the indications, treatment options, and results for stapled hemorrhoidectomy, which they think is an improvement over traditional surgical procedures.

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• More than 525,000 patients are treated for symptoms associated with hemorrhoids every year.[1] Of these patients, 10% to 20% will require surgical treatment. Until recently, the surgical treatment of hemorrhoidal disease was often more debilitating than the condition itself. Surgical therapy has involved considerable postoperative pain and significant time spent away from work or activities of daily living. There is a natural reluctance on the part of an experienced surgeon to replace a proven, albeit painful, operation with one that is new. This is particularly evident in the private practice setting. When problems arise, the postoperative course may become complicated, painful, and permanently debilitating. This reluctance is underscored when dealing with diseases of the anal canal. With the advent of modern surgical stapling techniques, the introduction of circular stapled hemorrhoidectomy, or stapled hemorrhoidopexy, has emerged as a possible solution to this problem.

We briefly review the anatomy, etiology, symptoms, classification, and treatment of hemorrhoids. We also discuss the indications, technical aspects, and results of stapled hemorrhoidectomy, which we think is an improvement over traditional surgical procedures.

Anatomy

Hemorrhoids are naturally occurring vascular cushions located in the anal canal. They are small and insignificant at birth but enlarge over time. They may remain asymptomatic or may produce varying degrees of symptoms.

Traditionally, hemorrhoidal vasculature is found in the anal canal in the right anterior, right posterior, and left lateral positions. When located distal to the dentate line, hemorrhoids are considered to be external (although they may not be visible to the eye of the examiner). When proximal to the dentate line, hemorrhoids are considered to be internal. Fibers from the internal anal sphincter and conjoined longitudinal muscles anchor the submucosal plexus of hemorrhoids and serve to prevent prolapse of the plexus and overlying mucosa.

Until recently, the surgical treatment of hemorrhoidal disease was often more debilitating than the condition itself.

The main blood supply to hemorrhoids is from the terminal branches of the superior hemorrhoidal artery. Middle and infe-

rior hemorrhoidal arteries make lesser contributions to the hemorrhoidal plexus. There is corresponding venous drainage. When enlarged, these veins constitute the bulk of the hemorrhoidal plexus. Although this represents the traditional anatomy of the region, the true anatomy is much more variable and can be more extensive. Hemorrhoidal veins can be more numerous than the traditional grouping of three, and the hemorrhoidal plexus can be circumferential.

Hemorrhoidal disease is not more frequent in patients with portal hypertension.

Etiology

No definite cause of symptomatic hemorrhoids has been proved; however, factors that seem to be associated with hemorrhoidal disease include constipation, prolonged straining at defecation, diarrhea, pregnancy, heredity, aging, internal sphincter abnormalities, and gravity. All adults have experienced one or more of these conditions at some time during their lives, making an exact cause of hemorrhoidal disease difficult to identify.

Hemorrhoidal disease is not more frequent in patients with portal hypertension. Rectal varices do occur with portal hypertension, however, and must be differentiated from hemorrhoidal disease because management and treatment options differ significantly.

Symptoms

Symptoms of internal and external hemorrhoids include bleeding, hemorrhoidal protrusion, pain, mucous discharge, itching, and a sensation of incomplete evacuation. It is important that other causes of these symptoms be ruled out before initiating hemorrhoidal treatment.

Anal pain caused by an internal hemorrhoid must be differentiated from pain caused by an anal fissure or a thrombotic external hemorrhoid. In appropriate patient populations, bleeding malignancies and bleeding polyps must be ruled out. Many of the symptoms of ulcerative colitis or Crohn's disease are similar to those associated with hemorrhoidal disease. A thorough evaluation for inflammatory bowel disease must be performed, and any inflammatory conditions must be appropriately treated. A mucous discharge may occur with irritable bowel syndrome, which should be ruled out. If appropriate, stools and possibly the perineum should be cultured to ensure that a bacterial, fungal, or parasitic infection is not the source of pruritus ani. Many patients use soap in an effort to maintain anal hygiene. Soap use or abuse, which can be irritating to the skin, should be discontinued and a short course of topical hydrocortisone creams should be initiated to treat the irritation and resulting pruritus.

