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Management of hemorrhoidal disease: a practical approach to outpatient interventions

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Hemorrhoids are normal arteriovenous bulges on the wall of the anorectum concerned with fine tuning anal continence. Hemorrhoids are not a disease entity unless they cause symptoms. Patients should only be treated if hemorrhoids are causing problems, but not all patients, even those with prolapsed hemorrhoids, need treatment, as many prolapsed hemorrhoids are asymptomatic. Straining, especially severe straining, when constipated results in a shearing force that breaks the suspension of hemorrhoidal tissue within the anorectal wall, allowing hemorrhoidal prolapse to occur. Excessive dietary fiber, normal vaginal delivery, and squatting for defecation are important causative factors of prolapsing hemorrhoids. Symptomatic hemorrhoids should be treated according to the presenting symptoms and not on a “one-size-fits-all” basis. Important aspects for the initial treatment of symptomatic hemorrhoids are to decrease dietary fiber, stop using toilet paper, use water to wash after defecation, use posterior perineal support, and take flavonoids. Other serious symptoms, such as bleeding together with prolapse, may require outpatient interventional procedures. Rubber band ligation is a tested technique that is safe, cheap, and effective. A laser hemorrhoid procedure is a new procedure that holds some promise, but it is still too expensive for routine usage for most patients.

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Introduction

Classic outpatient interventions for hemorrhoidal disease have changed dramatically over the last decade. Many units around the world currently perform classic excisional hemorrhoidectomy on an outpatient basis. Hemorrhoid excision and other ablative methods are discussed elsewhere. Most cases of circumferentially prolapsed hemorrhoids will need surgical intervention, which will not be discussed in this paper. Instead, this paper will focus on the classic categories of outpatient treatment of hemorrhoidal disease, including dietary and defecatory adjustments, as well as other important, although sometimes neglected, aspects of the outpatient management of hemorrhoidal disease.

Consultation

Worry about hemorrhoidal symptoms is the reason many people seek treatment in most colorectal outpatient clinics. Hemorrhoidal symptoms, however, may be seen in many other colorectal conditions, both benign and malignant. Therefore, before symptomatic hemorrhoids are treated, the doctor must first exclude other serious colonic or rectal diseases.

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Hemorrhoidal problems can be tackled only after other serious colorectal pathologies, such as colorectal cancer or inflammatory bowel diseases, have been excluded.

The outpatient management of hemorrhoids must start obviously with the consultation between the patient and the doctor, which is where the doctor will obtain a true understanding of the patient's symptoms. Only then can an accurate diagnosis be made where the cause and the effect of the hemorrhoidal problem are both managed appropriately, but there are two major problems with this idea. First, both doctors and the public must understand that a hemorrhoid is not a disease. Patients presenting with prolapsed, but asymptomatic hemorrhoids, which do not bother these individuals, should be reassured and should not be subjected to unneeded treatment. General practitioners and other doctors who pick up asymptomatic prolapsed hemorrhoids on screening or routine examinations should not refer such patients for surgical removal. Many patients with large prolapsed fourth-degree hemorrhoids are not bothered in the least by them. On the other hand, many patients who have small first-degree internal hemorrhoids are severely distressed by their symptoms. Patients should be treated as individuals with specific symptoms that need resolution and not as a disease entity that is treated according to a specific formula. Only patients with symptomatic hemorrhoidal disease should be treated and with a goal of complete symptom resolution and prevention rather than routine hemorrhoidal ablation for everyone.

Hemorrhoidal disease is a complex clinical situation. Bleeding is not the sole issue in many patients presenting with symptomatic hemorrhoids, although some authors mention it solely when discussing hemorrhoidal presentation.³ Indeed, hemorrhoids may present with almost the entire plethora of anal symptoms, where bleeding, prolapse, pruritus ani, and discomfort are the most common symptoms. Many patients worry about whether cancer is present considering that the symptoms are similar. Some patients even present complaining about the prolapse looking ugly. A few patients have difficulty wearing tight underclothes due to friction with prolapsed hemorrhoids. Different symptoms will dictate different treatment approaches. A "one-size-fits-all" approach will fail many patients and result in problems for the practitioner. The type of symptoms bothering the patient should be carefully elucidated so that symptom-specific treatment can be undertaken.

