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No Strain, No Pain:
Getting to the Bottom of Drug Therapy for Hemorrhoids

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The mention of hemorrhoids is often followed by humorous quips or agonizing patient embarrassment. As a disorder that is estimated to effect 50% of the population by age 50, the subject of hemorrhoids is no laughing matter.[1] For the average American self-care of hemorrhoids likely involves going to a local pharmacy, buying a tube of Preparation H[R], and spending time sitting on a foam donut. It is estimated that only one third of patients with hemorrhoids will ever see their physician for treatment, and then usually only after self-treatment has failed.[2] The prevalence of the disorder along with the large number of products available for treatment requires that providers have a good working knowledge of the treatment options for hemorrhoids. The purpose of this article is to review standards of care, describe the common ingredients found in OTC preparations, and discuss some of the latest alternative therapies for hemorrhoids.

Hemorrhoids arise from cushions of vascular tissue that are a normal part of the anal anatomy (see http://www.medicinenet.com/images/illustrations/hemorrhoid.jpg) Cushions assist in defecation and work with the neuromuscular reflexes of the anal sphincters. A cushion becomes a hemorrhoid when the veins inside the cushion dilate and enlarge from excess venous pressure.[3] Factors that increase the risk of hemorrhoids by increasing venous pressure are chronic straining, constipation, prolonged sitting (especially on the toilet), chronic coughing, sneezing, pregnancy, obesity, sedentary life-style, anorectal surgery or injury, and anal intercourse.[4]

Table I: Grading and Management of Internal Hemorrhoids[2,3,5]

Grade	Description	Management
I	No prolapse, usually asymptomatic	Dietary modification and either drug therapy or band ligation/coagulation
II	Prolapse during defecation with spontaneous reduction	Dietary modification and either drug therapy or band ligation/coagulation
III	Prolapse requiring digital reduction	Dietary modification + band ligation/surgical hemorrhoidectomy
IV	Prolapse cannot be reduced	Surgical hemorrhoidectomy
	Strangulated	Urgent hemorrhoidectomy

Hemorrhoids are classified according to the location and degree of prolapse. Internal hemorrhoids arise proximal to the anorectal (dentate) line and are covered by mucosa, while external hemorrhoids arise below the line and have a squamous epithelium covering. Mixed (internal and external) hemorrhoids are common. Internal hemorrhoids are graded on the basis of the degree of prolapse, that is, protrusion below the anorectal line (see Table I).[1] The anorectal line is of special interest because external pain fibers end at this junction.

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Hemor-Rite[R]: A Novel New OTC Device for the Management of Hemorrhoids

Within the last year, the FDA approved a novel drug-free device for home cryotherapy of internal and external hemorrhoids.

The device consists of a cooling agent contained within an anatomically designed case made of surgical plastic. At least 2 hours prior to each use it is placed in the patient's home freezer to chill.

Upon removal from the freezer, the device is lubricated with glycerin and inserted rectally for 8–10 minutes QID x 7 days. After 7 days, the device can be used as little as BID until symptoms have resolved.

The device is advertised as easy to use, free of systemic side effects, and effective at rapidly reducing swelling, itching and pain. Use of the device is not recommended for longer than 6 months at a time as the cooling agent looses its effectiveness and requires replacement with a new device.

Currently Hemor-Rite[R] is only available for purchase by patients in Washington state via the Internet at http://hemorrite.com. The cost is approximately $39.95.

Thus, most patients do not complain of pain from internal hemorrhoids.[2] Bleeding and prolapse are the two most common symptoms of internal hemorrhoids.[5] Thrombi may form in either internal or external hemorrhoids. If thrombosis occurs in an external hemorrhoid it is likely to cause distention of the overlying perianal skin, inflammation, associated discomfort, and severe pain.[2] Internal and external hemorrhoids can also prevent the anal sphincter from closing properly. When this happens mucus and fecal material can seep through the anal canal causing perianal skin itching and irritation.[6] Other common symptoms of hemorrhoids include burning, swelling, and bowel habit changes.

