

Topical Corticosteroid-Induced Rosacea: A recurrent Medical Problem in Society

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Abstract: Inappropriate facial use of topical corticosteroids may lead to steroid-induced rosacea. Understanding patterns of corticosteroid use and associated clinical manifestations may help guide preventive interventions. Objective to describe the demographic and clinical characteristics of patients with steroid-induced rosacea and their patterns, purposes, and sources of facial topical corticosteroid use. This descriptive observational study included 60 patients with clinically diagnosed steroid-induced rosacea attending the dermatology department of Samarra General Hospital and a private dermatology clinic in Samarra, Iraq, between January 2024 and January 2025. Eligible patients reported continuous facial topical corticosteroid use for more than one month or intermittent use for more than three months. A structured questionnaire recorded demographic characteristics, corticosteroid preparations, purposes and sources of use, exposure duration, and clinical manifestations. Data were analyzed using descriptive statistics. Patients were aged 11–60 years, with a mean age of 33.7 ± 11.9 years; 43 (71.7%) were female. Clobetasol propionate was the most frequently reported preparation (25.0%), followed by mometasone furoate (20.0%). The principal purposes of use were melasma (28.3%), dermatitis (21.7%), and perceived improvement in facial freshness (20.0%). Reported photosensitivity (85.0%), diffuse facial erythema (78.3%), and dryness (70.0%) were the most common clinical manifestations. Pharmacists (21.7%), beauty centers (20.0%), and social media (18.3%) were the leading reported sources of corticosteroid use. Nineteen patients (31.7%) reported exposure exceeding six months. In this clinical series, steroid-induced rosacea predominantly affected women and frequently occurred in the context of cosmetic use and corticosteroid recommendations from sources other than dermatologists. The findings support targeted patient education, appropriate prescribing, and improved counseling on facial topical corticosteroid use.

Keywords: Steroid-Induced Rosacea, Topical Corticosteroids, Facial Corticosteroid Misuse, Cosmetic Use, Iraq

Introduction

Sulzberger and Witten invented topical corticosteroids (TCS) in 1952 [1], which are anti-inflammatory, immunosuppressive, vasoconstrictive, and antiproliferative and are now essential in dermatology [2]. They help control chronic inflammatory dermatoses such as eczema, psoriasis, vitiligo, and lichen planus when administered properly [2]. A growing number of people overuse topical corticosteroids (TCS), the most extensively used dermatological treatment, causing serious side effects [3].

Only use TCS on the face for acute inflammatory disorders and for no more than one month [4]. Properly applied topical corticosteroids provide great benefits and little negative effects. Along with their benefits, TCs may cause substantial local negative effects, particularly on the face, due to overuse, abuse, and indiscriminate usage. Local adverse effects on the face include acneiform eruption, perioral dermatitis, hypopigmentation, atrophy, contact allergy, rebound phenomena, and hypertrichosis [5], [6].

TCS on the face causes steroid rosacea, acneiform eruption, hypertrichosis, and demodicidosis. Centro-facial, perioral, and periocular steroid-induced rosacea are typical [7]. A new term, topical steroid dependent face (TSDF), describes symptoms like erythema or burning caused by topical steroid withdrawal [8]. Cosmetic usage of TCs, especially with bleaching treatments to brighten dark skin, is another abuse [9].

The current research aims to investigate this medical community disease and its potential origins since we believe this issue is prevalent in our everyday clinical practice.

Materials and Methods

This descriptive observational research included 60 patients with steroid-induced rosacea who visited Samarra General Hospital and private dermatology clinic in Iraq from January 2024 to January 2025 after giving informed permission.

These individuals had steroid-induced rosacea. Inclusion criteria: Patients with clinical symptoms and signs suggestive of topical steroid use on the face (steroid-induced rosacea) who had used TCS on the face continuously (for more than 1 month) or intermittently (for more than 3 months) for any purpose other than classical rosacea. Excluded: classical rosacea patients.

Exclusion criteria included: Patients not giving consent, diagnosed cases of rosacea, patients on systemic

corticosteroids and patients with preexisting morbidity like polycystic ovary syndrome, Cushing syndrome and thyroid disorders.

Clinicians made the diagnosis. A customized questionnaire collected demographics, age, illness duration, signs, and symptoms. We focused on corticosteroid therapy's kind, duration, intent, and source. The Samsung Galaxy S25 Ultra camera photographed patients for medical paperwork. Scientific calculators performed descriptive statistics.

