

IMMODERATE USE OF CORTICOSTEROIDS-INDUCED ULCERS AND STRIAE

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ABSTRACT

Background: Excessive administration of topical corticosteroids may compromise the skin's natural defenses, causing striae, ulcers, and secondary infections. **Case:** In this case examination, a 25-year-old woman who has been applying different topical steroids extensively for 4 months developed severe deep-seated ulcers on her breast, belly, and thighs. *Escherichia coli* was identified in the wound swab culture. The sensitivity reports have proved the patient's resistance to the following antibiotics: Ticarcillin/Clavulanic acid, Piperacillin/Tazobactam, Ceftazidime, Cefoperazone/Sulbactam, Aztreonam, Trimethoprim/Sulfamethoxazole, Ciprofloxacin, Levofloxacin, and Tigecycline. Treatment-resistant ulcers are believed to be caused by chronic corticosteroid use, which, as previously mentioned, has led to antibiotic resistance in many cases. **Conclusion:** Therefore, corticosteroid use should be monitored and remain at mild to moderate doses. Over-the-counter corticosteroid creams and ointments should be banned to reduce needless overutilization.

Keywords: *Corticosteroids, Ulcers, Striae, and Secondary infection*

INTRODUCTION

The use of corticosteroids in dermatology is significant for several conditions (Coutinho *et al.*, 2011). Topical corticosteroids have been shown to have improvement in conditions like atopic eczema, localized vitiligo, psoriasis, chronic eczema, and localized bullous pemphigoid (2,3). However, using steroids can be detrimental to health upon misuse (Anonymous, 2019; Ferrence and Last, 2009). Besides, evidence that topical steroids should be applied with caution has been brought to attention in recent times. The adrenal cortex produces corticosteroid hormones which are anti-inflammatory, antiproliferative, and immunosuppressive agents (Anonymous, 2019). Corticosteroids can be classified into seven classes based on the level of potency of which the most potent is Clobetasol propionate (0.05%) ((Anonymous, 2019; Ferrence and Last, 2009). Topical steroid is more potent than IV or oral steroid. Misuse of corticosteroids can lead to various side effects which are most commonly itching, atrophy, and dryness at the application site (Anonymous, 2019). The public is now exposed to over-the-counter medication involving corticosteroids. Over-the-counter fairness creams sold in India for hyperpigmentation have the following ingredients combined: Hydroquinone 2%, Tretinoin 0.025%, Hydrocortisone 1%, Mometasone 0.1%, Fluocinolone 0.015% (Gupta *et al.*, 2016). Lack of knowledge among the public has led to the unnecessary use of steroids leading to an unfavorable outcome. The use of corticosteroids in dermatology is significant for several conditions (Das and Saumya, 2017; and Dhar *et al.*, 2017). Topical corticosteroids have been shown to have improved in conditions like atopic eczema, localized vitiligo, psoriasis, chronic eczema, and localized bullous pemphigoid (Anonymous, 2019; Ferrence and Last, 2009). However, using steroids can be detrimental to health upon misuse (Gupta *et al.*, 2016; Oakley, 2016). Besides, evidence that topical steroids should be applied with caution has been brought to attention in recent times.

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CASE

A 25-year-old Indian female arrived at the General Medicine OPD with a four-month history of abdominal, groin, and breast ulcers. A comprehensive clinical history was acquired, and the patient was originally diagnosed with a urinary tract infection and small painless pustules on the vagina, for which ciprofloxacin was recommended. A week later, the patient administered Skinshine cream to her entire body in order to treat hyperpigmentation. The following are the ingredients in Skinshine cream: Topical hydroquinone, tretinoin, and mometasone furoate. Subsequently, she experienced irritation and itch spread throughout her body as a consequence of the skin shine cream's side effects. Scratching induced white striae to emerge on the thighs, breasts, and axillary regions. Later, the patient applied additional topical steroid ointment to manage her white striae and pustules on her vagina. However, the pustules erupted onto her thigh, abdomen, and breasts, prompting painful pustule production in subsequent locations. For a period of two months, a topical form of steroid (Clobetasol propionate) was applied continually. The pustules on the abdomen, thighs, and breasts ruptured leaving behind deep-seated wounds and ulcers.