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Classification

Hemorrhoids are traditionally classified into four grades. Grade 1 hemorrhoids protrude into the lumen of the anal canal. Grade 2 hemorrhoids protrude from the anal canal with a bowel movement and spontaneously reduce after the movement is completed. Grade 3 hemorrhoids protrude spontaneously from the anal canal (or with a bowel movement) and require manual reduction. Grade 4 hemorrhoids are associated with an irreducible pro-

lapse. A clear differentiation must be made from true rectal procidentia.

Any hemorrhoidal grade may be symptomatic or asymptomatic.

Any hemorrhoidal grade may be symptomatic or asymptomatic. Large hemorrhoids may be completely asymptomatic and, thus, require no treatment. Conversely, small hemorrhoids may be debilitating, causing patients to request curative treatment.

Treatment options

Treatment options for symptomatic hemorrhoids range from simple dietary modification, with increased fiber and adequate fluid intake, to surgical treatment. Patients may be treated with topical agents, such as hydrocortisone creams, over-the-counter medicated preparations, sitz baths, leg elevation, and various minimally invasive procedures.

Sclerotherapy (5% phenol in olive oil) is a time-tested symptomatic remedy. Injections may bring immediate relief and are usually reserved for patients with minor bleeding, but they may also be used for patients with itching, mild fecal soiling, or mucous discharge. Success rates vary, but sclerotherapy most often yields only temporary results.[3]

Infrared coagulation, laser therapy, and cryotherapy have been used with varying degrees of success. These treatments depend on the application of extremely high or low temperatures to the hemorrhoidal plexus in an effort to coagulate the blood supply and denature the protein in this region. Originally, it was thought that this treatment would obliterate the hemorrhoids and the associated symptoms; however, these treatments do not have a high success rate.[3] Additionally, if used incorrectly, the posttreatment pain associated with these methods can be debilitating and prolonged.

Rubber band ligation has been used with varying degrees of success in an attempt to remove individual hemorrhoidal groups. Rubber bands (either a single band or double bands) are placed around the base of each hemorrhoidal pedicle, with or without an anesthetic agent. This produces vascular necrosis of all of the tissue beyond the rubber band. The procedure has a failure rate of 20% to 30%.[4] Bands have been known to slough off in the early posttreatment period, resulting in incomplete treatment. Advantages of the rubber band technique include its use as an outpatient treatment and its ease of use. Sepsis is a rare but life-threatening complication.[5-7]

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Traditionally, surgical hemorrhoidectomy has been viewed as the definitive method for managing symptomatic hemorrhoidal disease. Several techniques have been popularized, including Millikin-Morgan and Ferguson hemorrhoidectomies. In its most simple form, all internal and external hemorrhoidal tissue is removed and, ideally, patients return to an asymptomatic lifestyle. Surgical hemorrhoidectomy may be associated with an extremely painful postoperative experience, leading to a delayed return to work and to the activities of daily living. It also is associated with potential complications, such as anal stenosis, hemorrhoidal recur-

rence (which may be caused by a failure to remove the entire hemorrhoidal vascular plexus at the time of the initial operation), and postoperative urinary retention or constipation. The first several bowel movements are usually extremely painful.

Despite these numerous treatment options, patients are often reluctant to seek help from their physicians. Understandably, surgeons are reluctant to recommend definitive surgical therapy to their patients.

Stapled hemorrhoidectomy involves the excision of a ring of mucosa at a point 4 cm proximal to the dentate line.

Stapled hemorrhoidectomy

In 1990, Allegra discussed his use of a circular stapling device for the surgical treatment of symptomatic hemorrhoidal disease.[8] In 1998, Longo reported his modifications to Allegra's technique. He reported his results using what he termed a stapled hemorrhoidopexy.[9] Although the procedure is commonly referred to as a stapled hemorrhoidectomy, it is actually a hemorrhoidopexy.

