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Sukralfat as a Therapy for Reducing Itching and Repairing the Skin Barrier: A Systematic Review

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Abstract

Sucralate is an aluminum salt from sucrose octasulfate that is known for its anti-ulcer activity, mucosal protection, and anti-mucositis potential. Recently, sucralfat has been used topically for the healing of various epithelial wounds, including ulcers, inflammatory dermatitis, mucositis, and burns. This systematic review aimed to evaluate the effectiveness of sucralfat as a topical therapy in reducing itching (pruritus) and improving the skin barrier. The analysis method used is Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA). A literature search was conducted on studies from 2004 to 2024 using keywords such as "sucralfate", "pruritus", "dermatitis", and "skin barrier" on PubMed, ProQuest, Science Direct, and Scopus databases. Inclusion criteria include topic relevance, research design, human subjects, and United Kingdom-speaking studies. Of the 141 articles found, 7 articles met the inclusion criteria. These studies involved a total of 605 subjects from different countries and used clinical trial methods and randomized controlled trials. The results showed that topical sucralfat was effective in reducing itching and improving the skin barrier in various skin conditions such as diaper dermatitis, chronic ulcers, and postoperative wounds. Sukralfat shows great potential in wound healing and skin barrier repair through the mechanism of protective layer formation, increased expression of epidermal growth factors, and anti-inflammatory properties. This effect indirectly helps reduce pruritus which often occurs due to damage to the skin barrier. Topical succulthate is effective in reducing itching and repairing the skin barrier, making it a promising therapy for a variety of inflammatory and ulcerative skin conditions.

Introduction

Sukralate is a basic aluminum salt of octasulfate sucrose which has anti-ulcer activity, mucosal protection and anti-mucositis potential (Elad et al., 2020; Ferreira et al., 2014; Song & Kim, 2019). Sucralate preparations in the form of white amorphous powder, odorless, almost tasteless and hygroscopic (Ispas-Szabo et al., 2016). The cytoprotective mechanism of sucralhate, which is soluble in an acidic environment in the stomach, forms a strong polyanionic gel material that adheres to proteins on the surface of ulcers, such as albumin and fibrinogen, to form insoluble and stable complexes. This complex serves as protection on the surface of the ulcer (Szabo, 2014; BQ, 2022). Based on the low absorption rate, the therapeutic effect of sucralfast reaches 6 hours after the administration of 1 dose (BQ, 2022).

Recent research uses sucralfat as a topical drug for the healing of various types of epithelial wounds such as ulcers (Abtahi-Naeini et al., 2022), inflammatory dermatitis (Abtahi-Naeini et

al., 2022), mucositis (Gültekin et al., 2023), and burns(Rudiman et al., 2023). At the molecular level, sucralhate has been shown to activate genes for Epidermal Growth Factor (EGF) and basic fibroblast growth factor (bFGF), as well as its receptors, which significantly increase the expression of EGF and its receptors in tissues undergoing ulcerative processes (Birsner et al., 2014; Li et al., 2020; Yildizhan et al., 2022) Topical application of sucralfat aids the healing process by increasing homeostasis, inflammatory reactions, cell proliferation and Remodelling tissues that produce the development of granulating tissue and wound healing (Masuelli et al., 2009).

The stratum corneum is the outermost layer of the skin and plays an important role in protecting the body from external threats such as infectious agents, chemicals and allergens. Barrier The skin also helps maintain homeostasis and prevents excess water loss from the body (Kanwar, 2018). Damage to Barrier skin can cause a variety of skin problems (Yosipovitch et al., 2019). Symptoms of damage Barrier The most common skin that appears is pruritus or itching, dry skin, decreased skin elasticity, skin discoloration, thinning of the epidermal layer, and bacterial and viral infections (Alexander et al., 2018; Del Rosso et al., 2016). Itchy skin is characterized by redness, the appearance of scales, cracks and a rough texture. Disruption of function Barrier The skin causes weakened skin defenses, an increased risk of infection and the appearance of inflammation thereby increasing the itching further and forming a cycle of itching-scratching that worsens Barrier skin (Del Rosso et al., 2016; Zhu et al., 2022).