Second, the common misunderstanding that all hemorrhoids must be treated results from the misuse of the phrase hemorrhoids to mean hemorrhoidal disease. This misunderstanding is common among doctors and even colorectal surgeons.¹ Hemorrhoids are normal erectile arteriovenous tissues, which act as anal cushions that help the anal sphincters to enhance anal continence.² It is often stated that the exact pathophysiology of hemorrhoidal disease is poorly understood. This phrase is repeated too often and, even today, doctors are told

that the etiology of hemorrhoidal prolapse is obscure.³ However, it is clear that the erectile arteriovenous bulge or hemorrhoids hanging from the anorectal wall is subjected to very frequent shearing forces over a long period of time during the frequent act of defecation in the lifetime of every human being. Dynamic CT defecography exams have shown conclusively that the levator ani becomes basin-shaped with an effacement of the anal orifice and a protruding force exerted on the hemorrhoids during defecation.⁴ This continued downward shearing force causes a tearing of the connective tissues holding the hemorrhoids in place at the anorectal junction.¹ Clinically, many patients present with acute or severe hemorrhoidal prolapse after excessive straining during constipation or an explosive bout of diarrhea. This downward directed shearing force is more severe during each episode of defecation in a squatting position compared with defecation in the sitting position. The defecatory habit of the patient may help both the doctor and the patient understand the patient's hemorrhoidal symptoms and prevent recurrence after adequate treatment.

It is also well known that many pregnancies, especially vaginal deliveries, result in severe hemorrhoidal prolapse. There is an old Chinese saying "十男九痔，十女十痔," which, when translated, means "out of ten men there are nine with hemorrhoidal disease, out of ten women, there are ten with hemorrhoidal disease." The ancient Chinese knew that bearing downward during defecation and especially during childbirth causes prolapsing hemorrhoids due to the powerful shearing force exerted. This shearing force is multiplied many fold during pregnancy and even more so during parturition.

Dietary adjustments

Everyone knows that diet affects bowel habits. Bowel habits are also related to hemorrhoidal symptoms because of its effect on diarrhea and constipation. However, truth is stranger than fiction. What is commonly taught and acknowledged regarding the benefits of fiber and the role of fiber in preventing constipation and hemorrhoidal disease is actually diametrically opposite to the truth.^{5,6} Soluble fiber causes bloating and flatulence, which delays colonic transit⁵ and insoluble fiber is largely passed undigested through the gut making feces bulky⁵; therefore, increasing fiber intake increases bloating and stool size and weight.⁵ Dietary fiber makes feces bulkier and heavier, leading to even more constipation in patients who have problems with stool evacuation.^{7,8} These heavier and bulkier stools then cause hemorrhoidal symptoms by causing straining due to constipation and by increased frictional and shearing forces during fecal evacuation.⁵

It is an important aspect of outpatient management to reeducate patients regarding the causative role of fiber in both constipation and hemorrhoidal symptoms. In my outpatient clinic, a thorough explanation of the mischief caused by dietary fiber in the causation of hemorrhoidal disease is given

to all such patients, which has helped improve hemorrhoidal symptoms in most, if not all, patients who have understood and followed the advice to decrease dietary fiber.

Toilet habit and toilet training

Asians growing up in Asia generally have much larger hemorrhoidal prolapse than their compatriots do in westernized countries. An Australian colorectal surgeon who has worked previously in the UK as well as in Australia remarked that “Singapore is the hemorrhoid city of the world. I have never seen so many cases that are so large and at such an advanced state” during the period of his training in Singapore.⁹ Although not substantiated by clinical study, many patients with prolapsing hemorrhoids realize from life-long experience that regular squatting to defecate causes hemorrhoidal prolapse compared with sitting to defecate. Therefore, it is postulated that the common and widespread use of squatting toilets in Asia compared with the sitting commode in the West is one of the contributing causes of larger hemorrhoidal prolapses in Asians. Nonetheless, it must be noted that there are several websites claiming that squatting prevents hemorrhoids. However, as far as I am aware, none of these claims have been substantiated or recognized by genuine medical practitioners.

Patients should be reeducated regarding the proper use of sitting toilets and that they should avoid squatting toilets if possible. A common problem with sitting toilets, however, is that sitting on the toilet is too comfortable for many people; therefore, many people read or play with their cellphones during defecation, which leads to prolonged ineffectual straining on a regular basis. Over a prolonged time, the daily regular shearing force on the hemorrhoidal vasculature leads to a severe level of hemorrhoidal prolapse.

