COMPOUNDED ANORECTAL THERAPY

Lidocaine · Diltiazem · Hydrocortisone · Metronidazole

Prescriber Reference Guide · The Medicine Shoppe, York PA

Hemorrhoids · Anal Fissures · Anorectal Pain · Post-Procedural · Multi-Ingredient · Rx Required

Program Overview

Hemorrhoids, anal fissures, and chronic anorectal discomfort are among the most common colorectal conditions encountered in primary care, gastroenterology, and colorectal surgery. Commercial OTC anorectal preparations are limited to low-potency single-agent or fixed-combination formulas that frequently provide inadequate relief for moderate-to-severe presentations. Compounded anorectal therapy allows the prescriber to combine anesthetics, vasodilators, anti-inflammatories, and antimicrobials in a single topical preparation at clinically effective concentrations -- targeting the multiple simultaneous mechanisms of anorectal pain, spasm, and inflammation in one application.

Key Clinical Advantages

- Multi-mechanism in a single application -- anesthesia, sphincter relaxation, anti-inflammation, and antimicrobial activity addressed simultaneously; no need for multiple separate products
- Prescription-strength concentrations -- diltiazem 2% and metronidazole 10% have no OTC equivalent; lidocaine 2% and hydrocortisone 2.5% exceed OTC potency limits in combination
- Custom formulation -- prescriber selects the combination appropriate to the clinical picture; standard formulas available or fully custom on request
- Diltiazem availability -- topical diltiazem for anal fissures is not available as an FDA-approved commercial product; compounding is the primary source
- Single application simplicity -- patients managing multiple anorectal symptoms benefit significantly from one targeted preparation rather than separate anesthetic, anti-inflammatory, and antimicrobial products
- Base selection -- formulated in a base appropriate for perianal tissue; avoids common irritants; ointment or cream per prescriber preference and indication

Pathophysiology by Indication

Anal Fissures

An anal fissure is a tear in the anoderm (the epithelium lining the anal canal below the dentate line). The majority of anal fissures occur in the posterior midline. The pathophysiological driver of chronicity and delayed healing is internal anal sphincter (IAS) hypertonia -- elevated resting IAS pressure causes ischemia of the posterior commissure by compressing the microvasculature, preventing tissue repair. This is the key mechanism targeted by diltiazem.

Acute Fissure	Superficial tear following passage of hard stool or anal trauma; typically heals within 6-8 weeks with conservative management (stool softeners, sitz baths, topical analgesia). Pain on defecation is cardinal symptom -- often described as passing glass.
Chronic Fissure	Defined as a fissure present >6-8 weeks; characterized by raised edges, exposed internal sphincter fibers, and a sentinel skin tag. Hypertonia-driven ischemia prevents healing. Requires active intervention targeting IAS spasm.
IAS Hypertonia	The internal anal sphincter is smooth muscle under autonomic (not voluntary) control. Its resting tone is maintained by intrinsic myogenic activity and sympathetic innervation. In chronic fissure, IAS resting pressure is elevated to 80-100 mmHg (normal ~60-80 mmHg), causing posterior commissure ischemia.
Healing Mechanism	Reducing IAS resting pressure (via diltiazem, nitroglycerin, or botulinum toxin) restores posterior commissure blood flow and enables epithelial repair. Diltiazem's calcium channel blockade of smooth muscle achieves this pharmacologically without systemic side effects at topical doses.
Secondary Pain Cycle	Pain from defecation causes voluntary external sphincter contraction, further increasing anal canal pressure and worsening ischemia -- creating a pain-spasm-ischemia cycle that perpetuates the fissure. Lidocaine breaks this cycle acutely; diltiazem addresses the underlying IAS hypertonia.

Hemorrhoids

Hemorrhoids are vascular cushions in the anal canal (internal) and perianal skin (external) that become symptomatic when engorged, prolapsed, thrombosed, or inflamed. They are present in all adults; the term 'hemorrhoidal disease' refers to the symptomatic state.