The medical management of hemorrhoids should almost always include dietary modifications and other life-style changes. The standard of care is to recommend an increase in the patient's intake of fiber and water.[7] Fiber adds bulk and softens stools which decreases fecal seepage and straining during defecation.[8] Several studies have shown that fiber consistently relieves pain and bleeding from hemorrhoids.[9,10] Patients with hemorrhoids should receive between 20 and 35 grams of fiber daily and can get this from dietary sources (see Table II) or from dietary fiber supplements (see Table III on page 42).[11] It is necessary for patients to increase their water intake to at least 6–8 glasses/day as they increase their fiber consumption to prevent constipation and worsening of hemorrhoids. If fiber and water are insufficient to soften the stool, docusate sodium, an emollient laxative, can be added. In addition, patients should be counseled to avoid straining, sitting on the toilet for prolonged periods of time, and defer the urge to defecate. Patients should minimize wiping, use moist pads or baby wipes instead of toilet paper, and pat dry after cleansing the anorectal area. It is also important for patients to avoid lifting heavy weights, to increase their daily exercise and minimize caffeine intake.[12]

While surgical treatment is indicated for approximately 10% of pateints,[13] the rest are usually managed by band ligation, other office procedures, or with local drug therapies aimed at relief of acute symptoms. In choosing between these options, a case-by-case approach is recommend, keeping in mind the following:

- Hemorrhoids are usually a lifelong disorder;
- Hemorrhoids are usually asymptomatic;
- Hemorrhoids usually improve within three days of initiating drug therapy or within a couple of weeks without treatment;
- If healing is slower than expected consider an alternative diagnosis such as inflammatory bowel disease or malignancy; and finally,
- Patients usually present to their healthcare provider only after self-treatment attempts have failed.

Historically, a variety of OTC remedies have been recommended for the treatment of hemorrhoids. Currently, 33 OTC ingredients are recognized by the FDA as safe and effective for the treatment of hemorrhoids.[14] These ingredients fall into seven classes: analgesics, astringents, corticosteroids, keratolytics, local anesthetics, protectants, and vasoconstrictors (see Table IV on page 42). The majority of commercially available products contain combinations of ingredients. A comparison of ingredients found in some popular hemorrhoid products is shown in Table V on page 43. Among the oldest of the OTC remedies for hemorrhoids are Sitz baths. Sitz baths are plastic tubs that are placed over the toilet seat. The tubs are filled with 2–4 inches of warm water, and allow the patient to immerse the rectal area from a sitting position. Patients soak for 10–15 minutes, two to three times a day. Sitz baths are thought to soothe pain by improving blood flow, relaxing the internal anal sphincter, and promoting good hygiene. Patients can get the same effect using their bath tubs.[11]

Among the latest alternative therapies for the management of hemorrhoids are oral

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Table II: Fiber Content of Common Foods (www.gicare.com/pated/edtgs01.htm)

Category	Food	Serving Size	Fiber (grams)
Cereals	100% Bran	1/2 cup	8.4
	Raisin Bran	3/4 cup	4.0
	Frosted Mini Wheats	4 biscuits	2.1
	Oatmeal	3/4 cup	1.6
	Cheerios	1-1/4 cups	1.1
	Corn Flakes	1-1/4 cups	0.3
Vegetables	Peas	1/2 cup	3.6
	Corn	1/2 cup	2.9
	Potato w/skin	1	2.5
	Carrots	1/2 cup	2.3
	Broccoli	1/2 cup	2.2
	Green beans	1/2 cup	1.6
	Cauliflower	1/2 cup	1.1
Fruits	Apple w/skin	1	3.5
	Raspberries	1/2 cup	3.1
	Strawberries	1 cup	3.0
	Orange	1	2.6
	Banana	1	2.4
	Blueberries	1/2 cup	2.0
	Grapes	20	0.6
Breads	Bran muffin	1	2.5
	Whole wheat bread	1 slice	1.4
	Bagel	1	0.6
	White bread	1 slice	0.4
Pasta & Rice	Wheat spaghetti	1 cup	3.9
	Regular spaghetti	1 cup	1.1
	Macaroni	1 cup	1.0
	Brown rice	1/2 cup	1.0
	White rice	1/2 cup	0.2
Nuts & Beans	Baked beans w/tomato sauce	1/2 cup	8.9
	Lima beans	1/2 cup	4.5
	Almonds	10	1.1
	Peanuts	10	0.8

bioflavonoids, rectal nitroglycerin, rectal nifedipine, and a newly-approved OTC cryotherapy device (see side-bar at left). Bioflavonoids are regulated as dietary supplements. One bioflavonoid combination, a mixture of diosmin and hesperidin, is increasingly being used by patients. Diosmin and hesperidin are citrus bioflavonoids and are considered phlebotropic agents. Studied in Europe, this combination was associated with significant improvement in signs and symptoms, a reduction in bleeding, and decreased rates of relapse compared to placebo.[1] The exact pharmacology of these supplements is unknown, but they are believed to have anti-inflammatory properties which help restore normal capillary permeability. It seems that they may also work by improving venous tone and lymphatic drainage, and by reducing stasis.[1,15,16] Because these agents are not regulated as drugs by the FDA, their content uniformity and quality can not be guaranteed. This said, however, the use of bioflavonoids by patients seeking relief from hemorrhoids appears to be on the rise.