Stapled hemorrhoidectomy involves the excision of a ring of mucosa, submucosa, and hemorrhoidal vasculature at a point 4 cm proximal to the dentate line. Simultaneously, a mucosal anastomosis is performed with a circular surgical stapler, applying a staggered double row of 28 titanium staples. This results in a repositioning of the vascular cushions to a more normal anatomic location within the anal canal. Concurrent with this, the hemorrhoids are circumferentially devascularized. Over the course of several weeks, they will begin to shrink and involute.

Because the procedure is performed proximal to the dentate line in a region devoid of pain fibers, stapled hemorrhoidectomy is associated with significantly less postoperative discomfort and a more rapid return to the activities of daily living. Visceral sensory fibers are located in the surgical area, however, and these can give rise to a temporary sense of urinary or rectal fullness and an associated feeling of needing to empty the bladder or to defecate in the immediate postoperative period.

The procedure was first popularized in Italy and the adoption of the procedure as a standard technique in the treatment of hemorrhoidal disease has spread from east to west. Over the past 5 years, 300,000 stapled hemorrhoidectomies have been performed worldwide (N. Shah, Ethicon Endo-Surgery Inc., oral communication, December 2003).

Indications

Stapled hemorrhoidectomy may be considered the primary mode of treatment for any patient who previously would have been a candidate for a standard surgical hemorrhoidectomy. These indications typically include patients with grades 3 and 4 symptomatic hemorrhoids. Patients with grade 2 hemorrhoids who have had failures of other therapeutic methods, selected patients with grade 2 hemorrhoids who have requested definitive treatment of their hemorrhoidal disease, and patients with a rectal mucosal prolapse are also candidates for the procedure.

Absolute contraindications are few and include an anal canal that does not permit the insertion of the stapler and patients with anorectal Crohn's disease or ulcerative colitis. Stapled hemorrhoidectomy should not be performed while there is an active anorectal abscess.

Relative contraindications include decreased sphincter tone or muscular disruption because of previous hemorrhoidal operations or other operative procedures. Patients who are receiving anticoagulation therapy must also be evaluated carefully, just as they would be for any other operative procedure. The patient's overall

physical and medical status must be thoroughly assessed before undertaking definitive therapy.

Procedure

While appearing to be a simple procedure, stapled hemorrhoidectomy can be technically challenging, with several pitfalls awaiting the unsuspecting surgeon. There are numerous steps in the procedure that must be followed in order to avoid postoperative complications. We have found that two trained surgeons performing the procedure together lessen the likelihood of surgical complications. One surgeon should be a colon and rectal specialist (by formal training or through focused experience). Other authors have advocated similar proposals as well.[10,11]

The procedure is usually performed in the outpatient setting. Any method of suitable anesthesia may be used. Currently, our patients receive total intravenous anesthesia and a local anal block. The procedure is most commonly performed in the prone jackknife position. It may be performed in the lithotomy position; however, the ergonomics make this a more difficult and cumbersome approach. The surgical time for the procedure ranges from 15 to 45 minutes and is dependent on surgeon experience and various anatomical factors, including the size, extent, and friability of the hemorrhoids and the angulation of the anal canal. A preoperative cleansing enema is self-administered by the patient on the morning of the operation. Preoperative antibiotics are not mandatory and are left to the discretion of the surgeon. Figure 1 shows a drawing of the anal canal before beginning a stapled hemorrhoidectomy.

After the administration of an appropriate anesthetic, an anal block is administered using 0.25% bupivacaine without epinephrine. The lubricated obturator is used to gently dilate the anal canal before inserting the circular anal dilator. The circular anal dilator and obturator are inserted into the anal canal (Figure 2). Once in position in the anal canal, the obturator is removed and the anal dilator is held in place with several sutures placed through the openings in the attached flange. Alternatively, the first assistant can hold the anal dilator in place throughout the procedure. Care should be taken to make sure that the dentate line is protected by the circular anal dilator.