Results

The research comprised 60 steroid-induced rosacea patients. Their ages varied from 11 to 60 years, with a mean $\pm$ SD of 33.7 ± 11.9 years. Table 1 shows patient ages. 23 patients were 31–40 years old, followed by 12 21–30 years old.

Table 1. Age Distribution of Face Topical Steroid Users.

Age distribution (years)	Number of patients
11-20	10
21-30	12
31-40	23
41-50	9
51-60	6

Regarding gender, this study showed that 43 (71.7%) patients of steroid-induced rosacea were females and 17 (28.3%) patients were males, as shown in figure 1.

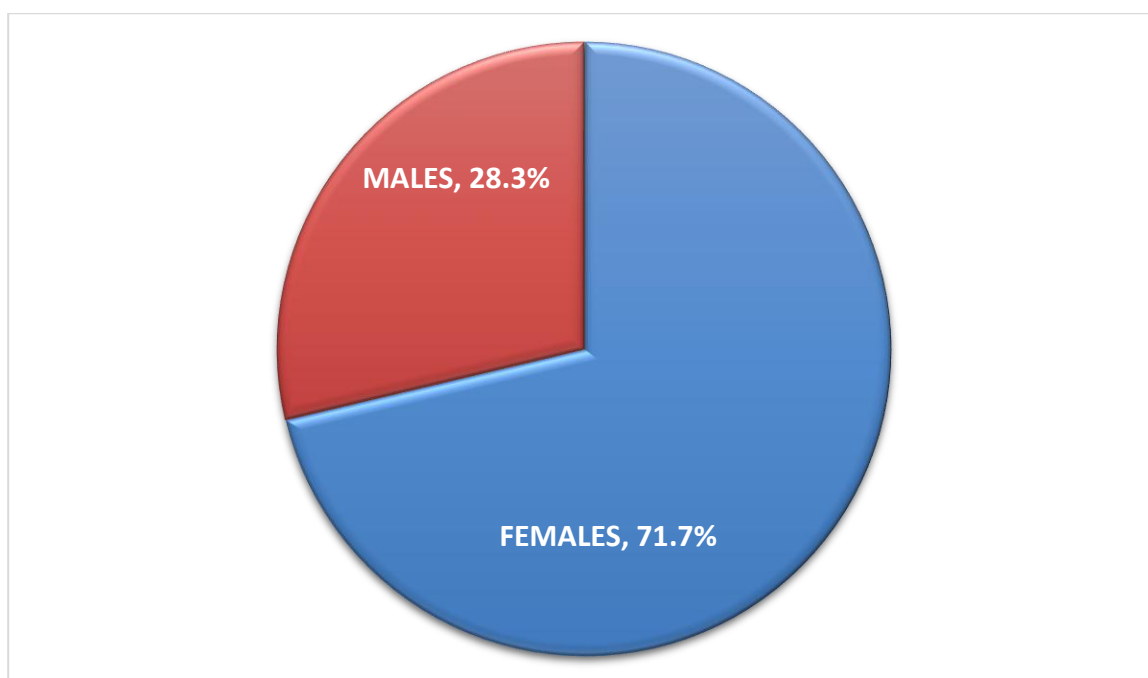


Figure 1. Gender distribution

Regarding the types of topical corticosteroid preparations used, clobetasol propionate was the most frequently reported preparation, used by 15 patients (25%), followed by mometasone furoate in 12 patients (20%). Betamethasone valerate and triamcinolone acetonide were each reported by nine patients (15%).

Table 2. Type of topical steroid molecules patients use

Type of topical steroid used	No. of patients	Percentage (%) (n = 60)
Clobetasole propionate	15	25
Betamethasone valerate	9	15
Mixed with cosmetics	8	13.3
Mometason furoate	12	20
Triamcinolone acetonide	9	15

Quadriderm	4	6.7
Hydrocortisone	3	5

Regarding the underlying conditions or purposes for which topical corticosteroids were used, melasma was the most common indication, reported in 17 patients (28.3%), followed by dermatitis in 13 patients (21.7%). 12 patients (20%) reported using topical corticosteroids for facial “freshness”.

