Surgical Management of Hemorrhoids

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There are few diseases more chronicled in human history than symptomatic hemorrhoidal disease. References occur in ancient texts dating back to Babylonian, Egyptian, Greek, and Hebrew cultures. Included in many of these writings are multiple recommended treatment regimens including anal dilatation, topical ointments, and the intimidating red hot poker. Although few people have died of hemorrhoidal disease, many patients wish they had, particularly after therapy, and this fact led to the beatification of St. Fiachre, the patron saint of gardeners and hemorrhoid sufferers. It is hoped that this discussion will guide the practitioner toward a more humane approach to the surgical management of hemorrhoidal disease, with an emphasis on cost-effectiveness with minimal morbidity and mortality.

ANATOMY/ETIOLOGY

The hemorrhoidal cushions appear predictably in the right anterior, right posterior, and left lateral positions, although there may be intervening secondary hemorrhoidal complexes, which blur this classic anatomy. The blood supply is similarly constant, deriving from the superior rectal artery, a branch of the inferior mesenteric artery, the middle rectal arteries arising from the internal iliac arteries; and the inferior rectal arteries arising from the pudendal arteries. The venous drainage transitions from the portal venous system above the level of the dentate line to the systemic venous system below this level.

The major anatomic distortion that must be addressed surgically is related to abnormalities within the connective tissue of these cushions, which produce prolapse of the hemorrhoidal tissue and dislocation of the anoderm. This can occur as the result of excessive straining, chronic constipation, or low dietary fiber. A clear understanding of the pathophysiology is important when considering therapeutic interventions. At the earlier stages of disease progression, when the major manifestation is transudation of blood through thin-walled damaged veins and/or arterioles, ablation of the vessels should be adequate. Conversely, in the late stages of the disease, when there is significant disruption of the mucosal suspensory ligament, relocation and fixation of the mucosa to the underlying muscular wall is required for effective therapy.

EXCISIONAL HEMORRHOIDECTOMY

The decision to proceed to excisional hemorrhoidectomy requires a mutual decision by the physician and patient that medical and nonexcisional options have either failed or are not appropriate. The usual clinical symptoms that lead to surgical excision are frequent prolapsing of the internal hemorrhoids and anoderm, which results in discomfort and anal seepage. Alternatively, the thickened and prolapsing internal/external hemorrhoidal complexes may make anal hygiene difficult for the patient and may make excision preferable. The final indication for excisional hemorrhoidectomy, although this is debatable, is the development of acutely thrombosed and gangrenous internal hemorrhoids. Surgical excision of acutely thrombosed external hemorrhoids may also be warranted, primarily for more rapid pain relief and avoidance of a residual skin tag. Management of these external thromboses is usually easily managed in the office setting with local anesthesia and complete excision with or without skin closure.

Options for excisional hemorrhoidectomy include the following techniques: Milligan-Morgan hemorrhoidectomy; Ferguson closed hemorrhoidectomy; Whitehead hemorrhoidectomy; and the more recently described circular stapled hemorrhoidectomy. The procedures are usually performed in the operating theater, after minimal preoperative preparation of the bowel. The use of lasers for excisional hemorrhoidectomy offers no advantage and, in fact, results...
in delayed healing, increased pain, and increased cost.\textsuperscript{10} The selection of anesthetic is usually left to the anesthesiologist and the patient; however, local anesthesia supplemented by the administration of intravenous narcotics and propofol is very effective and short acting. The use of spinal anesthesia, although effective, may increase the risk of postoperative urinary retention because of the increased intraperitoneal administration of intravenous fluids.

The Milligan-Morgan hemorrhoidectomy, which is widely performed in Europe, was originally described in 1937, and its efficacy has been subsequently documented in many series.\textsuperscript{11–13} This technique includes resection of the entire enlarged internal hemorrhoid complex, ligation of the arterial pedicle, and preservation of the intervening anoderm.\textsuperscript{10} The distal anoderm and external skin are left open to minimize the risk of infection in the wounds. Results of this technique have shown it to be a safe and effective means of managing advanced hemorrhoidal disease.\textsuperscript{10} However, the fact that the external wounds are left open for delayed healing can be a cause of considerable discomfort and prolonged morbidity after this procedure.