Sukralfat is reported to have anti-inflammatory properties that can be beneficial in treating skin conditions involving inflammation and pruritus (Nowak & Yeung, 2017). Integrity enhancement Barrier skin through the healing properties of sucralfat indirectly helps restore function Barrier natural skin, which is very important in preventing and reducing pruritus (Koshariya et al., 2018; Yosipovitch et al., 2019). Chronic pruritus that lasts more than six weeks can significantly affect quality of life and require more intensive treatment (Andrade et al., 2020). The role of sucralates in skin health appears to be many, with its ability to promote wound healing (Norman et al., 2018), potential to reduce inflammation (Abtahi-Naeini et al., 2022), and improve the functionality of Barrier skin (Hill et al., 2018), all of which can contribute to the reduction of pruritus and the improvement of integrity Barrier skin.

This systematic review aims to determine the role of sucralfat as a therapy to reduce itching and improve the skin barrier.

Methods

The systematic review analysis method used in this report is *Preferred Reporting Items for Systematic Review and Meta-Analysis* (PRISMA).

Search strategies based on *evidence-based research*

Literature searches were conducted on studies from 2004 to 2024 using relevant keywords. Some of the keywords used include: "*sucralfate*", "*aluminum sucrose sulfate*", "*pruritus*", "*itch",* "*dermatitis*", "*skin barrier*", and "*dermatology*" which are written in detail in table 1. The search uses 4 main *databases*, namely: Pubmed, ProQuest, Science Direct, and Scopus (Table 1).

Study eligibility criteria

In this study, the articles included were articles that met the inclusion criteria, namely (1) relevance to the topic of systematic review; (2) the research design is a cohort study, *case-control, randomized controlled trials,* or clinical trials; (3) human subjects; and (4) studies in the United Kingdom. The exclusion criteria are non-research articles such as reviews, advertorials and conference abstracts.