Once the hemorrhoidal plexuses protrude through the constricting anal sphincters, they are more prone to bleed as venous return is thereby impeded, while arterial flow may continue unabated. Vascular congestion leads to inflammatory reactions within the hemorrhoidal vasculature and surrounding connective tissues. These reactions release proteinases leading to the breakdown of connective tissues, such as elastic fibers.¹⁰⁻¹² These proteinases rupture supporting structures, causing disruption of the capillary bed, promotion of angioproliferative activity with neovascularization causing further prolapse, swelling, pain, pruritus, and bleeding.¹⁰⁻¹²

These inflammatory reactions may be short-circuited by a timely digital reduction in the congested prolapsed hemorrhoidal structures following defecation. The patient of course, must be willing and able to do so digitally following each episode of prolapse after defecation. Patients who have not already learned the technique on their own should be taught how to reduce hemorrhoidal prolapse digitally during an outpatient consultation.

Congested prolapsed and sensitive hemorrhoidal tissues are easily traumatized by the friction of cleaning with toilet paper after defecation. Many patients complain of blood staining the toilet paper or of dripping blood or pain when using toilet paper following defecation. A very simple method of preventing this problem is to either use copious amount of water directly from a hose or shower spray to wash rather than relying on toilet paper for perineal cleansing. This method of washing is effective and prevents excessive rubbing on prolapsed hemorrhoids, thus preventing hemorrhoidal bleeding and inflammation.

Posterior perineal support

An elegant CT defecography study showed that the levator ani muscle is wrongly named and that the main function of this muscle is to open the anogenital hiatus during defecation rather than to elevate the anus.⁴ The puborectalis mainly functions to close the anogenital hiatus during squeezing.⁴ During the act of defecation, the levator ani muscle stretches and descends becoming basin-shaped. This, together with the shearing force of defecation, promotes hemorrhoidal prolapse due to an elongation force on the posterior perineum and an effacement of the anal wall as shown elegantly in the CT defecography study.⁴ Posterior perineal support can be applied by using a specially designed toilet seat that holds up the posterior perineum and prevents posterior perineal descent and anal effacement.¹³ This toilet seat has an appendage that, when placed between the anus and the tip of the coccyx, prevents the posterior perineum from descending during defecation. This toilet seat has led to a significant improvement in patients with anal fissures by improving fecal evacuation.¹³ Although not yet published, my patients with hemorrhoidal prolapse have improved hemorrhoidal symptoms when using the posterior perineal support device.

Management of pruritis ani

Patients without gross allergic or other dermatopathies or intestinal parasites may complain of pruritus ani. In these “normal” patients, the most common cause of pruritus is inadequate perineal hygiene due to prolapsed hemorrhoids. Minor fecal residue is an irritant to the perianal skin. Patients with hemorrhoidal prolapse and perianal skin tags suffer from three issues that result in perineal itchiness.

First, it is difficult to clean the anal orifice thoroughly without the protruding hemorrhoids and skin tags getting in the way, resulting in subsequent fecal irritation of the perineum. Second, the resultant excessive wiping causes skin and mucosal injury with the release of inflammatory markers, such as histamine, that enhances pruritus. Third, inflamed prolapsed hemorrhoids give rise to further inflammatory reactions and mucus discharge, thereby aggravating the pruritus. Adequate anal hygiene is an important first step. Gentle washing with water and nonirritant soap is the most effective first step in patients with difficult to clean hemorrhoidal prolapses. Even

more thorough cleansing may be achieved washing with water a second time while squatting after the initial water cleaning while sitting on the toilet.

While dryness of the skin elsewhere on the body is a common cause of itchiness, hence the common use of moisturizers, the itchiness associated with a “normal” perineum with prolapsed hemorrhoids seems to be associated more with humidity. The use of an absorbent powder is very effective in treating many patients with this complaint. I have asked patients with pruritus ani to use prickly heat cooling powder after washing following defecation with a very good effect. The addition of oral, long-acting antihistamines and the use of micronized purified flavonoid fraction¹⁴ further reduce hemorrhoidal inflammation and associated pruritus.

Management of hemorrhoidal bleeding

There are two localities from where hemorrhoids bleed. Bleeding from within the anal canal may occur from friction against normal or congested hemorrhoidal tissues. External bleeding may occur due to excessive force used in wiping prolapsed hemorrhoids after defecation or from friction from clothes and buttocks against these prolapsed hemorrhoids. Vascular congestion with inflammation due to anal sphincter contraction and disordered arteriovenous connections increase the severity of this sort of bleeding.