The closed Ferguson hemorrhoidectomy was proposed as an alternative to the Milligan-Morgan technique and enjoys a similar large body of evidence regarding its safety and efficacy.\textsuperscript{14–17} This technique employs an hourglass-shaped (centered at the midportion of the anoderm) excision of the entire internal/external hemorrhoidal complex, preservation of the internal and external anal sphincters, and primary closure of the entire wound. Occasionally it is necessary to undermine flaps of anoderm and perianal skin to allow removal of intermediate hemorrhoidal tissue, while preserving the bridges of anoderm between pedicles. This technical adjustment will avoid postoperative strictures.

The Whitehead hemorrhoidectomy, described in 1882, was devised to eradicate the enlarged internal hemorrhoidal tissue in a circumferential fashion and to relocate the prolapse dentate line, which is often a component of prolapsing hemorrhoids.\textsuperscript{18} Although this technique enjoyed a long period of widespread application, it was subsequently largely abandoned because of the high rates of mucosal ectropion and anal stricture.\textsuperscript{19–22} The technique is enjoying renewed support, with several authors documenting minimal stricture rates and no occurrences of mucosal ectropion.\textsuperscript{23,24} Despite these promising reports, the Whitehead procedure is technically demanding because of the need to accurately identify the dentate line and relocate it to its proper position.

A new entry into the arena of excisional hemorrhoidectomy is the circular stapled hemorrhoidectomy.\textsuperscript{25} The technique uses a circular, transanally placed pursestring suture, which is placed 4 cm from the dentate line and within the enlarged internal hemorrhoids. A 31 mm stapler is then placed transanally to perform a circumferential excision of the hemorrhoidal tissue and a repositioning and fixation of the anoderm to its proper location in the anal canal. The results appear promising with decreased postoperative pain, shorter periods of convalescence, and similar complication rates compared to other forms of excisional hemorrhoidectomy. There have been some concerns raised regarding protracted rectal pain after this approach and the potential for life-threatening infections, although larger series do not support these claims.

Regardless of the excisional technique used for treatment of advanced hemorrhoidal disease, the key to effective patient management is avoidance of postoperative complications. Pain is the most frequent complication and is the most feared sequela of the procedure from the patient’s perspective. A variety of analgesic regimens have been recommended, usually consisting of a combination of oral and parenteral narcotics.\textsuperscript{26–30} The use of local infiltration of bupivacaine into the wounds and perianal skin has been variably successful in long-term pain reduction.\textsuperscript{31,32} Conversely, ketorolac has demonstrated considerable efficacy in managing posthemorrhoidectomy pain.\textsuperscript{33} The use of alternative administration routes for narcotics, either by patch or subcutaneous pump, has been successful in controlling pain; however, the management of these routes of administration can be risky in the outpatient setting because of the risk of narcotic-induced respiratory depression. The most appropriate regimen after outpatient hemorrhoidectomy appears to be intraoperative use of ketorolac, sufficient doses of oral narcotic analgesics for home administration, and supplementation of the narcotics with an oral nonsteroidal medication.

Urinary retention is a frequent postoperative problem after hemorrhoidectomy, ranging in incidence from 1% to 52%.\textsuperscript{34–37} A variety of strategies have been used to treat the problem, including parasympathomimetics, \(\alpha\)-adrenergic blocking agents, and sitz baths.\textsuperscript{38,39} The best approach, however, seems to be a strategy of prevention that includes limiting perioperative fluid administration to 250 ml, an anesthetic approach that avoids the use of spinal anesthesia, avoidance of anal packing, and an aggressive oral analgesic regimen.\textsuperscript{40}

Early postoperative bleeding (<24 hours) occurs in approximately 1% of cases and represents a technical error requiring return to the operating theater for resuturing of the offending wound.\textsuperscript{41} Delayed