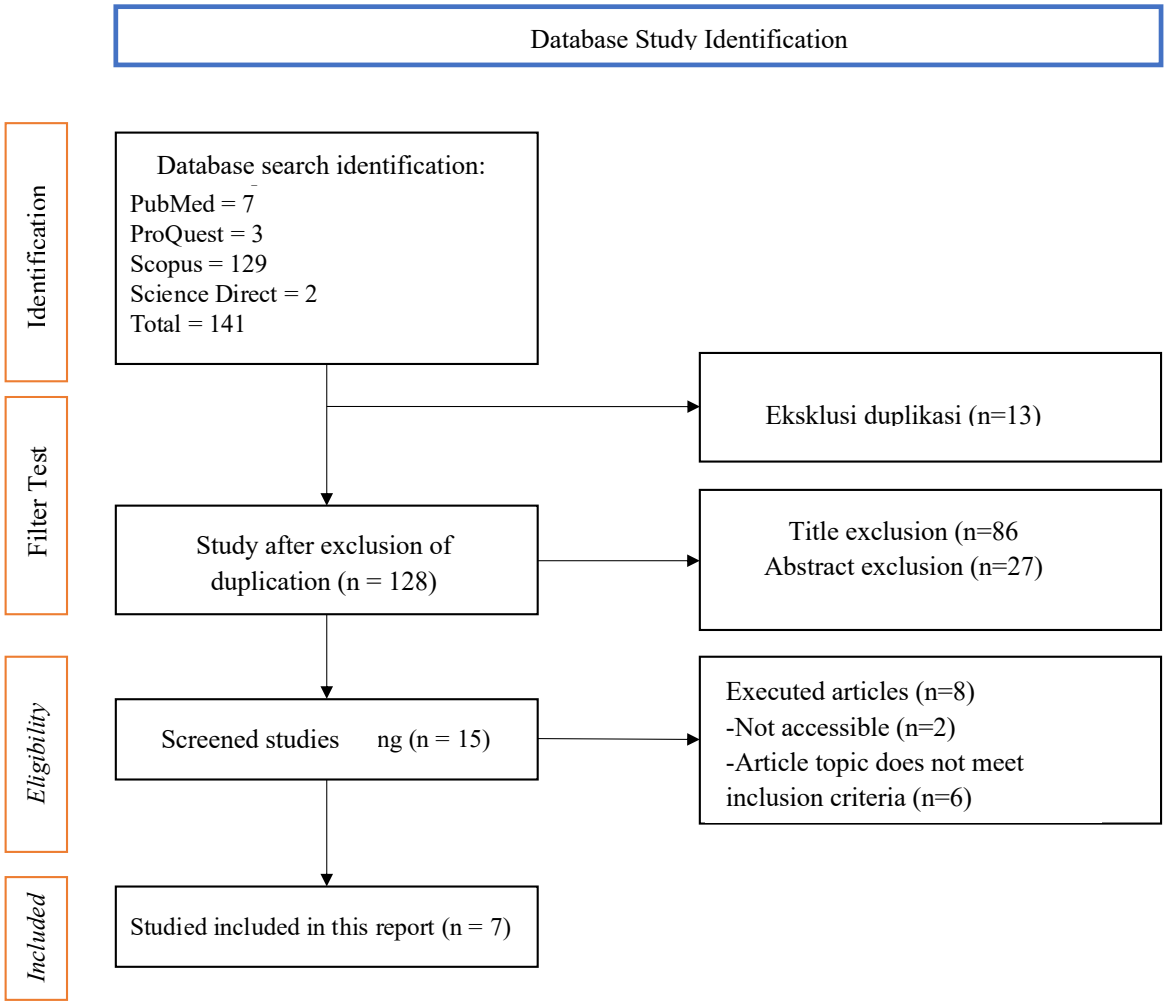

Figure 1. PRISMA diagram in systematic review search

Data extraction and tracing of study results

Data extraction and tracing of study results were carried out by taking information from each study including (1) author and year of publication; (2) research design; (3) population, sample size and characteristics of subjects; and (4) interventions carried out. Primary results from the study include (1) reduced itching; (2) skin barrier improvement ; and (3) side effects.

Table 1. Uses of MESH Terms on each database

Database	***MESH Terms***	**Number of Articles**
PubMed	((sucralfate[Title/Abstract]) OR (aluminum sucrose sulfate[Title/Abstract])) AND ((pruritus[Title/Abstract]) OR (itch[Title/Abstract]) OR (dermatitis[Title/Abstract]) OR (skin barrier[Title/Abstract]) OR (dermatology[Title/Abstract]))	7
ProQuest	summary(sucralfate) AND summary(pruritus or itch or skin barrier or dermatitis)	3
Scopus	("sucralfate" OR "aluminum sucrose sulfate") AND ("pruritus" OR "itch" OR "dermatitis" OR "skin barrier" OR "dermatology")	129
ScienceDirect	(sucralfate OR aluminum sucrose sulfate) AND (pruritus OR itch OR dermatitis OR skin barrier OR dermatology)	2

Result and Discussion

From the search results, there are a total of 141 articles with searches using *MESH Terms*, namely from four *databases*, namely Pubmed 7 articles, ProQuest 3 articles, Scopus 129 articles and ScienceDirect 2 articles. The article was excluded as many as 13 duplicate articles so that 128 articles were obtained. Furthermore, a screening was carried out based on the title and a total of 86 articles were excluded. Abstract screening was carried out and excluded a total of 27 articles resulting in 15 articles. 15 articles were screened *for full text* and 8 articles were discussed that did not meet the inclusion criteria. Furthermore, 7 articles were included in the systematic review (Figure 1).

The selected study discusses the effectiveness of topical sucral treatment for various skin conditions such as dry skin, to ulcers.(Alvandipour et al., 2016; Chatterjee et al., 2019; Falkowski et al., 2011; Kouloulias et al., 2013; Ribet et al., 2018; Sajjadian et al., 2012; Wells et al., 2004) The total number of research subjects was 605. Patients are from the United Kingdom, France, India, Greece and Iran. The research methods used are clinical trials and *randomised controlled trial*. Three studies evaluated the effectiveness of topical sucralhate use in radiotherapy patients (Falkowski et al., 2011; Kouloulias et al., 2013; Wells et al., 2004), one study evaluated the effectiveness on diaper dermatitis (Sajjadian et al., 2012), one study evaluated its effectiveness on chronic ulcers (Chatterjee et al., 2019), one study evaluated its effectiveness in post-fistulotomy wounds(Alvandipour et al., 2016), and one study evaluated the effectiveness of eczema in the hand region (Ribet et al., 2018).