As mentioned above, dietary fiber is often prescribed by many doctors in the mistaken belief that it relieves constipation.^{15,16} Excessive dietary fiber is in fact one of the most common causes of severe constipation. The alternative names we use for dietary fiber, namely roughage, bulking agents, and high residual foods, should alert doctors to its effect within the intestines. Dietary fiber, whether soluble or insoluble, is indigestible by human intestinal enzymes. Hence, almost all ingested fiber becomes feces. Some fiber, especially soluble fiber, is fermented by bacterial action resulting in intestinal gas and bloating, which then retards intestinal motility.⁵ However, decades of misinformation in medical schools and in society have wrongly misaligned our thinking. Stopping or even just reducing dietary fiber actually reduces constipation and its associated symptoms.¹⁷ Increasing the amount of dietary fiber increases stool weight and volume. This, in turn, increases the traumatic effect of a large volume of stool—whether as one large bulk or as a large volume of small pellet stools—passing through the anal sphincter. Congested hemorrhoids with fractured suspensory ligaments and elastic tissues are more prone to rupture from the friction of the passage of a large volume of stool. However, even normal hemorrhoids are subjected to prolonged wear and tear, and may occasionally rupture and bleed as hard or bulky stool passes the anal canal and hemorrhoidal tissues. The explosive passage of a large volume of liquid stools, which occurs during infective or other forms of diarrhea may be equally damaging to congested hemorrhoids, leading to bleeding even with the pas-

sage of soft liquid stools. In this regard, besides the mistaken notion of increased fiber being beneficial for the passage of motion, doctors often tell patients that, with increased fiber intake, more water must be consumed.¹⁶ Fiber is often said to aid in water retention and therefore stools are said to be less dry and easier to evacuate. This statement is wrong on two counts. First, the truth is that stool moisture content remains at 70% to 75% regardless of the amount of fiber or water consumed.^{18,19} Second, personal experience and clinical observation with patient feedback have confirmed that increased oral water intake beyond normal levels increases only the volume of urine passed due to the homeostatic activity of the kidneys and do not increase stool softness regardless of the amount of fiber ingested. This being said, the addition of fiber increases stool volume and therefore increases frictional forces as these stools pass the anal canal and hemorrhoids, increasing the likelihood of hemorrhoidal trauma and bleeding. The addition of dietary fiber to patients already suffering from constipation can only aggravate constipation by adding to the volume of stool that they must pass and not alleviate their constipation.

Internal hemorrhoidal bleeding, when it occurs, may last a day or even up to a week or so, depending on the depth of the tissue traumatized and the condition of the involved hemorrhoidal tissues. Superficial tears of hemorrhoidal vessels bleed during defecation, but as soon as defecation is finished, the anal sphincters contract, effectively stopping the bleeding. Such wounds are not completely healed by the time of the next defecation, meaning the wound reopens and may bleed again. Bleeding may recur repeatedly during subsequent defecation until complete healing of the traumatized hemorrhoids takes place. Long-term management and prevention of recurrent bleeding due to constipation should therefore include getting patients to decrease dietary fiber intake to decrease constipation and defecatory friction on the hemorrhoids. The use of micronized purified flavonoid fraction is a very useful adjunct to accelerate healing and stop bleeding. A meta-analysis of 14 randomized trials with 1514 patients showed that the use of flavonoids reduces hemorrhoidal bleeding by 67% and recurrent bleeding by 47%.²⁰

In addition, there are available procedural methods to decrease the volume of hemorrhoids or to stop troublesome bleeding hemorrhoids with good immediate efficacy. These methods vary in simplicity of use, costs, efficacy, and complications. *Table 1* lists the various procedures commonly used to treat bleeding hemorrhoids in the outpatient department. Appraisal of indications, costs, and efficacy in this table are made in comparison with rubber band ligation. Severe necrotizing fasciitis is a very rare complication of even minor procedures in the anal canal. It is more common in patients who are immunocompromised and in patients with diabetes, but may occur very rarely in any patient. *Table 1* only lists the common complications associated with the various outpatient procedures.