Internal Hemorrhoids	Located above the dentate line; covered by insensate columnar mucosa. Symptoms: painless bright red rectal bleeding (most common), prolapse, mucus discharge. Classified I-IV by degree of prolapse. Not painful unless thrombosed or strangulated.
External Hemorrhoids	Located below the dentate line; covered by pain-sensitive anoderm. Symptoms: pain, swelling, itching, acute thrombosis (perianal hematoma -- intensely painful, firm bluish nodule). Thrombosed external hemorrhoids are the most acutely painful presentation.
Pathophysiology	Downward displacement of anal cushion tissue, vascular engorgement, and disruption of supporting connective tissue (Treitz muscle degeneration). Straining, constipation, prolonged sitting, pregnancy, and portal hypertension are predisposing factors.
Inflammatory Component	Symptomatic hemorrhoids involve local tissue inflammation, edema, and in some cases secondary bacterial colonization. Hydrocortisone addresses the inflammatory component; metronidazole addresses the antimicrobial/healing component; lidocaine provides immediate analgesia.
Post-Procedural	After hemorrhoidectomy, banding, or sclerotherapy -- pain, spasm, and wound healing are key management targets. Compounded anorectal preparations are highly useful in the post-procedural period for multi-mechanism symptom control and wound support.

Chronic Anorectal Discomfort & Other Indications

Levator Ani Syndrome	Chronic anorectal pain and pressure from pelvic floor muscle dysfunction; topical analgesia and anti-spasmodic agents (diltiazem) contribute to symptom management as part of a multimodal approach including pelvic floor PT
Pruritus Ani	Chronic perianal itching from multiple causes (contact dermatitis, fungal, bacterial, dietary); hydrocortisone addresses inflammatory/allergic component; lidocaine provides immediate relief; metronidazole addresses bacterial overgrowth contribution
Post-Radiation Proctitis	Radiation-induced anorectal inflammation and ulceration after pelvic radiotherapy; compounded preparations with anti-inflammatory and healing agents support tissue recovery
Crohn's Perianal Disease	Perianal fissures, skin tags, and fistula-associated pain in Crohn's disease; topical analgesia and anti-inflammatory therapy as adjunct to systemic disease management
Post-Surgical Wound Care	After anorectal surgery (fistulotomy, sphincterotomy, excision) -- topical analgesia, anti-inflammatory, and antimicrobial support for wound healing and pain control

Active Ingredients -- Mechanisms of Action

1. Diltiazem 2%

Mechanism	L-type calcium channel blocker -- inhibits voltage-gated calcium influx in smooth muscle cells of the internal anal sphincter. Reduces intracellular calcium, decreasing smooth muscle contractility and lowering IAS resting tone. Effect is selective to smooth muscle; no effect on the voluntary external sphincter (striated muscle).
Why Topical	Oral diltiazem reduces IAS pressure but causes systemic side effects (headache, hypotension, facial flushing, reflex tachycardia) at the doses needed for anorectal effect. Topical application achieves locally relevant IAS concentrations via direct tissue absorption with substantially lower systemic plasma levels -- the key advantage over oral therapy.
Evidence	Multiple RCTs demonstrate topical diltiazem 2% heals chronic anal fissures in 50-75% of patients. Healing rates comparable to topical glyceryl trinitrate (GTN) with a significantly better side effect profile -- GTN causes severe headache in 20-40% of patients, substantially limiting adherence. Systematic reviews confirm topical diltiazem as a first-line medical option for chronic anal fissure.
Indications	Chronic anal fissure (primary indication); acute fissure with IAS spasm component; post-surgical sphincter relaxation; levator ani syndrome (adjunct)
Typical Concentration	2% in ointment or cream base; applied twice daily to the fissure site; clinical response typically assessed at 6-8 weeks
vs. GTN (Nitroglycerin)	GTN 0.2-0.4% is also used for fissures via nitric oxide-mediated IAS relaxation; effective but 20-40% headache rate limits compliance. Diltiazem has comparable efficacy with substantially fewer headaches -- preferred by most patients and increasingly preferred by clinicians.

2. Lidocaine 2%

Mechanism	Voltage-gated sodium channel blocker -- reversibly stabilizes nociceptor and sensory nerve membranes in the perianal anoderm and anal canal below the dentate line. Raises the threshold for action potential generation, blocking afferent pain signal transmission from the application site.
Onset & Duration	Rapid onset -- analgesia begins within 5-10 minutes of application. Duration: 30-60 minutes for topical lidocaine at 2%; adequate for defecation-related pain management, post-procedural wound care, and examination.
Role in Fissure Management	Breaks the pain-spasm-ischemia cycle acutely -- pain from defecation triggers voluntary external sphincter contraction that worsens fissure ischemia; lidocaine-mediated analgesia interrupts this cycle and supports the healing environment created by diltiazem's IAS relaxation.
OTC vs. Compounded	OTC lidocaine (Preparation H Maximum Strength, Recticare) is 4-5% as a stand-alone product. Compounded at 2% as part of a combination preparation, it provides effective analgesia while allowing incorporation of other active ingredients within the formulation matrix.
Indications	All anorectal pain indications -- fissures, hemorrhoids (particularly thrombosed external), post-procedural, pruritus ani, and procedural analgesia (pre-examination)
Typical Concentration	2-4% in combination formula; applied to affected area up to 3-4 times daily or as directed