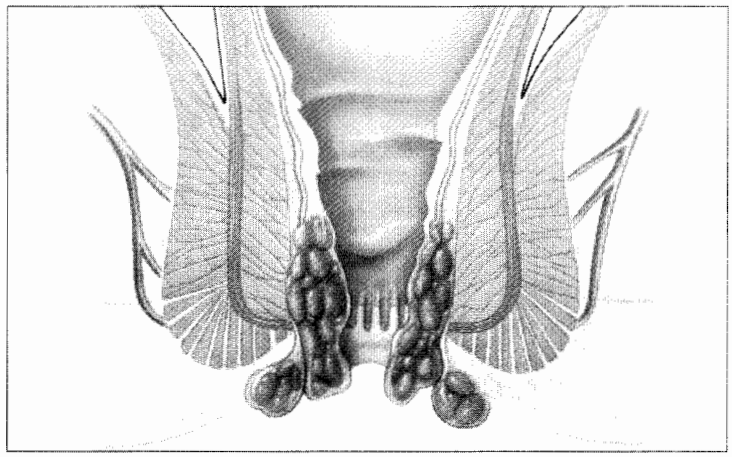

Figure 1—The anal canal showing hemorrhoidal prolapse before a stapled hemorrhoidectomy.

With the surgeon standing on the left side of the patient, the pursestring anoscope is inserted into the anal canal. The surgeon begins placing the pursestring suture in the left anterior quadrant of the patient's anal canal. The circumferential mucosal-submucosal pursestring suture is

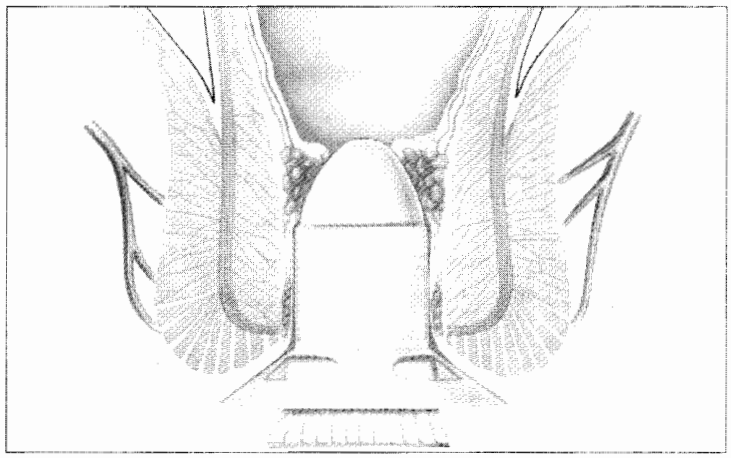

Figure 2—The circular anal dilator and obturator are inserted into the anal canal.

placed approximately 4 to 6 cm proximal to the dentate line (Figure 3). Our material of choice is a 2-0 Monocryl® suture on a UR-6 needle. This needle facilitates ergonomic ease of placement of the suture. In some patients, because of the posterior angulation of the anal canal, extra attention must be paid to placing the suture in the correct location when approaching the posterior wall of the rectum. It is possible to inadvertently continue placing the suture into the anterior wall of the rectum while thinking that the suture is actually being placed in the posterior wall. Misapplication of the pursestring suture can result in a surgical complication.

Once this suture has been placed, the pursestring anoscope is removed and a gloved finger is placed into the rectum and across the suture. Each end of the suture is gently pulled so that it is snug, and the operating surgeon determines that there are no gaps in the suture. The surgeon should feel only mucosa and should not feel a bow-stringed suture. If necessary, the pursestring suture may be removed and placed again.

The hemorrhoidal stapler is opened to its maximal extent. The anvil is coated with a water-soluble lubricant and placed into the rectum. Under direct vision, it is carefully advanced proximal to the pursestring suture. A gentle popping sensation is felt as the anvil traverses the suture. This must be done gently and in line with the central axis of the anal canal. When it has been determined that the anvil is located proximal to the suture, the suture is cinched closed around the center rod of the stapler. Visual and tactile inspection will ensure that the entire circumference of the anorectal mucosa is snug around the center rod. The pursestring suture is tied and the ends of the suture are brought out through the side of the instrument using the pursestring puller (Figure 4).