In the last ten years two prescription drugs, nitroglycerin and nifedipine, have been shown to be beneficial in treating hemorrhoidal pain caused by anal sphincter spasm.[1] Anal sphincter spasm is believed to contribute to the pain experienced by patients with thrombosed external hemorrhoids. Rectal administration of nitroglycerin or nifedipine is thought to decrease this type of pain by relaxing anal tone and decreasing internal anal pressure. Both drugs appear to promote healing and provide satisfactory relief of pain for up to six hours.[1] Treatment of hemorrhoids is an off-label use for both nitroglycerin and nifedipine. For hemorrhoids, nitroglycerin is usually specially compounded into an ointment with a strength ranging from 0.2–0.8% and used two or three times daily for up to 8 weeks.[17] Rectal nifedipine, also specially compounded into either a 0.2% or 0.3% ointment or gel and applied every 12 hours, has been used.[17,18] Rectal nifedipine may be preferable because it is associated with a lower incidence of headache than rectal nitroglycerin.[1]

In conclusion, increasing dietary fiber and water intake are the cornerstones for the non-surgical management of hemorrhoids. Thirty-three OTC ingredients classified into seven different drug classes (corticosteroids, astringents, protectants, local anesthetics, analgesics, vasoconstrictors, and keratolytics) are recognized by the FDA as safe and effective for treatment of

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Recommendations For Increasing Dietary Fiber[12]

- Eat 5 servings of fruits and vegetables each day.
- Eat more foods made with whole grains.
- Eat beans every week.
- Start slow to avoid bloating, cramps, and gas.
- Drink at least 2 more glasses of water each day if current intake is < 6.

Table III: Comparison of Common Fiber Supplements

Product	Actve ingredient	Fiber Content	Dose
Benefiber	Guar gum	3g/ tbsp	1 tbsp. taken up to TID
		0.5g/caplet	2-6 caplets taken up to TID
Citrucel	Methylcelluslose	2g/tbsp	1 heaping tbsp. taken up to TID
		0.5g/tablet	2-4 tablets taken up to TID
Fibercon	Polycarbophil	0.5g/tablet	2 tablets taken up to QID
Metamucil	Psyllium husk	0.5g/capsule	2-6 capsules taken up to TID
		3g/rounded tbsp	1 rounded tbsp. taken up to TID
	Wheat flour, psyllium hust, hull fiber	3g/wafer	2 wafers taken up to TID

Table IV: Traditional Ingredients FDA Approved for Use In Hemorrhoid Preparations[2,6]

Type*	Ingrecdient	Concentration	Frequency of Use	Hemorrhoid Type	Comments
Analgesics	Camphor	0.1% - 3%	up to 6 times daily	External	Suppress painful nerve impulses and decrease itching and burning.
	Menthol	0.1% - 1%			
Astringents	Witch hazel	10% - 50%	up to 6 times daily	External	Applied for drying effect to decrease mucus and secretions to decrease itching, burning, and discomfort.
	Zinc oxide	5% - 25%		External & Internal	
Corticosteroids	Hydrocortisone	1% - 2.5% (R_x)	up to 4 times daily	External & Internal	Anti-inflammatory properties decrease pain, itching, inflammation, and swelling. Maximum OTC strength is 1%.
Keratolytics	Alcloxa	0.1% - 3%	up to 6 times daily	External	Cause surface epidermal cells to slough, exposing underlying hemorroid tissues, and enhancing the absorption of other medications.
	Resorcinol	1% - 3%			
Local anesthetics	Benzocaine	5% - 20%	up to 6 times daily	External	Offer temporary relief from itching, burning, and pain. Work by preventing nerves from transmitting impulses to the brain, thereby causing a numbing effect. Caution should be exercised as local anesthetics can be absorbed rectally to cause systemic toxicity.
	Dibucaine	0.25% - 1%	up to 4 times daily		
	Lidocaine	2% - 5%	up to 6 times daily		
	Pramoxine	1%	up to 5 times daily		
Protectants	Cocoa butter, glycerin, hard fat, lanolin, mineral oil, petrolatum, shark liver oil, topical starch, zinc oxide	varies by agent	unlimited	External & Internal	Form a physical barrier to protect the perianal skin from irritation. Also prevent water loss from the stratum corneum.
Vasoconstrictors	Ephedrine	0.1% - 1.25%	up to 4 times daily	External & Internal	Shrink blood vessels and reduce swelling. Also have a mild anesthetic effect to reduce itching, burning, and pain. Caution is warranted as vasoconstrictors can be absorbed rectally to cause systemic toxicity.
	Phenylephrine	0.25%			