3. Hydrocortisone 2.5%

Mechanism	Topical corticosteroid -- binds glucocorticoid receptors in perianal tissue, reducing pro-inflammatory cytokine transcription, decreasing vascular permeability and edema, inhibiting mast cell degranulation, and suppressing the cellular immune response driving local inflammation. Provides both anti-inflammatory and antipruritic effects.
Hemorrhoid Application	The primary therapeutic target for hydrocortisone in anorectal therapy is symptomatic hemorrhoidal disease -- particularly the inflammatory component (edema, erythema, mucus discharge, and pruritus). Reduces swelling of hemorrhoidal tissue and the perianal skin irritation that accompanies chronic hemorrhoidal disease.
OTC vs. Prescription Concentration	OTC hydrocortisone is limited to 1% in the US for anorectal use. Compounded 2.5% provides greater anti-inflammatory potency for moderate-to-severe presentations. Commercial Anusol HC and Proctocort contain 2.5% hydrocortisone but as single-agent products without the combination ingredients available through compounding.
Duration of Use	Topical corticosteroids should not be used indefinitely in the perianal area -- prolonged use can cause skin atrophy, telangiectasia, and secondary infection. Use is appropriate for acute flares and short-to-medium-term management; reassess after 2-4 weeks of continuous use.
Indications	Symptomatic hemorrhoids (grades I-III), pruritus ani with inflammatory component, post-procedural inflammation, radiation proctitis (adjunct)
Typical Concentration	2.5% in combination formula

4. Metronidazole 10%

Mechanism	Nitroimidazole antibiotic with dual activity: (1) antimicrobial -- bactericidal against anaerobic bacteria and antiprotozoal activity; inhibits bacterial DNA synthesis via free radical formation; (2) anti-inflammatory -- independent of antimicrobial activity, metronidazole inhibits neutrophil chemotaxis, suppresses pro-inflammatory cytokine release, and promotes tissue healing through effects on fibroblast activity.
Anorectal Relevance	The perianal environment harbors a high anaerobic bacterial burden. In hemorrhoidal disease, anal fissures, and post-procedural wounds, anaerobic colonization contributes to tissue inflammation, delayed healing, and odor. Metronidazole at 10% provides high local tissue concentrations for anaerobic suppression while its anti-inflammatory properties support healing independently.
Evidence for Post-Procedural Use	Multiple RCTs demonstrate topical metronidazole 10% significantly reduces post-hemorrhoidectomy pain and promotes wound healing. Meta-analyses confirm pain reduction and faster wound healing compared to placebo in post-surgical anorectal care. This is among the strongest evidence bases in compounded anorectal therapy.
Anti-Inflammatory Mechanism	Metronidazole's anti-inflammatory effects are mediated through inhibition of leukocyte chemotaxis, suppression of cell-mediated immune responses, and downregulation of inflammatory mediator release -- independent of its antibiotic activity. This dual mechanism makes it particularly valuable in the post-procedural healing context.
Indications	Post-hemorrhoidectomy and anorectal surgical wound care (primary evidence-based indication); symptomatic hemorrhoids with secondary bacterial colonization; Crohn's perianal disease (adjunct); infected or chronic anorectal wounds
Typical Concentration	10% in combination formula; high concentration ensures adequate tissue penetration and local antimicrobial/anti-inflammatory effect

Standard Formulas & Indications

#	Formula	Ingredients	Primary Indications
1	**Pain & Infection Relief**	Lidocaine 2% / Metronidazole 10%	Symptomatic hemorrhoids with bacterial component; post-hemorrhoidectomy wound care; acute anorectal pain with secondary infection risk; post-procedural pain management
2	**Fissure & Inflammation Formula**	Diltiazem 2% / Hydrocortisone 2.5% / Lidocaine 2%	Chronic anal fissure (first-line medical therapy); acute fissure with IAS spasm; hemorrhoids with significant inflammation; pruritus ani with inflammatory component
3	**Full Combination Formula**	Diltiazem 2% / Lidocaine 2% / Hydrocortisone 2.5% / Metronidazole 10%	Post-anorectal surgery (comprehensive wound care); chronic fissure with hemorrhoidal disease; complex anorectal presentations requiring all four mechanisms simultaneously
4	**Custom Formula**	Any combination, any concentration per prescriber	Crohn's perianal disease; radiation proctitis; atypical presentations; any clinical scenario requiring ingredients or concentrations outside standard formulas

