



Medical Bulletin

EXCEL Division of Blue Cross Laboratories Pvt Ltd.

RAFT THERAPY IN GASTROESOPHAGEAL REFLUX DISEASE (GERD): A MECHANISM-DRIVEN APPROACH WITH DISTINCT THERAPEUTIC ADVANTAGES

Introduction

Gastroesophageal reflux disease (GERD) is common and may substantially impair quality of life through heartburn, regurgitation, postprandial discomfort, and sleep disturbance. Proton pump inhibitors (PPIs) are the mainstay of pharmacological treatment; however, some patients have persistent symptoms despite adequate acid suppression. In patients with postprandial or breakthrough symptoms, alginate-based raft formulations may provide additional relief. These formulations typically combine sodium alginate with antacids and act primarily by limiting the physical reflux of gastric contents rather than by suppressing acid secretion.

Mechanism of Action of Raft-Forming Agents

Alginate is a polysaccharide derived from brown seaweed. In the acidic stomach environment, it forms a low-density viscous gel that floats above gastric contents. The resulting raft:

- Forms a mechanical barrier over the gastric acid pocket
- Reduces the frequency of reflux episodes
- Limits proximal migration of gastric contents into the oesophagus
- Protects the oesophageal mucosa from acid, pepsin, and bile exposure
- Helps control both acidic and weakly acidic reflux

Bicarbonate releases carbon dioxide, which becomes trapped in the gel and increases raft buoyancy. Unlike acid-suppressive therapies, alginate formulations act mechanically and may begin relieving symptoms within minutes.

The Acid Pocket: A Key Therapeutic Target

After meals, an unbuffered acid layer may form near the gastroesophageal junction. This postprandial acid pocket can contribute to heartburn and regurgitation. Alginate formulations localize above gastric contents and may displace or reduce exposure to the acid pocket, thereby limiting postprandial reflux.

Clinical Advantages of Raft-Forming Agents

1. Rapid Symptom Relief

Alginate formulations may relieve postprandial reflux symptoms within minutes, whereas PPIs require repeated dosing to achieve maximal acid suppression.

2. Effective Control of Regurgitation

PPIs reduce gastric acidity but do not directly prevent reflux events. Alginate formulations may therefore be useful for persistent regurgitation, postprandial reflux, or selected patients with non-erosive reflux disease (NERD).

3. Useful in PPI Partial Responders

A clinically relevant proportion of patients report persistent symptoms despite PPI therapy. Potential mechanisms include weakly acidic, non-acid, or volume reflux and persistence of the acid pocket. Adding an alginate formulation may improve symptoms in some patients, although trial results are inconsistent; PPI use should first be optimized.

**In Heartburn &
Indigestion**

Introducing 

RaftBluTM **SUSPENSION**

Sodium Alginate 250 mg. + Sodium Bicarbonate 133.5 mg. + Calcium Carbonate 80 mg. per 5 mL

4. Mucosal Protection

By forming a physical barrier, alginate formulations may reduce oesophageal exposure to acid, pepsin, and bile-containing refluxate.

5. Favourable Safety Profile

Alginate formulations are minimally absorbed, well tolerated, and associated with few adverse effects or drug interactions; they may be used in older adults and during pregnancy.

Comparative Evaluation with Existing Therapies

Parameter	Antacids	H ₂ Receptor Blockers	Proton Pump Inhibitors (PPIs)	Raft-Forming Agents (Alginate-Based)
Primary Mechanism	Neutralize gastric acid	Block Histamine mediated acid secretion	Irreversibly inhibit H ⁺ /K ⁺ ATPase	Floating protective raft over gastric contents & acid pocket
Onset & Duration of Action	Very rapid (within minutes) 1-3 hours	30-60 minutes 6-12 hours	Several hours; 24 hours or longer	Rapid (within minutes) 3-4 hours
Control of Regurgitation	Limited	Limited / moderate	Moderate	Excellent
Action on Postprandial Acid Pocket	No	No	Partial	Direct and specific
Role in NERD	Symptomatic relief	Useful	Effective	Particularly beneficial
PPI-Refractory GERD	Limited role	Limited role	Dose escalation often required	Useful add-on therapy
Nocturnal Symptoms	Short-lived benefit	Effective	Effective	Useful adjunct
Drug Interactions	Possible absorption interactions	Moderate	Potential CYP and absorption interactions	Minimal
Systemic Absorption	Minimal	Significant	Significant	Negligible
Clinical Use	Occasional heartburn	Mild-to-moderate GERD, nighttime symptoms along with PPIs	Moderate-severe GERD, erosive esophagitis, Barrett's oesophagus	Postprandial reflux, regurgitation, breakthrough symptoms, adjunct to PPIs

Clinical Implications of Raft forming agents as compared to other options:

Antacids: While both therapies provide rapid relief, raft-forming agents offer superior control of reflux events and regurgitation.