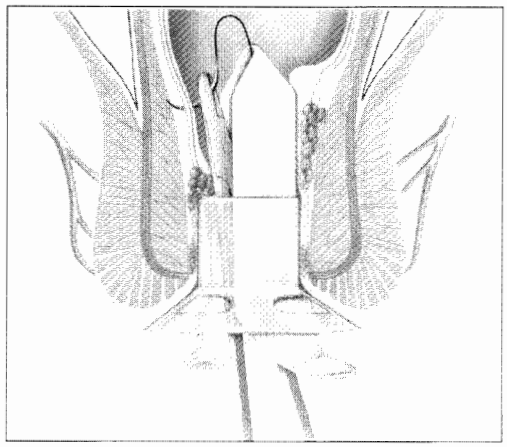

Figure 3—The circumferential mucosal-submucosal pursestring suture is placed approximately 4 to 6 cm proximal to the dentate line.

In some patients, because of the posterior angulation of the anal canal, extra attention must be paid.

The first assistant applies gentle outward traction on the suture while the surgeon gently pushes the instrument into the anal canal and closes the stapler jaws (Figure 5). The sliding red bar in the staple-height window (located on the body of the stapler) moves to the fully closed position. Gentle traction is maintained on the suture tails as the instrument is closed (Figure 6).

In female patients, a gloved finger is placed into the vagina to ascertain that the vaginal lining is free from the jaws of the closed stapler. The closed stapler is moved laterally in both directions and then proximally and distally. This movement of the stapler helps the surgeon to determine that the rectovaginal septum is not incorporated between the anvil and chamber of the stapler.

The surgeon removes the circular anal dilator and everts the perianal buttock skin. This important step is done to ensure

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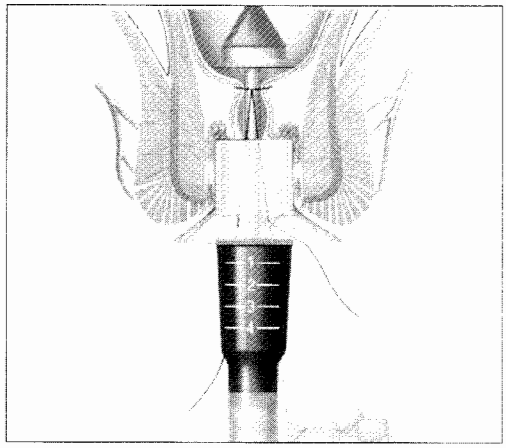

Figure 4—The ends of the suture are brought out through the side of the instrument using the purse-string puller.

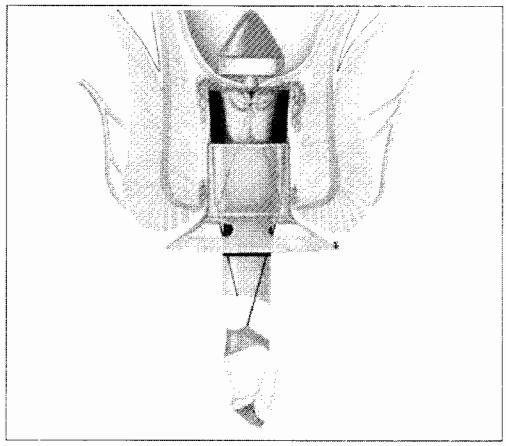

Figure 5—The first assistant applies gentle outward traction on the pursestring suture while the surgeon gently pushes the instrument into the anal canal and closes the stapler jaws.

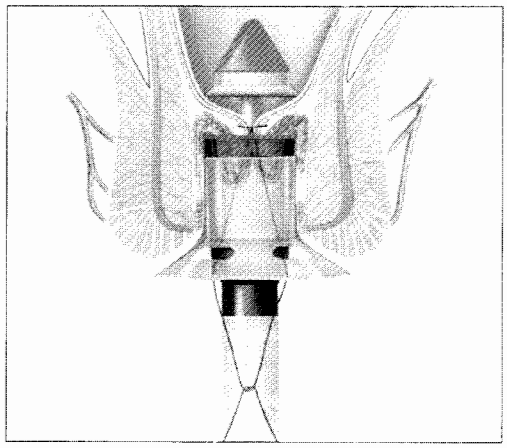

Figure 6—Gentle traction is maintained on the suture tails as the instrument is closed.

that the dentate line is actually seen to be free from the jaws of the stapling device. The stapler is fired and held closed for 2 to 3 minutes to aid in hemostasis. The stapler is then opened and removed, and the staple line is visualized (Figure 7).