Evidence Summary

Topical Diltiazem for Anal Fissure	Knight et al. (2001) RCT: diltiazem 2% cream achieved 65% healing rate in chronic anal fissure vs. 40% placebo. Carapeti et al. and subsequent meta-analyses confirm topical diltiazem as effective first-line medical therapy comparable to GTN with markedly fewer headaches. ASCRS practice parameters include topical calcium channel blockers as first-line medical management for chronic anal fissure.
Topical Metronidazole Post-Hemorrhoidectomy	Ala et al. (2008) RCT: topical metronidazole 10% significantly reduced pain scores on days 1-14 post-hemorrhoidectomy vs. placebo. Nicholson et al. meta-analysis confirmed topical metronidazole reduces post-hemorrhoidectomy pain and wound healing time. Widely adopted in colorectal surgery practice.
Topical Diltiazem vs. GTN	Meta-analysis (Bhardwaj & Parker, 2007): equivalent fissure healing rates between diltiazem and GTN with significantly lower headache rates with diltiazem (GTN headache rate 20-40% vs. diltiazem ~5%). Patient preference and adherence strongly favor diltiazem.
Combination Formulas	Clinical series and practice data support multi-ingredient combination formulas for anorectal conditions where multiple mechanisms contribute simultaneously. No head-to-head RCTs of combination preparations vs. individual agents, but mechanistic rationale and clinical experience are strong.
ASCRS Guidelines	American Society of Colon and Rectal Surgeons guidelines support topical agents including calcium channel blockers (diltiazem, nifedipine) as first-line non-surgical treatment for chronic anal fissure; topical analgesics and anti-inflammatories for hemorrhoidal disease management.

Dosing & Application

Quantity	Standard dispensing: 30 gm topical cream or ointment; 60 gm available for extended courses or post-surgical use
Anal Fissure Protocol	Apply small amount (fingertip or applicator) to the anal verge and lower anal canal twice daily (morning and after bowel movement); course typically 6-8 weeks; reassess healing response at 6-8 weeks
Hemorrhoid Protocol	Apply to affected area up to 3-4 times daily during symptomatic flare; reduce frequency as symptoms improve; avoid prolonged continuous use of hydrocortisone-containing formulas (>4 weeks continuous use)
Post-Procedural Protocol	Apply to surgical wound area 2-3 times daily per surgeon instruction; course per surgical follow-up; metronidazole-containing formulas preferred for wound healing support
Application Technique	Clean perianal area gently before application; apply small amount with clean fingertip, cotton swab, or supplied applicator; gentle insertion into anal canal for internal hemorrhoids and internal fissure component; wash hands after application
Internal Applicator	Rectal applicator tip available on request for formulas intended for internal application (internal hemorrhoids, internal fissure); specify on prescription or call ahead
Onset	Lidocaine: analgesia within 5-10 minutes. Hydrocortisone: anti-inflammatory effect within 24-48 hours of regular use. Diltiazem: IAS pressure reduction measurable within hours; fissure healing over 6-8 weeks. Metronidazole: antimicrobial effect immediate; tissue healing effect over days to weeks.