Characteristics of Systematic Review Research

Wells et al. (2004) with popuation taken from United Kingdom countries, *Randomised Controlled Trial method and* research subjects Radiotherapy patients with a dose of > 40 Gy (n = 357), interventions (1) *aqueous cream* and *dry dressings*, (2) *aqueous cream* and *hydrogel dressings*, (3) *no cream* and *dry dressings*, (4) *no cream* and *Hydrogel dressings*, (5) *sucralfate cream* and *dry dressings*, (6) *sucralfate cream* and *hydrogel dressings.* The results of the research of sucralfat cream produced a lower erythema picture than aquoeus cream. However, the group that did not use the cream showed a lower picture of the two. The sucralfat group performed better than the other groups in other parameters (RTOG, patient records and DLQI), but the difference was small and only one was statistically significant. Patients in both cream groups scored less desquamation than those who did not use the cream.

Kouloulias et al. (2013) with a population taken from Greece, *Non-Randomised Clinical Trial* Method and research subjects Patients *with postoperative mammae* and undergoing chemotherapy with radiotherapy adjuvant (n = 60), with Skinkol® intervention 25% w/v sucralhate gel 1 time daily (n = 30) Moisturizing cream (n = 30). So the results of the study stated that acute skin reactions were significantly lower in the group that received the sucralfat gel ($p < 0.05$, Mann Whitney test), while 90% of the patients did not show any radiation-induced skin toxicity. There were no toxicities associated with sucralhate gel reported by patients in this study.

Falkowski et al. (2009), with the population taken is a France country using the Clinical Trial method and the research subject of *ca mammae* patients who received radiotherapy at a dose of > 45 Gy, with the intervention of sucralhate lotion on the radiation area with a dose of 2 x a day except in one area measuring 5 x 5 as a control (n = 21) so that the results showed that sucralfat appeared to be an anti-free radical that was not better than the reference compound such as vitamin E. The sucralhate-containing lotion used in this study did not provide systematic radiodermatitis protection.

Alvandipour et al. (2016) with the population of Iran using the *Randomised Controlled Trial method and* the research subjects of patients aged 20-70 years with anal fistulas administered by fistulotomy (n = 41), with the intervention of Sukralfat ointment 10% w/w which was given

postoperatively and continued every 12 hours then followed *up* every week for 5 weeks so that the results showed that the sucralfat group reported less pain at rest (1.92 ± 0.88 vs 2.96 ± 0.98; P = 0.002) and at bowel movements (1.68 ± 0.92 vs 3.08 ± 1.12; p < 0.001) than the placebo group during the postoperative visit. Complete wound healing was achieved after 8.15 ± 1 week in the placebo group versus 5.9 ± 0.8 weeks in the sucralfat group (p < 0.001). There was no significant difference in the frequency of postoperative complications between the two groups.

Chatterjee, et al. (2019) with India as the country studied using the *Randomised Controlled Trial method* and the study subjects Patients with *grade 1 or 2 Wagner skin ulcers* who were more than 4 weeks old (n = 96), and the intervention used topical 2% cream mupirosin cream (n = 44) Combination of topical 2% sucralrate cream mupirosin 7% (n = 46) Both were applied 3 times a day for 6 weeks, so that the results showed that the median ulcer area was significantly reduced in the combination group of 2% mupyrrosin and 7% sucralfat. 41.3% of participants in the combination group showed complete ulcer healing at 6 weeks compared to 18.18% in the mupyrrosin group (P = 0.022). Wound infection scores decreased significantly until the end of 3 weeks of treatment in both groups. The frequency of pain, discharge and erythema, was similar between groups except for the complete discharge of fluid from all remaining ulcers in the combination group but was still present in 11.36% of participants treated with mupyrrosin alone (P = 0.025). Incidents are a little undesirable, all local, mild, and tolerable.

Complicated et al. (2018), France as the country of origin of this population was taken by the clinical trial method, The research subjects consisted of patients > 18 years old with skin irritation and dry skin (n = 32) with the intervention of Emulsion w/o which contains the active substances *Avène thermal spring water, sucralfate, copper* and *zinc sulfate* which is applied 2 times a day for 21 days. And the results of the study showed that the emulsion w/o used in this study (*Handcream Cicalfate*) showed real benefits for subjects suffering from irritant contact dermatitis. The original formula is very well tolerated and well tolerated by patients. Both the doctor and the subject saw a significant improvement in symptoms starting from 7 days after the first application.