Method	Indication	Cost	Efficacy	Technical complexity	Postprocedural pain	Common complications
Infrared coagulation ²⁵	Nonprolapsed hemorrhoids	A moderately costly infrared coagulator required	Poor	Easy to apply	Minimal	High recurrence rate
Radiofrequency ablation ²⁶	Nonprolapsed hemorrhoids	An expensive radiofrequency ablator required	Poor	Easy to apply	Minimal	High recurrence rate, acute urinary retention, infection, hematoma and prolapse
Cryotherapy ²⁷	Prolapsed and nonprolapsed hemorrhoids	A moderately costly cryoprobe required	Poor	Technical expertise required	Severe	Prolonged discomfort with a foul smelling and persistent hemorrhoid mass
Injection sclerotherapy ^{23,28}	Nonprolapsed hemorrhoids	Cheap	Poor	Technical expertise required	Minimal	Mucosal necrosis, prostatic abscess, bacterial septicemia
Rubber band ligation ²⁹	Nonprolapsed hemorrhoids	Cheap	Good	Easy to apply	Minimal to severe	Mucosal necrosis, secondary hemorrhage, hemorrhoidal thrombosis and prolapse
Laser hemorrhoid procedure ³⁰	Prolapsed and nonprolapsed hemorrhoids	An expensive laser producing machine with disposable accessories	Best	Additional technical expertise required	Minimal	Secondary hemorrhage, hemorrhoidal thrombosis and prolapse

Table 1. A comparison of outpatient methods of hemostasis for bleeding hemorrhoids versus rubber band ligation.

My choice of procedure for bleeding from nonprolapsed hemorrhoids is single rubber band ligation of the single most hemorrhagic hemorrhoidal mass. Rubber band ligation is also the most commonly performed outpatient procedure for hemorrhoidal bleeding in most centers around the world. Single rubber band ligation is quick and repeatable with very few complications. Multiple ligations in one sitting are very seldom needed and may be very uncomfortable, both during and following the procedure. Most if not all patients complain of varying degrees of tenesmus and pain following synchronous multiple ligations. Repeated rubber band ligation over several sessions is seldom needed as well. Nonetheless, the patients may obtain many years of comfort with the ligation of one hemorrhoid alone, if given together with the correct advice of a proper regimen of food and defecatory habits.

Managing painful hemorrhoids

Hemorrhoids are generally not painful. Pain related to hemorrhoids occurs in three situations. First and most common is the sudden appearance at the anal verge of a thrombosed external varix, which does not arise strictly from the internal hemorrhoidal plexus and is not actually hemorrhoidal in origin. It is a blood clot of size varying from a small green pea to a large black longan seed. The cause is usually a ruptured vein at the circum-anal venous drainage. I have found that the majority of such cases occur during sleep and present in the

morning before defecation. A minority of cases occur during straining at defecation. If the swelling is painful or disturbs the patient, a small nick with a needle delivering a small dose of local bupivacaine with adrenalin will allow the blood clot to be squeezed out gently. This option gives immediate relief. The adrenalin is useful to prevent recurrent bleeding into the evacuated space to prevent an immediate relapse of the swelling. The addition of oral analgesics and the use of micronized purified flavonoid fraction decrease postevacuation pain and inflammation and increase healing.¹⁴

Second, pain results when hemorrhoids become acutely prolapsed and edematous, which is due to strangulation of the blood supply by the constricting anal sphincter. A vicious cycle of edema, inflammation, and pain lead to increased anal sphincter spasms, which lead to further edema, inflammation, and pain. An early reduction in these edematous prolapsed hemorrhoids stops this vicious cycle and reduces edema and inflammation, and therefore reduces pain. If treatment is delayed, the edematous swelling may grow too big and painful to be successfully managed on an outpatient basis. Furthermore, impedance of venous blood flow may result in thrombosis of the prolapsed hemorrhoids. While some surgeons prefer to treat these conservatively, we have usually managed these patients surgically.^{21,22} However, the discussion on these surgical techniques is out of the scope of this paper.

Third, doctors should be reminded that painful prolapsed hemorrhoids with or without prior treatment however minor, may be associated with necrosis and even severe necrotizing fasciitis.^{23,24} Although immunocompromised and diabetic patients are more prone to this problem, patients with normal immunity may occasionally be affected as well. Immediate and aggressive antibiotic and surgical therapy may be required to prevent a deadly situation from developing.^{23,24}

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Conclusion

Recent advances in the management of constipation and hemorrhoids herald a new dawn for patients suffering from these problems. A better understanding brings about a more holistic approach to these common, but irritating diseases. A more holistic approach helps the patient to prevent disease occurrence and deterioration and the doctor is able to treat such occurrences more accurately when they do appear. ■

Keywords: arteriovenous bulges; hemorrhoid