H₂ Blockers: Raft therapy provides faster symptomatic improvement and avoids tolerance associated with prolonged H₂ blocker use.

PPIs: PPIs remain the treatment of choice for erosive esophagitis, severe GERD, Barrett's oesophagus. However, raft-forming agents offer distinct advantages for breakthrough reflux symptoms, postprandial reflux, regurgitation, PPI partial responders & on-demand symptom relief

Conclusion

Raft-forming alginate preparations represent an important advancement in the management of GERD by addressing the physical process of reflux rather than solely suppressing gastric acid secretion. While PPIs remain the gold standard for healing erosive disease, raft-forming agents provide rapid symptom relief, effective control of regurgitation, and complementary benefits when used alongside acid-suppressive therapy. Their unique action on the postprandial acid pocket and favourable safety profile make them valuable in GERD management, particularly postprandial GERD, NERD, pregnancy-associated reflux, and breakthrough reflux symptoms.

Source: Leiman et al., *Dis Oesophagus*. 2017;30(5):1-9; Rohof et al., *Clinical Gastroenterology and Hepatology*, Vol 11(12) 2013, Pages 1585-1591.



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LULICONAZOLE IN INDIAN DERMATOPHYTOSIS: CURRENT EVIDENCE AND CLINICAL RELEVANCE

Introduction

Superficial fungal infections are among the most common dermatological disorders worldwide, affecting nearly 20%-25% of the global population. In India, the burden of dermatophytosis has increased substantially over the past decade owing to tropical climatic conditions, overcrowding, improper use of topical steroid combinations, and rising antifungal resistance. Among the currently available topical antifungals, luliconazole has emerged as one of the most potent and effective agents for the treatment of dermatophyte infections.

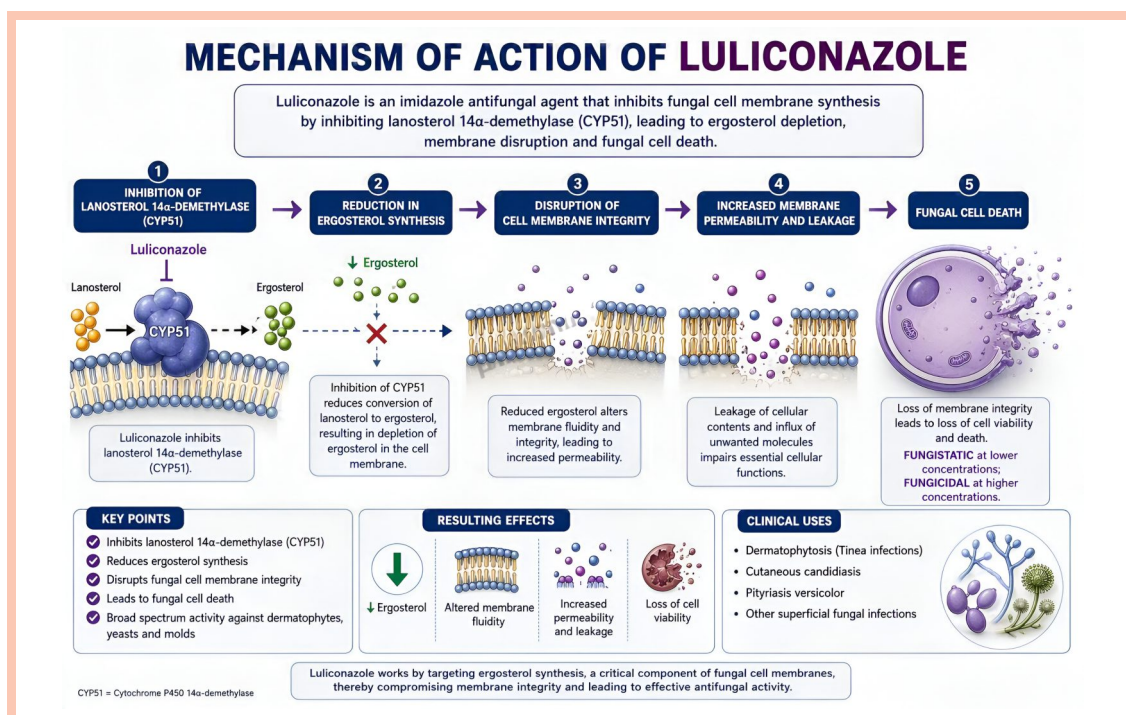
Luliconazole is a novel imidazole antifungal characterized by broad-spectrum activity, potent fungicidal action against dermatophytes, favourable skin pharmacokinetics, and a convenient once-daily dosing schedule. Since its introduction, it has gained widespread acceptance in the treatment of tinea corporis, tinea cruris, and tinea pedis.