Finally, Sajjadian et al. (2012), The population used was Iran by the Randomised Controlled Trial method and infant patients at Shariati Hospital (n = 46) as research subjects with topical sucralfat (n = 25) and topical zinc (n = 21) interventions for 7 days so that the results of the study showed that sucralfat ointment 20% was significantly superior in curing diaper dermatitis on the 5th and 7th days (p < 0.05 and 0.01 respectively) and showed the time significantly shorter cure (3.24+/-2.02 days) compared to zinc oxide ointment 20% (5.42+/-2.39 days) (P = 0.002)

Sukralfat is a drug that is commonly used orally for the treatment of duodenal ulcers due to its ability to form a protective layer over the wound, thus protecting it from the corrosive properties of stomach acid (Namba & Yamakage, 2016). Several clinical studies and case reports provide evidence of the use of sucralhate in the treatment of various skin conditions.(McCullough & McCullough, 2017; Zheng et al., 2021) Sucralfat, which is traditionally used for gastric and duodenal ulcers, has been used topically to heal epithelial wounds such as ulcers (Sridharan et al., 2018), inflammatory dermatitis(Abtahi-Naeini et al., 2022b), mucositis (Gültekin et al., 2023a), and burns (Rudiman et al., 2023). Abtahi-Naeini et al. (2021) in a systematic review of several clinical trials explained that topical sucralfat has several clinical benefits in inflammatory conditions of mucocutaneous inflammation which include post-radiotherapy reactions, diaper dermatitis, keratoconjunctivitis, ulcers, burns, and also reduces pain (Abtahi-Naeini et al., 2022).

Pruritus is the medical term for an itchy sensation that triggers the urge to scratch (Andrade et al., 2020). The condition can be local, affecting only a few areas of the body, or generalized,

affecting the entire body (Hawro et al., 2021). There are many factors that can cause or worsen pruritus. Some of them include (Nowak & Yeung, 2017):

Dry skin (Xerosis) : This condition is a common cause of itching, especially in older adults because the skin tends to become drier with age. Dry skin can be aggravated by environmental factors such as hot or cold weather, dry air or the use of harsh soaps.

Skin conditions : Dermatological conditions such as eczema, psoriasis and dermatitis can cause pruritus. These conditions often lead to inflammation and rashes.

Allergies : Contact with allergens can trigger an immune response in the skin.

Infections : Parasitic infections and fungal infections.

Systemic diseases : Several systemic diseases, including liver disease, kidney disease, thyroid disease, diabetes and some types of cancer.

Medications : Some medications, such as painkillers such as opioids.

Neurological conditions : Conditions that affect nerves, such as neuropathy caused by diabetes or nerve blockages.

Pregnancy : Hormonal changes during pregnancy can sometimes cause itchy skin.

Treatment for pruritus varies based on the underlying cause. This can involve topical medications such as moisturizers or medicated creams, oral anti-itch medications or treatment of the underlying condition causing the itching. In cases where the cause of pruritus cannot be identified immediately, further diagnostic tests should be required. Chronic pruritus, which lasts more than six weeks, can significantly affect quality of life and require more intensive treatment (Andrade et al., 2020).

The stratum corneum, is the outermost layer of the skin and plays an important role in protecting the body from external threats such as infectious agents, chemicals and allergens. *Barrier* The skin also helps maintain homeostasis and prevents excessive water loss from the body (Kanwar, 2018).

Barrier The skin is made up of dead and dry cells called corneocytes that are arranged in a 'brick-and-mortar' model. This structure is essential for controlling the diffusion of molecules through the skin, including the regulation of water loss through the epidermis (*Transepidermal Water Loss*/TEWL) from the inside out and the penetration of chemicals from the outside environment to the inside (Alexander et al., 2018).

Damage to *Barrier* The skin can cause a variety of skin problems, including pruritus. Factors that can be damaging *Barrier* Skin includes dry or humid environments, hot or cold weather, allergens, irritants, pollution, smoking, excessive sun exposure, hot baths, harsh soaps or detergents, poor skin care, cuts or injuries, excessive washing or exfoliation, some medications, mental or physical stress, sleep deprivation, aging, and certain genetic predispositions (Yosipovitch et al., 2019).