The patient was using the following medication since pustules appeared on the skin:

Medication	Period of Use
Ointment Clobetasol	2 months
Tablet Ciprofloxacin	3 months
Tablet Aceclofenac	3 months
Injection Amikacin	1 month
Betnovate N Cream (contains Betamethasone valerate & Neomycin)	1month



Figure 1: Showing multiple Striae and deep-seated elliptical-shaped ulcers with pale granulation tissue on the abdomen and thighs.



Figure 2: Oval and Elliptical shaped ulcers with pale granulation tissue with surrounding white and red striae over both breasts.

Viral testing for HIV, Hepatitis B and C was recommended after a comprehensive evaluation of the patient. When the viral test results were negative, a complete blood picture and kidney profile were advised, along with a wound swab for culture and sensitivity. Both the complete blood picture and the renal profile were normal. *Escherichia coli* was isolated from the wound swab culture. According to the sensitivity reports, the patient is sensitive and resistant to the following antibiotics:

Antibiotics	Sensitive	Resistant
Ticarcillin/ Clavulanic acid	-	Yes
Piperacillin/Tazobactam	-	Yes
Ceftazidime	-	Yes
Cefoperazone/Sulbactam	-	Yes
Aztreonam	-	Yes
Trimethoprim/Sulfamethoxazole	-	Yes
Ciprofloxacin	-	Yes
Levofloxacin	-	Yes
Tigecycline	Yes	-
Doripenem	Yes	-
Amikacin	Yes	-
Gentamicin	Yes	-
Minocycline	Yes	-
Colistin	Yes	-

DISCUSSION

According to the literature, the majority of cases of Corticosteroid-induced ulcers are caused by either high-dose corticosteroids or medication interactions between corticosteroids and anti-VEGF medications (Shyam *et al.*, 2021). The most significant concern, however, is the widespread availability of over-the-counter lotions and ointments containing steroids, which are frequently misapplied. There have been documented examples in the past that suggest the use of steroids in intertriginous locations such as the groin, below the breast, and in the armpits are more prone to secondary infections and ulcerations (Epstein *et al.*, 1963). Patients with preexisting striae due to weight gain or reduction who used topical steroids had their striae widened and new striae appeared despite steroid withdrawal (Verma and Madhu, 2017). The mechanism is that topical corticosteroids

result in epidermal atrophy, delayed reepithelization, decreased collagen and ground substance production, decreased fibroblast growth, telangiectasia development, and delayed granulation tissue formation (Berna, 2017).

Inappropriate use of topical corticosteroids could lead to immunosuppression. The individual is more susceptible to secondary infection, both bacterial and fungal, as a consequence of immunosuppression. In this case, the patient was first medicated with medications for UTI and vaginal pustules. Afterward, the patient utilized Skinshine lotion, which contains Mometasone Furoate, a corticosteroid. Corticosteroids produced underlying dermal atrophy and irritation. The skin typically serves as a natural barrier against infection; however, the patient damaged a portion of the dermis where a topical steroid was given, destroying the protective barrier.

Striae appeared as a result of dermal layer damage. Despite the consequence, the patient continued to use Clobetasol cream, which has the highest potency among any topical steroid, resulting in additional dermal layer depletion, thinning, and immunosuppression. The erroneous administration of topical steroids has created a breeding environment that promotes secondary infection. The patient developed a secondary infection brought on by the striae over the entire abdomen, thigh, and breast, resulting in the emergence of large pustules. In wound swab culture, *Escherichia coli* (*E. coli*) was discovered to be the causal bacterium, which is a common pathogen identified in urinary tract infections. The pustules eventually ruptured as time passed, developing ulcers.

Steroid-induced ulcers are frequently treated with wound care and management. Most will resolve gradually once the application of steroids is discontinued. However, the issue appears to be caused by an unconscious practice of utilizing steroids. This problem has arisen among individuals from lower socioeconomic backgrounds because they are uninformed of the potential side effects and inappropriate use of steroids (Berna, 2017).

CONCLUSION

The general population should be informed about the mild to moderate effects associated with corticosteroids. Excessive and unnecessary application of topical corticosteroids may result in striae, skin ulceration, and a breeding ground for additional infections. As a consequence, over-the-counter creams and lotions which contain topical corticosteroids should be prohibited. Furthermore, every physician should make an effort to minimize the prescription of topical steroids whenever possible.

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