Table 3. TCS usage grounds

Purpose of topical steroid use	No. of patients	Percentage(%) (n = 60)
Melasma	17	28.3
Dermatitis	13	21.7
Freckles (blemishes)	9	15
Freshness	12	20
Vitiligo	5	8.3
Non-specific	4	6.7

The clinical signs and symptoms observed among patients with steroid-induced rosacea are presented in figure 2. Photosensitivity was reported in 51 patients (85%), making it the most frequently observed clinical feature. Diffuse facial redness was reported in 47 patients (78.3%), followed by dryness in 42 patients (70.0%) and itching in 35 patients (58.3%). Facial hotness was reported in 28 patients (46.7%), while diffuse redness associated with papulopustules or nodules was observed in 20 patients (33.3%). Telangiectasia was reported in 18 patients (30.0 %).

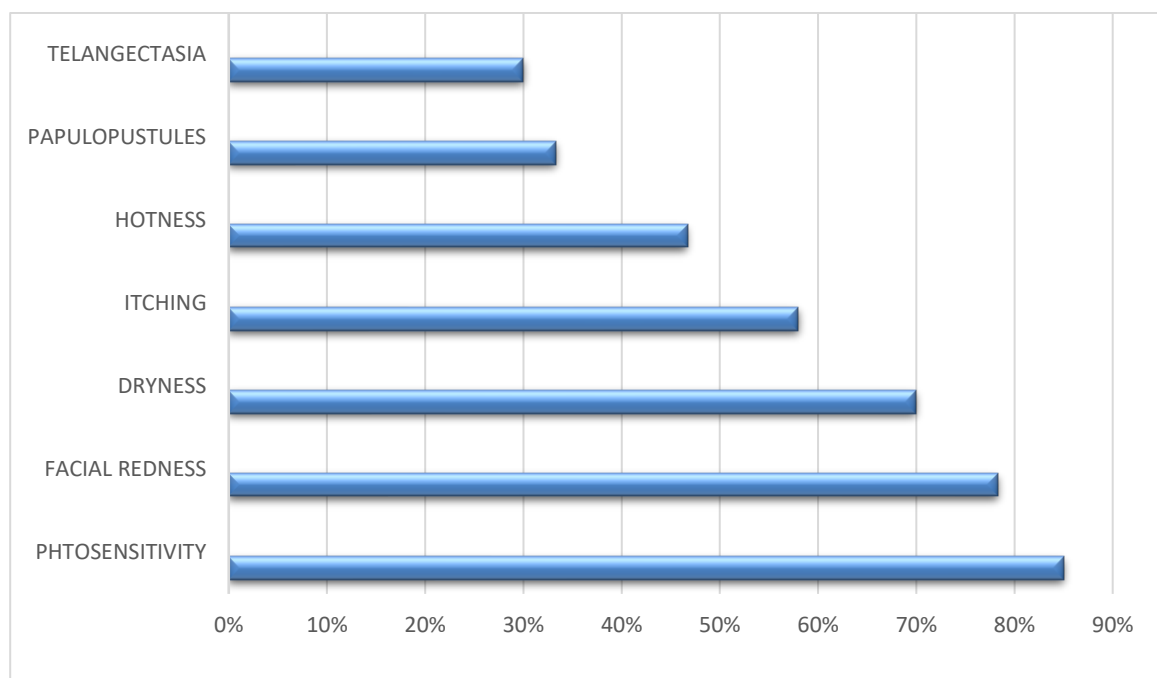


Figure 2. Clinical signs and symptoms of steroid-induced rosacea

Regarding the source of topical corticosteroid (TCS) prescription or use, Pharmacists were the most frequently reported source, accounting for 13 patients (21.6%), followed by beauty centers, who accounted for 12(20.0%) patients. 11(18.3%) patients depended on social media to get the topical steroid and use it on the face inappropriately.

Table 4. Source of TCS prescription

Source of TCS prescription	No. of patients	Percentage(%)
Dermatologist	9	15
Pharmacists	13	21.6
Beauty centers	12	20
Medical plants (herbal) shops	7	11.6
Social media	11	18.3

Relatives and friends	8	13.3
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Regarding the duration of topical corticosteroid use, the largest proportion of patients, 22 (36.7%), reported using topical corticosteroids for more than 1 to 3 months. This was followed by 19 patients (31.7%) who reported use for more than 3 to 6 months.

Table 5. Duration of use of cortisone

Duration	No. of patients	Percentage(%)
>1 to 3 months	22	36.7
>3 months to 6 months	19	31.7
>6 months to a year	12	20
> year	7	11.7

Regarding educational level, 23 patients (38.3%) had completed primary education, while 17 patients (28.3%) had no formal education. Secondary education was reported in 14 patients (23.3%), whereas only six patients (10%) had a university-level education.