Symptoms of damage *Barrier* Skin can include skin inelasticity, dry and itchy skin, wrinkles, skin discoloration, TEWL, thinning of the epidermal layer and visible bacterial or viral infections (Alexander et al., 2018). When *Barrier* damaged skin, can cause dry and itchy skin characterized by redness, scales, cracks and rough texture. Function *Barrier* These disrupted ones can also weaken the skin's defenses against harmful agents, causing inflammation and increasing itching further (Yosipovitch et al., 2019). This creates a dangerous cycle known as the itchy-scratching cycle, scratching because the itching is further damaging *Barrier* skin, causing more itching (Yosipovitch et al., 2019).

Treatment for damage *Barrier* Skin and associated pruritus often involve topical therapy targeted at keratinocytes, nerves, and itching receptors adjacent to *Barrier* damaged skin. This treatment involves corticosteroids, immunomodulators, capsaicin, local anesthesia, and antihistamines. Treatment selection should be tailored to individual needs and underlying causes (Yosipovitch et al., 2019).

Sukralfat is a drug that is commonly used orally for the treatment of duodenal ulcers due to its ability to form a protective layer over the wound, thus protecting it from the corrosive properties of stomach acid (Namba & Yamakage, 2016). However, recent research has explored its topical use on the skin for a variety of epithelial wounds, including wounds, inflammatory dermatitis, mucositis, and burns (Masuelli et al., 2010; McCullough & McCullough, 2017; Zheng et al., 2021).

Research shows that sucralfat can facilitate the healing of skin layers and burns by forming a protective layer, increasing bicarbonate production, exhibiting anti-peptic effects, and promoting tissue growth, regeneration, and repair (Kudaravalli & John, 2023). It has been found that sucralhate stimulates the proliferation of dermal fibroblasts and keratinocytes in culture, which is important for skin repair and the formation of granulating tissue in thick skin lesions (Masuelli et al., 2010; Ruospo et al., 2018). Sukralfat also improves expression *Epidermal Growth Factor* (EGF) in wound tissue, which is known to promote wound healing (Rudiman et al., 2023).

Although the direct impact of sucralfat on itching is not extensively documented in the given sources, its role in promoting skin repair and reducing inflammation could theoretically relieve pruritus associated with wounds or burns. The protective layer formed by sucralfat can also prevent further irritation or damage to the skin, thus curing itching complaints (Godhi et al., 2017; Koshariya et al., 2018; Yosipovitch et al., 2019).

Sukralfat has anti-inflammatory properties, which can be beneficial in treating skin conditions that involve inflammation and pruritus (Godhi et al., 2017). By improving integrity *Barrier* skin through its healing properties, sucralfat indirectly helps restore function *Barrier* natural skin, which is very important in preventing and reducing pruritus (Godhi et al., 2017; Koshariya et al., 2018; Yosipovitch et al., 2019). The role of sucralfat in skin health appears to be numerous, with its ability to promote wound healing, potential to reduce inflammation, and improve function *Barrier* skin, all of which can contribute to the reduction of pruritus and the improvement of integrity *Barrier* skin.

Clinical studies and case reports provide evidence of the use of sucralfast in the treatment of various skin conditions. Sukralfat, which is traditionally used for gastric and duodenal ulcers, has been used topically to heal epithelial wounds such as ulcers (Diesner et al., 2016), inflammatory dermatitis (Ribet et al., 2018), mucositis (Lalla et al., 2014) and burns (Gültekin et al., 2023).

Study reported by Tumino et al. (2008) showed that sucralfat is effective in treating chronic venous ulcers that fail in conventional therapy (Tumino et al., 2008). Other studies published in *Journal of the American Academy of Dermatology*, presents the case of a 42-year-old woman with spina bifida and paraplegia who experienced chronic discomfort due to erosion and ulcers. The administration of topical sucralhate cream results in the recovery of the symptoms and the remission is maintained with continuous application (Markham et al., 2000)

A non-randomized study by Kouloulias et al. (2013) Evaluating The Efficacy Of Sucralfat Gel As A Radioprotector Against Radiation-Induced Dermatitis In Patients Undergoing A Hypophracion Radiotherapy Schedule. The study found that acute skin reactions were significantly lower in the group that received the sucralhate gel compared to the control (Kouloulias et al., 2013).