Hemostasis is evaluated by placing the pursestring anoscope back into the anorectum and examining the staple line for bleeding. Any venous bleeding can be controlled using electrocautery, and any arterial bleeding can be controlled with a 2-0 or 3-0 absorbable suture ligature. The staple line must be evaluated for its complete circumferential placement. Any gaps in the staple line can be oversewn with a 2-0 absorbable suture proximal to the level of the dentate line.

For women, a bimanual examination of the rectovaginal septum is performed. Both fingers are moved in opposite directions to ensure that the mucosa of the rectum and the vagina move separately from each other and that there is no rectovaginal fistula present.

The stapler is opened to its maximal extent, and the hemorrhoidal doughnut is carefully retrieved from the chamber of the stapler. It is examined to ensure that it is completely circumferential. An incomplete doughnut should alert the surgeon to a possible skip area or a problem with the staple line, and the operative site should be reexamined. The height and thickness of the specimen are assessed. It is then sent to the pathologist with a request that all microscopic layers be described in the final pathology report.

Although we do not use packing or topical hemostatic agents, many surgeons do. A hemostatic agent, such as oxidized cellulose, may be placed into the anorectum. A light dressing is placed externally. Unless contraindicated, each patient is given intravenous or intramuscular ketorolac, or both, at the end of the procedure.

In the recovery room, patients may report symptoms of rectal or urinary pressure or pain. They may feel the need to

urinate or defecate, despite having an empty rectum and bladder. Early in our experience, we learned that intravenous narcotics did little to alleviate these uncomfortable sensations. Each patient had been given a local field block before performing the hemorrhoidectomy and, theoretically, should have been insensate to anal pain in the recovery room. We discovered that midazolam, given in 1- to 2-mg boluses on an as-needed basis in the recovery room, allowed patients to rest and recover without these problems. We administer the midazolam when the patient begins to report a painful pressure sensation.

Patients are advised preoperatively and are reminded in the postoperative period to avoid straining during a bowel movement. This increased Valsalva effect can lead to postoperative bleeding. Patients are also told that they may feel rectal pressure and the sensation that they need to defecate. This sensation will resolve in 24 to 48 hours. A light sedative on the first postoperative night will allow for a smooth transition into the postoperative period.

Patients are given a prescription for a narcotic analgesic to take on an as-needed basis. Most often, this is not necessary. Unless contraindicated, patients are prescribed oral ketorolac, 10 mg every 6 hours for 3 days. They are instructed to take this on a regular basis until the prescription is finished. We prescribe preoperative and postoperative antibiotics for selected patients, such as those with cardiac valvular disease or other cardiovascular indications. Because we have not had any cases of systemic or local perioperative infections, we use antibiotics selectively. In our early experience, we routinely prescribed oral stool softeners; however, we found that this practice seemed to be associated with an increased number of bowel movements in the postoperative period. We also found that because the first bowel movement after the procedure was not necessarily uncomfortable, there no longer seemed to be a need for a postoperative oral bulking agent and we have discontinued this practice.

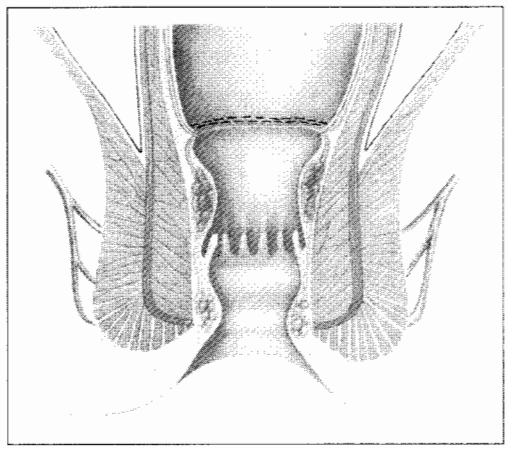

Figure 7—The stapler is opened and removed, and the staple line is visualized.