Table V: Comparison of Ingredients In Some Popular Hemorrhoid Products*

Status	Brand Name	Dosage Form	Astringent	Corticosteroid	Local Anesthetic	Protectant	Vasoconstrictor
OTC	Fleet Pain Relief	Pads	–	–	Pramoxine 1%	Glycerin 12%	–
	Medicone	Ointment	–	–	Benzocaine 20%	Mineral oil Petrolatum	–
	Nupercainal	Ointment	–	–	Dibucaine 1%	–	–
	Pazo Hemorrhoid	Suppository	–	–	–	Zinc oxide	Ephedrine3.8 mg
	Preparation H	Cream	–	–	Pramoxine 1%	Glycerin 12% Petrolatum 18% Shark liver oil 3%	Phenylephrine 0.25%
	Preparation H	Ointment	–	–	–	MIneral oil 14% Petrolatum 71.9% Shark liver oil 3%	Phenylephrine 0.25%
	Preparation H	Suppository	–	–	–	Cocoa butter 85.5% Shark liver oil 3%	Phenylephrine 0.25%
	Preparation H Anti-Itch	Cream	–	Hydrocortisone 1%	–	–	–
	Preparation H Cooling	Gel	Witch hazel 50%	–	–	–	Phenylephrine 0.25%
	ProctoFoam NS	Aerosol foam	–	–	Pramoxine 1%	–	–
	Tronolane	Cream	Zinc oxide 5%	–	Pramoxine 1%	Zinc oxide 5%	–
	Tucks	Suppository	–	–	–	Topical starch 51%	–
	Tucks Anti-Itch	Ointment	–	Hydrocortisone 1%	–	–	–
	Tucks Hemorrhoidal	Ointment	Zinc oxide 12.5%	–	Pramoxine 1%	MIneral oil 46.6% Zinc oxide 12.5%	–
Rx	Anusol-HC	Cream	–	Hydrocortisone 2.5%	–	–	–
	Anusol-HC	Suppository	–	Hydrocortisone 25 mg	–	–	–
	HC Pramoxine	Cream	–	Hydrocortisone 2.5%	Pramoxine 1%	–	–
	Proctofoam-HC	Aerosol foam	–	Hydrocortisone 1%	Pramoxine 1%	–	–

* Evidence suggesting superiority of one combination hemorrhoid product over another is lacking.

A note regarding UW Medicine Formulary hemorrhoid products: *Prescribers should be aware that OTC hemorrhoid products are reformulated frequently. Prescribers are encouraged to recommend therapies on the basis of ingredients rather than brand. Contact a pharmacist for the current UW Medicine anorectal formulary options.*

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Pharmacy & Therapeutics Committee Actions

Formulary Additions	Dosage Form(s), Strength(s), & Cost‡	Therapeutic Classification	Use	Usual Adult Starting Dose*
Omega-3-acid ethyl esters (Omacor®)	Capsules: 1g (465mg EPA + 375mg DHA)	Nutritional	Adjunct to diet to for triglyceride levels 500mg/dL	4 capsules Q day or 2 capsules BID.

* Refer to product labeling for full prescribing information. ‡ Contact pharmacy for information on drug costs.

CARE Northwest: Counseling & Advice on Reproductive Exposures

Women in the general population have a 3–5% risk of having a child with a birth defect or mental retardation. Birth defects are the leading cause of infant mortality in the U.S. Two important factors to consider when assessing the teratogenic potential of a medication are the stage of pregnancy and the amount of medication. It is critical to evaluate each potential exposure on a case-by case basis in order to give an accurate risk assessment. UW Medicine practitioners can consult with a trained counselor at CARE Northwest by dialing (888) 616-8484.

No Strain, No Pain: Drug Treatments for Hemorrhoids

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hemorrhoids. Patients who do not find adequate relief from the use of OTC products containing these ingredients often seek alternative remedies. Among the most studied of the newer alternatives are bioflavonoids, off-label use of specialty compounded nitroglycerin or nifedipine, and a new OTC cyotherapy device. While nearly 2/3 of patients with hemorrhoids are unlikely to ever seek care from their primary care provider, it is important to remember that the chronic blood loss from hemorrhoids can be a source of clinically relevant anemia. With so many new self-management choices available, it is likely that more patients will seek help from healthcare providers. Prescribers with a good working knowledge of the current choices will be better positioned to help patients achieve symptomatic relief from this common, recurring disorder.

References available upon request

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