In the management of peristomal skin diseases, an open study by Lyon et al. (2000) found that daily topical sucralhate treatment was associated with healing within 4 weeks in eight of the nine patients with fecal or urinary erosion (Lyon et al., 2000). In addition, the case report by Zheng et al, (2021) describes the effective use of topical sucral fat in reducing the size of large gastrostomy stomal defects in a medically complex pediatric patient (Zheng et al., 2021).

Although these studies and cases support the therapeutic benefits of sucralfast in skin conditions, it is important to note that this evidence is based on a limited number of studies and case reports. Further research will be useful to prove the efficacy and safety profile of topical use of sucralfat in dermatology applications.

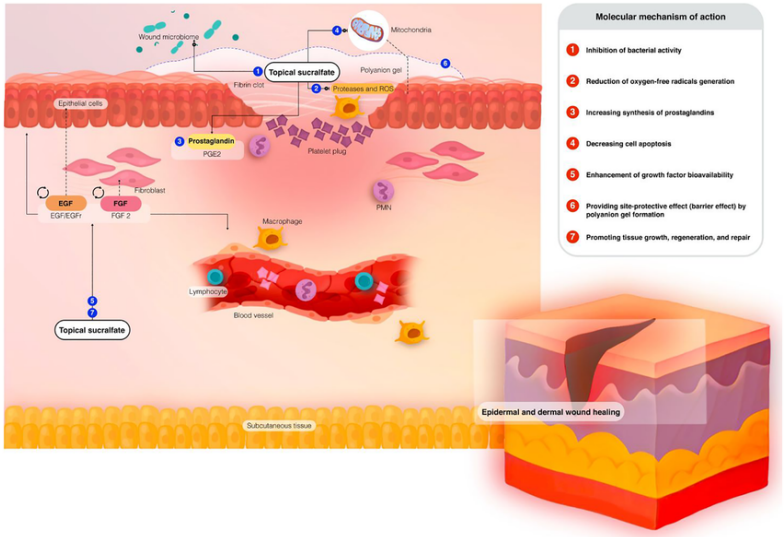

Figure 2. The mechanism of action of sucralfat in wound healing (Abtahi-Naeini et al., 2022)

Research by Wells et al. (2004) showed that the administration of sucralhate cream to radiotherapy patients showed a better effect than other groups in several parameters including *Radiation Therapy Oncology Group (RTOG) score*, the patient's subjective record and *Dermatology Life Quality Index* (DLQI) even though with small differences and not statistically significant (Wells et al., 2004) This is similar to the study of Falkowski et al. (2009) in patients undergoing radiotherapy and found that the lotion containing sucralhate used did not provide significant systematic protection against radiodermatitis.(Falkowski et al., 2011) However, another study by Kouloulias et al. (2013) on radiotherapy patients actually showed that acute skin reactions were significantly lower in the group receiving sucralrate gel ($p < 0.05$) (Kouloulias et al., 2013).

The anti-inflammatory effect on topical sucralhate is supported by a study by Alvandipour et al. (2016) which reported a significant reduction in pain in wounds after fistulotomy surgery and during bowel movements compared to placebo administration. Complete wound healing was also significantly achieved 2 weeks earlier with sucral treatment (Alvandipour et al., 2016). The study of Chatterjee et al. (2019) on ulcers also showed that the ulcer area was significantly reduced in the combination group of mupirosin 2% sucral fat 7% at the end of treatment. Clinically, 41.3% of participants in the combination group showed complete ulcer healing at 6 weeks compared to 18.18% in the mupyrosin group ($P = 0.022$). The qualitative frequencies, i.e. pain, discharge and erythema, remained similar between groups except for the complete discharge of fluid from all ulcers remaining in the combination group but still existed in 11.36% of participants treated with mupyrrosin alone ($P = 0.025$) (Chatterjee et al., 2019).

Sukralfat can improve and improve function *Barrier* skin. This effect can be indirectly seen from the study of Ribet et al. (2018) which showed that giving cream with one of the active substances sucralhate in patients with hand eczema showed the benefit of subjectively reducing

symptoms in patients with irritant contact dermatitis (Ribet et al., 2018). Based on the research of Sajjadian et al. (2012), the protection of *Barrier* Skin is also obtained by giving 20% sucralfat ointment which accelerates the healing time of diaper dermatitis on the baby's skin compared to zinc oxide ointment (Sajjadian et al., 2012).