Table 6. Level of education of patients with steroid-induced rosacea

"Level of education	Number of patients	Percentage(%)
None educated	17	28.3
Primary school level	23	38.3
Secondary school level	14	23.3
University level	6	10"



Figure 3. Topical corticosteroid-induced rosacea after 3 months use of mometasone ointment.



Figure 4. Topical corticosteroid-induced rosacea after 2 months use of clobetasol ointment.

Discussion

The most often used and abused topical medications are corticosteroids (TCs) [10]. TCs cure inflammatory dermatoses include psoriasis, eczema, lichen planus, atopic dermatitis, lichen simplex chronicus, vitiligo, and lupus erythematosus [11]. Unfortunately, TCs have been overused for lightening, acne, infections, pruritus, and rash because to their over-the-counter availability and bleaching and cosmetic advantages [12].

Topical corticosteroids are highly effective medications in the treatment of various inflammatory and immunological skin diseases when used appropriately. However, inappropriate, prolonged, or unsupervised use on the face may result in several adverse effects [3], [4].

Unlike systemic side effects, local TC adverse effects are common and increasing with ultrahigh-potency topical corticosteroids. Fortunately, systemic adverse effects are infrequent, although newborns and elderly people may have them. Potency-related side effects have increased with high-potency topical corticosteroids. These include epidermal and dermis effects as well as systemic absorption [13].

This research looked at 60 people who had steroid-induced rosacea and had used topical corticosteroids on their face for an extended length of time or sometimes. The study also explored the demographic characteristics, types and purposes of corticosteroid use, clinical manifestations, sources of use, duration of exposure, and educational level of the patients.

In the present study, females constituted the majority of patients, accounting for 43 cases (71.7%), compared with 17 males (28.3%). This female predominance is consistent with previous reports describing frequent inappropriate topical corticosteroid use on the face among women [4], [5], [9]. The predominance among females may partly reflect the cosmetic use of topical corticosteroids, particularly for facial pigmentation, perceived improvement in skin appearance, and skin-lightening purposes. Previous studies have similarly emphasized the cosmetic and social dimensions of facial corticosteroid misuse, particularly among women [4], [5], [9].

The age group of 31–40 years old had the highest percentage of patients (23 patients), followed by the age group of 21–30 years old (12 patients). The concentration of cases among young and middle-aged adults may reflect the use of facial cosmetic preparations and treatment of pigmentary or cosmetic concerns in these age groups. Previous studies of facial topical corticosteroid misuse have also reported substantial involvement of young and middle-aged adults [5], [6], [8]. With regard to the types of topical corticosteroid preparations, clobetasol propionate was the most frequently reported preparation, accounting for 15 patients (25%), followed by mometasone furoate in 12 patients (20%). The relatively frequent use of potent corticosteroid preparations on facial skin is of particular concern because facial skin

is susceptible to corticosteroid-induced adverse effects. Clobetasol propionate is a highly potent corticosteroid, and prolonged facial application may contribute to erythema, telangiectasia, atrophy, acneiform eruptions, and steroid-induced rosacea [3], [4], [6]. The use of corticosteroids in combination with cosmetic products is also noteworthy because cosmetic applications may encourage prolonged and unsupervised exposure [9]. Unlabeled versions of some counterfeit cosmetic goods included highly active corticosteroids including clobetasol and betamethasone [14].

The purposes for which topical corticosteroids were used provide important insight into the medical and social dimensions of the problem. Melasma was the most frequently reported purpose, occurring in 17 patients (28.3%), followed by dermatitis in 13 patients (21.7%). Twelve patients (20.0%) reported using topical corticosteroids for facial “freshness,” while nine (15.0%) used them for freckles or blemishes. Five patients (8.3%) reported use in relation to vitiligo, and four (6.7%) reported nonspecific purposes. These findings indicate that corticosteroid misuse in the present population was not restricted to the treatment of recognized inflammatory dermatoses. A considerable proportion of patients used corticosteroids for cosmetic purposes, particularly facial freshness, freckles, blemishes, or pigmentary disorders. Similar patterns of cosmetic and non-medical use have been described in previous studies of facial topical corticosteroid misuse (4,5,9). The use of topical corticosteroids for melasma is particularly problematic because inappropriate or prolonged use may produce significant cutaneous adverse effects and complicate the clinical assessment and management of the underlying condition.