Patients are interviewed by telephone on the evening of the procedure and on the morning after the procedure. They are seen in the office at 1 week, 3 weeks, 1 month, 3 months, 6 months, and 1 year postoperatively and then on a yearly basis.

Results

In 2002, in order to judge the safety and efficacy of stapled hemorrhoidectomy in the private practice setting, we evaluated the results in our first 50 patients. We found the procedure to be safe and free from all but the mildest of complications.

The average age of the patients undergoing stapled hemorrhoidectomy was 51 years, with an equal amount of men and women. One patient had symptomatic grade 1 hemorrhoids, five patients had grade 2 hemorrhoids, 42 patients had grade 3 hemorrhoids, and two patients had grade 4 hemorrhoids.

Symptoms included prolapse, bleeding, pruritus, pain, and discharge. Ten patients had an associated anal fissure, one patient had a large anal papilla, seven patients had thrombotic hemorrhoids (both acute and chronic), and one patient had a superficial anal fistula.

Mean operating time was 32 minutes. In our experience, each surgeon performed approximately 10 procedures be-

fore feeling comfortable using the stapled hemorrhoidectomy technique.

On a visual analog scale ranging from 0 (no postoperative pain) to 10 (the most imaginable pain), our patients experienced an average pain score of 1.1 on postoperative day 1. This decreased to 0.7 on day 7 and to 0.2 on day 21. Subsequent to this, all scores have remained at zero.

There was significantly less narcotic and anti-inflammatory use in the stapled group.

Two patients experienced postoperative bleeding. One patient improved with bed rest, and the other patient required a return to the operating room for suture ligation of a small bleeding artery at the staple line.

One patient experienced mild postoperative anal stenosis. This subsequently resolved. The pathology report showed squamous epithelium in the resected specimen. This case prompted us to change our operating technique. We now routinely remove the circular anal dilator and evert the anal mucosa to be sure that we can see the dentate line to verify that it is not entrapped within the jaws of the instrument. Three patients experienced a sense of fecal urgency, which resolved within 3 weeks. There were no cases of infection or sepsis.

All patients reported complete satisfaction with the results and postoperative course. There have been no recurrences of symptoms or hemorrhoids.

Discussion

Most prospective randomized studies have shown that stapled hemorrhoidectomy is associated with significantly less postoperative discomfort and disability compared with traditional open hemorrhoidectomy.[12-21] Correa-Rovelo and colleagues showed a pain score of 5.5 for traditional surgery versus 2.8 for stapled hemorrhoidectomy at 24 hours ($P < .001$) and 3.7 versus 1.1, respectively, at 2 weeks ($P = .001$).[16] Consequently, there was significantly less narcotic and anti-inflammatory use in the stapled group ($P < .001$). Kairaluoma and colleagues showed an average pain score of 4.3 over 14 days for the traditional group versus 1.8 in the stapled group ($P = .0002$).[21] Cheetham and colleagues showed a maximum pain score of 9.0 after traditional hemorrhoidectomy compared with 4.5 for stapled hemorrhoidectomy ($P = .018$).[20] As expected, less pain translated into a shorter recovery time and a faster return to the activities of daily living and work. In a study by Hetzer and colleagues, patients were disabled an average of 20.7 days after traditional hemorrhoidectomy compared with 6.7 days after stapled hemorrhoidectomy ($P = .001$).[18]

Our results further support these findings. Early postoperative pain scores were minimal and rapidly approached zero. Furthermore, most of our patients were able to return to their usual activities within a few days. There were minimal complications associated with the procedure, and patients were satisfied with the results.

There were no postoperative infections in our study. There are case reports of sepsis after open[22-24] and stapled hemorrhoidectomy,[25-28] as well as after hemorrhoidal sclerotherapy[29-31] and hemorrhoidal banding.[5-7] This complication seems to be caused by the hemorrhoidectomy itself and not by the manner in which the hemorrhoidectomy is performed.