Topical succulent is generally considered safe with a low risk of side effects. This is largely due to negligible mechanisms of local action and systemic absorption (Kudaravalli & John, 2023). The most commonly reported side effect of oral sucralhate is constipation (Abtahi-Naeini et al., 2022). In the context of dermatological applications, sucralfat is reported to be safe, effective, and well tolerated (Kudaravalli & John, 2023; Soylu Özler et al., 2014). A study on the use of topical sucralfat in the management of peristomal skin disease described it as a safe, economical and effective therapeutic intervention (Lyon et al., 2000). Another study investigating the use of sucralfat suspension in the treatment of oral and genital ulcers of Behçet's Disease reported significant reductions in the frequency, healing time, and pain of ulcerations, without side effects (Taylor et al., 2014).

A study by Ozler et al. (2014) regarding the efficacy of sucralhate and chlorhexidine as oral mouthwashes in patients with recurrent aphthous stomatitis reported that there were no side effects in both groups (Soylu Özler et al., 2014). The use of topical sucralhate in irritant dermatitis caused by the use of diapers shows good results without side effects (Tüzün et al., 2015). However, mild erythema and sweating were reported in one patient treated with sucralfat in a study investigating its effectiveness for non-candidal inflammatory skin conditions (Lamb et al., 2016).

Compared to other treatments, sukralfat has shown promising results. A study comparing the efficacy of topical sucralhate in wound healing, hemorrhoidectomy incisions, and reducing pain severity found that sucralfat significantly reduced pain and accelerated wound healing compared to placebo (Snopková et al., 2023).

A study by Yildizhan et al. (2022) compared the effects of topical sucralfat with dexspanthenol in a rat wound model. The results showed that sucralfast increased EGF expression in skin wounds and gave a positive result on skin wound healing that could be compared to dexspanthenol (Yildizhan et al., 2022). In the context of treating itching, a study by Snopkova et al. (2023) regarding the effect of ointments containing sucralrate on symptoms of hemorrhoid disease found that the ointment provides quick relief for both pain and itching (Snopková et al., 2023).

Topical succulent is generally considered safe with a low risk of side effects. This is largely due to negligible mechanisms of local action and systemic absorption (Kudaravalli & John, 2023). The most commonly reported side effect of sucralfat is constipation (Abtahi-Naeini et al., 2022). However, it is more commonly associated with oral administration for gastrointestinal conditions than topical use for skin conditions.

Sukralfat is a drug that has been proven to be effective in treating various skin conditions and promoting wound healing. Its mechanism of action is to form a layer or shield over the affected area, protecting it from further irritation and promoting healing (Song & Kim, 2019).

However, it is important to note that the effectiveness of sucralfat can vary depending on the specific condition being treated. A study on the use of topical sucralhate in the management of peristomal skin disease found that sucralhate was effective in curing fecal or urinary erosion, but there was limited or no response to treatment in patients with traumatic ulcers, excoriated dermatitis or gangrenosum pyoderma (Lyon et al., 2000).

In conclusion, sucralfat has been shown to be effective in treating various skin conditions and promoting wound healing, with comparable or better results compared to other treatments in

some cases. However, as is the case with other medications, their effectiveness can vary depending on the specific condition being treated and the patient's factors individually.

Although the direct impact of sucralfat on itching is not extensively documented in the given source, its role in promoting skin repair and reducing inflammation could theoretically relieve pruritus associated with wounds or burns. The protective layer formed by sucralfat can also prevent further irritation or damage to the skin, thus curing itching complaints.

Conclusion

A systematic review of various studies shows that the administration of topical sucralfat both as a monotherapy and as a mixture of active substances of a drug has a significant impact on the improvement of skin condition symptoms and skin barrier. In order to optimize the use of sucralfast in skin conditions, future research directions should be focused on several areas to better understand its therapeutic potential and improve its use including comparison with standard therapies, investigation of the molecular mechanism of sucralhate on wound healing and itching reduction, research on optimal formulation and concentration, and long-term safety and efficacy.

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