The clinical manifestations observed in the present study demonstrate the heterogeneous nature of steroid-induced facial disease. Clear photosensitivity was reported by 51 patients (85.0%), while diffuse facial redness was reported by 47 (78.3%), dryness by 42 (70.0%), itching by 35 (58.3%), facial hotness by 28 (46.7%), diffuse redness associated with papulopustules or nodules by 20 (33.3%), and telangiectasia by 18 (30.0%). These manifestations are broadly compatible with the clinical spectrum reported in patients with topical corticosteroid-induced facial dermatitis and steroid-induced rosacea [6]-[8]. Facial erythema, burning or hotness, dryness, and telangiectasia are recognized manifestations associated with inappropriate topical corticosteroid use on the face [3], [6], [7].

Diffuse facial redness was observed in 78.3% of patients and represents an important manifestation of steroid-induced facial dermatitis. Repeated corticosteroid exposure may produce vascular changes and rebound erythema, particularly following reduction or discontinuation of the medication. Telangiectasia was present in 30% of patients, which is consistent with the recognized vascular adverse effects of prolonged topical corticosteroid exposure [3], [6]. The occurrence of papulopustules or nodules in 33.3% of patients further demonstrates that steroid-induced rosacea may overlap clinically with acneiform and rosacea-like eruptions. These overlapping manifestations emphasize the importance of obtaining a detailed history of topical corticosteroid exposure when evaluating patients presenting with unusual or persistent facial erythema.

The source of topical corticosteroid use was another important finding. Pharmacists were the most frequently reported source, accounting for 13 patients (21.6%), followed by beauty centers in 12 patients (20.0%), social media in 11 patients (18.3%), dermatologists in nine patients (15.0%), relatives and friends in eight patients (13.3%), and medical plant or herbal shops in seven patients (11.6%). Thus, most patients obtained or were advised to use topical corticosteroids through sources other than dermatologists. This finding is consistent with previous reports describing the widespread availability and non-prescription use of topical corticosteroids as important contributors to facial corticosteroid misuse [4], [5], [8]. The relatively high proportions of patients reporting beauty centers and social media as sources are particularly relevant because cosmetic advice and product recommendations can be obtained without professional medical assessment. Nevertheless, the present study identifies these sources descriptively and does not establish a causal relationship between them and the development of steroid-induced rosacea.

The duration of corticosteroid use also demonstrates the prolonged nature of exposure among many patients. Twenty-two patients (36.7%) reported use for more than one to three months, 19 (31.7%) for more than three to six months, 12 (20.0%) for more than six months to one year, and seven (11.7%) for more than one year. Therefore, almost one-third of the patients reported corticosteroid use extending beyond six months. Prolonged exposure to topical corticosteroids, particularly on facial skin, increases the opportunity for cumulative local adverse effects and may contribute to persistent or recurrent facial dermatitis. The duration of use is consequently an important component of clinical assessment in patients suspected of steroid-induced rosacea [3], [4], [6].

The educational profile of the patients also provides an important social context. Twenty-three patients (38.3%) had completed primary education, 17 (28.3%) had no formal education, 14 (23.3%) had secondary education, and only six patients (10.0%) had university-level education. There is a wide range of symptoms associated with the widespread use of topical corticosteroids on the face. Immediate corrective action and public education on this issue are required [15]. The predominance of patients with no formal education or primary education may indicate a need for clearer public education regarding the potential adverse effects of unsupervised facial corticosteroid use.

The findings demonstrate that inappropriate facial topical corticosteroid use remains an important medical and social problem. The predominance of non-dermatological sources of corticosteroid use, the frequent use of potent preparations, the substantial proportion of cosmetic indications, and the presence of multiple facial adverse

manifestations highlight the need for improved awareness among patients and healthcare providers. Rational prescribing, appropriate counseling regarding facial corticosteroid use, and increased public awareness may help reduce inappropriate exposure and the subsequent development of steroid-induced rosacea. Pharmacists, cosmetic providers, and social media platforms may also represent important targets for educational interventions because they constituted substantial sources of corticosteroid use in this study.

Conclusion

Inappropriate and prolonged facial use of topical corticosteroids is an important medical and social problem associated with steroid-induced rosacea. In this study, the condition predominantly affected females aged 31–40 years and was frequently associated with cosmetic use and corticosteroid preparations such as clobetasol propionate and mometasone furoate. Many patients obtained these medications without dermatological supervision, and common clinical manifestations included facial redness, dryness, itching, and photosensitivity. These findings emphasize the need for increased public awareness, rational prescribing, and appropriate dermatological supervision to prevent corticosteroid misuse and its associated complications.

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