Drug Interactions & Safety

Diltiazem -- Systemic Absorption	Topical diltiazem is absorbed systemically to a limited degree. Clinically significant cardiovascular effects (hypotension, bradycardia, AV block) are rare at topical doses but should be considered in patients on systemic diltiazem, other calcium channel blockers, beta-blockers, or digoxin. Document concurrent cardiac medications.
Diltiazem -- CYP3A4	Diltiazem is a CYP3A4 inhibitor. At low topical doses, systemic exposure is limited, but patients on narrow therapeutic index CYP3A4 substrates (statins, cyclosporine, certain antiarrhythmics) should be noted.
Lidocaine -- Systemic	Systemic lidocaine toxicity from topical anorectal application is not expected at standard doses. Caution with large-area application, abraded tissue, or patients on class I antiarrhythmics (additive cardiac membrane effects at high systemic levels).
Hydrocortisone -- Prolonged Use	Prolonged topical corticosteroid use in the perianal area can cause skin atrophy, striae, and secondary fungal infection. Limit continuous use to 4 weeks; reassess and consider steroid-free formula for maintenance.
Metronidazole -- Alcohol	Metronidazole causes a disulfiram-like reaction with alcohol (nausea, flushing, tachycardia). At topical anorectal doses, systemic absorption is low and clinical disulfiram reaction is unlikely, but counsel patients to avoid alcohol during use.
Metronidazole -- Warfarin	Metronidazole inhibits CYP2C9, increasing warfarin levels. At topical doses, systemic absorption is limited; however, monitor INR in patients on warfarin with prolonged use of metronidazole-containing formulas.
Pregnancy	Topical lidocaine and hydrocortisone have been used in pregnancy; systemic absorption is low. Topical diltiazem and metronidazole in pregnancy: use only when benefit outweighs risk; limited data at topical anorectal doses. Discuss with prescriber.

Monitoring & Follow-Up

Anal Fissure (6-8 Weeks)	Assess fissure healing -- examine for re-epithelialization, reduction in sentinel tag, symptom improvement (pain with defecation, bleeding). If inadequate response to diltiazem 2% at 8 weeks, consider: dose increase, botulinum toxin injection, or surgical referral (lateral internal sphincterotomy).
Hemorrhoids	Assess symptom response at 2-4 weeks; if prolapse or thrombosis unresponsive to topical therapy, refer for procedural intervention (banding, sclerotherapy, hemorrhoidectomy) as appropriate to grade.
Skin Assessment	Monitor for signs of steroid-related skin changes with prolonged hydrocortisone use (thinning, telangiectasia, pallor); consider switching to steroid-free formula for maintenance once acute inflammation resolved.
Cardiac Monitoring (Diltiazem)	In patients on concurrent cardiac medications, consider blood pressure and heart rate check at first follow-up visit if diltiazem-containing formula prescribed.
Post-Surgical	Wound assessment per surgical follow-up schedule; continue metronidazole-based formula until wound healed; transition to symptom-based maintenance formula as needed
Non-Response	Lack of fissure healing at 8 weeks despite adequate diltiazem therapy warrants surgical assessment; lack of hemorrhoid symptom improvement warrants procedural evaluation; ensure diagnosis is correct (rule out Crohn's, malignancy, STI) before attributing non-response to medication

Formulation & Dispensing

Dosage Form	Topical cream or ointment -- prescriber specifies; ointment provides longer contact time (preferred for fissure); cream absorbs faster (preferred for external hemorrhoids and pruritus)
Standard Quantity	30 gm (approximately 4-6 week supply at standard twice-daily dosing); 60 gm for extended courses or post-surgical use
Standard Formulas	Formula 1 (Lidocaine 2% / Metronidazole 10%), Formula 2 (Diltiazem 2% / Hydrocortisone 2.5% / Lidocaine 2%), Formula 3 (full four-ingredient), and custom formulas per prescriber specification
Custom Concentrations	All concentrations adjustable per prescriber; additional ingredients available (nifedipine as diltiazem alternative, nitroglycerine for GTN-preferring prescribers, other topical agents on request)
Applicator	Rectal applicator tip available on request; specify on prescription for internal use preparations
Pricing	Cash pay -- contact pharmacy for current pricing by formula
BUD / Storage	Per USP compounding standards; store at room temperature; labeled on each preparation

Ordering & Contact Information

All anorectal preparations require a valid prescription. Standard formulas can be ordered by name (Formula 1, 2, or 3) or by listing active ingredients and concentrations. Custom formulas require full ingredient specification. Patients fill directly at our pharmacy.

How to Order

- By phone -- call (717) 846-0500; ask for the compounding pharmacist; have patient name, DOB, formula selection or ingredient list, quantity (30 or 60 gm), base preference (cream or ointment), and sig ready
- By fax -- send prescription to (717) 845-8767; specify formula by name or list ingredients with concentrations; indicate cream or ointment; note quantity and application instructions
- E-prescribe -- select 'Compound' as medication type; list ingredients in Sig/Comments (e.g., 'Diltiazem 2% / Hydrocortisone 2.5% / Lidocaine 2% anorectal cream -- apply small amount to affected area twice daily; qty 30 gm')

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