Intermediate results of a multicenter American study were presented at the 2003 annual meeting of the American Society of Colon and Rectal Surgeons. Results showed that stapled hemorrhoidectomy is associated with less postoperative pain and fewer postoperative adverse events compared with a Ferguson hemorrhoidectomy. Stapled hemorrhoidectomy was also associated with signifi-

cantly fewer recurrences of symptoms in the postoperative period.[32]

Our data support the long-term efficacy of stapled hemorrhoidectomy at 1 year with no recurrence of preoperative symptoms. Ganio and colleagues noted that there was no significant difference in bleeding or prolapse between the stapled group and traditional hemorrhoidectomy group at 16-month follow-up.[17] Several patients who experienced prolapse had only residual skin tags noted on clinical examination. Similarly, Cheetham and colleagues noted a predominance of residual symptoms related to external hemorrhoids but not related to prolapse of internal hemorrhoids or bleeding.[20] These data underscore the finding that stapled hemorrhoidectomy procedures should focus on treatment of prolapsing internal hemorrhoids and not on the treatment or reduction of purely external hemorrhoids or anal skin tags. Patients need to understand this, and in our practice, this is emphasized to patients preoperatively. If the external component is a major concern, the patient is offered a simple excision of residual tags at the end of the stapled hemorrhoidectomy. A minor external tag excision is tolerated much better and associated with significantly less pain when compared with a formal hemorrhoidectomy.

Approximately 300,000 stapled hemorrhoidectomies have been performed worldwide.

Correa-Rovelo and colleagues noted a slightly higher rate of minor bleeding in stapled hemorrhoidectomy patients at 14-month follow-up, but no recurrence of hemorrhoidal prolapse.[16] They attribute the minor bleeding to possible residual capillaries in the lamina propria. Significantly more patients in the stapled hemorrhoidectomy group were willing to undergo the same procedure again compared with those who underwent traditional hemorrhoidectomy. Any dissatisfaction within the stapled group was not related to the bleeding but to residual external skin tags.

Kairaluoma and colleagues reported seven treatment failures in a group of 30 patients undergoing stapled hemorrhoidectomy.[21] Three patients required traditional hemorrhoidectomy, three required hemorrhoidal banding, and one required excision of external anal tags under local anesthesia. Two of these failures were thought to result from a technical error in which the pursestring suture was placed too high. Ortiz and colleagues also reported residual prolapse in seven of 27 patients but most of these occurred in patients undergoing the procedure for grade 4 hemorrhoids.[33] The longest follow-up period was reported by Pernice and colleagues who reviewed their 10-year experience with stapled hemorrhoidectomy and found no symptomatic recurrence and excellent patient satisfaction.[34]

Conclusion

Stapled hemorrhoidectomy is a revolutionary advance in the treatment of a common but vexing problem. It continues to grow in popularity as the procedure of choice for the surgical treatment of hemorrhoids throughout the world, and it is being used with increasing frequency in the United States.

Approximately 300,000 stapled hemorrhoidectomies have been performed worldwide. Our evaluation and other studies have shown that stapled hemorrhoidectomy is safe and associated with minimal postoperative discomfort. Several European prospective randomized studies have shown the safety and efficacy of this procedure, and prospective randomized studies are under way in the United States to further evaluate the short- and long-term results of the procedure.

Stapled hemorrhoidectomy is safe to learn in the private practice setting. It is critical that the procedure be learned under the didactic and technical guidance of a surgeon specifically trained in the surgical anatomy of the anorectum and certified in the teaching and use of the hemorrhoidal stapler.

Close attention must be paid to each step of the procedure. The learning curve appears to be approximately 10 cases. Two trained surgeons, one of whom should be a colorectal specialist, should be present at each procedure.

Two trained surgeons, one of whom should be a colorectal specialist, should be present at each procedure.

Based on our experience and on the experience of others, we think that in the hands of specifically trained and skilled surgeons, stapled hemorrhoidectomy is the procedure of first choice for the surgical treatment of hemorrhoidal disease. ●●

Acknowledgment

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