Luliconazole is the R-enantiomer of lanoconazole, possessing a unique imidazole structure linked to a dithiolane moiety. Unlike most azoles, which are predominantly fungistatic, luliconazole demonstrates potent fungicidal activity against several dermatophyte species, particularly *Trichophyton rubrum* and *Trichophyton mentagrophytes*.

The drug acts by inhibiting lanosterol 14- α -demethylase (CYP51), a key enzyme involved in fungal ergosterol biosynthesis. Inhibition of ergosterol synthesis results in:

- Depletion of ergosterol from the fungal cell membrane
- Accumulation of toxic methylated sterols
- Loss of membrane integrity
- Inhibition of fungal growth and replication
- Ultimate fungal cell death

This mechanism provides broad antifungal activity against dermatophytes, yeasts, & certain molds.



In Tinea
Infections



SONADERM-L

Luliconazole Cream IP 1% w/w SKIN CREAM

Potent fungicidal activity against dermatophytes, excellent penetration into the stratum corneum, prolonged skin retention, once-daily application improving compliance, broad spectrum activity against Trichophyton, Microsporum, Epidermophyton species and selected yeasts, favourable safety and tolerability profile with minimal local reactions. These characteristics are particularly relevant in India where adherence to prolonged topical therapy remains a major challenge.

A recent susceptibility study from North India evaluated newer topical antifungals against 204 dermatophyte isolates including *T. rubrum* and *T. mentagrophytes/interdigitale*. Luliconazole demonstrated excellent in vitro activity and among the lowest MIC values against tested dermatophytes.

This is clinically important because:

- India has witnessed increasing resistance concerns with terbinafine.
- Dermatophyte epidemiology is changing.
- Need exists for highly potent topical agents capable of achieving rapid fungal eradication.

Amudha G, *et al.*, in their study observed topical luliconazole 1% cream demonstrated superior clinical efficacy compared to terbinafine 1% cream, with more rapid symptom resolution and higher percentage reduction in composite scores, suggesting potential for shorter treatment duration and improved patient compliance.

In another study the short course (2 weeks) once daily topical luliconazole cream regimen was more effective achieving complete clearance, faster clinical cure, and mycological cure than standard 4 weeks twice daily clotrimazole cream.

Topical luliconazole showed better improvement in terms of clinical parameters than topical clotrimazole within a span of 2 weeks in the treatment of localized dermatophytosis in a sample of 200 patients. Therapeutic efficacy of luliconazole was more as significant proportion of patients achieved complete clearance of lesions at faster rate within 2 weeks with convenient once daily application. Patient compliance was also better with once daily application of the luliconazole drug as compared to standard two times application and prolonged treatment with clotrimazole drug.

Agrawal V *et al.*, in their study concluded the best response at the end of 3 weeks of topical therapy was shown by luliconazole for all three parameters pruritus, erythema and scaling, and the results were statistically significant when compared with amorolfine, sertaconazole, terbinafine in tinea corporis and tinea cruris. Reddy *et al.*, substantiated topical Luliconazole appears to provide a quicker response compared to topical sertaconazole. Clinical and mycological cure rates were almost similar at the end of treatment phase (4 weeks).

Current evidence supports luliconazole 1% cream as one of the most effective topical antifungals for localized dermatophytosis (tinea corporis, cruris, faciei and early pedis), particularly when rapid symptom resolution, adherence, and reduced relapse are desired.

Source: Amudha G, *et al.*, *Int. J of Life Sciences, Biotechnology & Pharma Research* Vol. 14, No. 1, 2025; Sachan T, *Curr Med Mycol.* 2024 15; Reddy *et al.*, *IOSR-JDMS, Volume 22, Issue 1 Ser.10* 2023, PP 35-42; Lakshmi Prabha M, *et al.*, *Nat J of Physiology, Pharmacy & Pharmacology*, 2019, Vol 9, Issue 8. Kaur M, Gupta A, *et al.*, *Int J Appl Basic Med Res.* 2020; 10(4): 260-264. Agrawal V *et al.*, *IP Indian Journal of Clinical and Experimental Dermatology*, 2019; 5(2):111-115.

In Tinea
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Luliconazole Cream IP 1% w/w SKIN CREAM



Dr. Prabhu Kasture (MD, DPH)

Director Medical Services & Pharmacovigilance

Phone No.: 022-66638043

Email: prabhu.k@bluecrosslabs.com

Correspond: Blue Cross Laboratories Pvt. Ltd., Peninsula Chambers,
Ganpatrao Kadam Marg, Lower Parel, Mumbai 400 013.

Website: <http://www.bluecrosslabs.com>

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