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Dermoscopic Assessment in Cases of Topical Steroid Damaged Face

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Abstract:

BACKGROUND: In recent years, use of topical steroids by common people is on increase. Due to easy availability over the counter and minimal price of the topical steroid drugs, they are applied by the general population for longer duration. Topical steroid damaged face in an acquired state due to long term misuse of topical steroids on face due to various reasons (most common being acne, tinea,skin brightening agent). The most commonly misused topical steroid is betamethasone. Dermoscopy being anon-invasive and minimal time-consuming procedure, is easier to perform and helps in correct diagnosis. It also helps in early diagnosis of TSDFdue to itsand helps in controlling further damage done by use of topical steroids. Hence, the importance of dermoscopy in topical steroid damaged face as a non-invasive as also as in early diagnosis is emphasized.

OBJECTIVES: The objective being to observe the various dermoscopic features of TSDFpatients which helps in differentiating from various other entities.The importance of dermoscopy in early, non-invasive and accurate diagnosis of topical steroid damaged face is another objective. The importance of dermoscopy in being non-invasive and minimal time-consuming technique is another important objective.

METHODS: It is an observational, cross-sectional study.A sample size of 45 patients of suspected/diagnosed cases(18-60yrs) of TSDF would be enrolled at AVBRH, Sawangi Skin outpatient department whose dermoscopic features would be observed. The dermoscopy of such suspected and diagnosed patients will be done with the dermlite 3N dermoscope and the various features will be noted.

RESULTS: The observations will be made according to the objectives and will be tabulated which will be subjected to statistical tests for its significance and conclusions.

CONCLUSIONS: The conclusions will be based on the findings for study of protocol.

KEYWORDS: Dermoscopy, Steroids, Face

INTRODUCTION:

Steroids were first used topically by Sulzberger and Witten in 1951[1]. Steroids are commonly prescribed drugs by dermatologists and most commonly used drugs by general

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population[2]. Steroids are indicated in management of diseases such as dermatitis, dry skin, insect bite, intertrigo, lichen planus, Polymorphic light eruptions, alopecia areata, discoid lupus erythematosus, psoriasis and eczema. These drugs are prescribed by the dermatologists for a specific required duration and frequency. The patients tend to continue application of steroids for longer periods due to rapid relief of symptoms. Due to easy availability over the counter and being available at nominal price, they tend to misuse/overuse the topical steroids. The most common reasons being for lightening of skin,melasma, sun tan and mild acne[3][4]. In an attempt of financial benefit, pharmaceutical companies market drugs containing steroids to boost sales (Modified Klingman's formula is primeexample)[4].The trust showed by laymen on chemists and salesmen resulted in unprecedented increase in sale of steroids and thus its overuse/misuse[5][6]. Patients also apply steroid creams on recommendations of friends, relatives and neighbours. The various fairness creams available in the market which are in high demand are steroid combinations. Prescriptions by doctors may be improperly written in aspects of duration, frequency and amount. Patients tend to self-medicate or continue usage of the steroids for longer periods due to the relief experienced by the patients. This overuse/misuse of steroids results in plethora of cutaneous symptoms (adverse effects) known as 'Topical Steroid Damaged Face'.

The skin width/density of face is very less as compared to rest of the body making more easy absorption of drugs and causing easy damage by topical steroids by their abuse.[4]
Topical steroid damaged face entity includes misuse of topical steroids on the face over alengthened period of time, psychological dependence resulting in cutaneous symptoms as erythema, monomorphic acne, steroid induced rosacea, telangiectasia(small blood vessels dilation), perioral dermatitis, striae, skin atrophy, inflammatory papules and pustules as also severe addiction to Topical corticosteroids. The various adverse cutaneous side effects seen are skin atrophy/thinning, stria, purpura, easy bruisability, infections, tinea incognito, tachyphylaxis, hyperpigmentation, hypopigmentation, hirsuitism[3]. Withdrawal of TC causes reddening of skin(erythema) for about 2 weeks further followed by peeling of skin i.edesquamation resulting in ongoing cycle of flaring up and resolution which continues for the time period[4]. Some patients may also develop status cosmeticus(term coined by Fisher which is also known as sensitive skin syndrome characterised by burning, stinging or severe facial irritation) or chronic actinic dermatitis(itchy, inflamed and dry thick skin).Erythema occurs both as a side effect as also misuse making it a hallmark of topical steroid damaged face, initially known as red face syndrome[4].

The most commonly abused topical steroids are Betnovate(betamethasone), skinlite (combination containingmometasone),melacare (combination containing mometasone),panderm(combination containing clobetasol),fourderm(clobetasol combination) ,lobate (clobetasol combination),quadriderm (beclomethasone combination)[2]
TSDF(topical steroid damaged face) is type of drug dependence which is an acquired state that develops from repeated drug administration and which results in withdrawal on stoppage of drug use[4]. Attempts to cease use of drugs results in rebound of symptoms causing state of anxiety to patients so that the patient resumes the use of topical corticosteroids and disagrees further to withdraw the drug. Addiction of topical steroids occurs when it is unsupervised for a lengthened period in proper indication, misused for wrong indication, wrong potency, wrong age group or wrong site.

The anti-proliferative and anti-inflammatory actions of topical steroids results in therapeutic relief which also is a causeof its side effects[1]. The unwanted effects of steroids are related to its high potency which has become more prevalent due to availability of high potency

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topical steroids. Corticosteroids alter the actions of dermal and epidermal cells; leukocytes taking part in proliferative and inflammatory skin diseases. They stimulate production of glycoprotein, lipocortin[2] (by entering into nucleus of cell and changes the transcription of mRNA responsible for inhibition or stimulation of specific proteins). This lipocortin ceases the function of phospholipase A2, which is responsible for secretion of arachidonic acid. Arachanoid acid is the predecessor molecule of leukotrienes and prostanoids. Corticosteroids also inhibit interleukin1 formation. Effects of corticosteroids on arachidonic acid metabolism and interleukin-1 formation through production of lipocortin produce immunosuppressive, anti-inflammatory,and anti-mitogenic effects[1]. The 3 changes observed in the skin sequentially are:-pre-atrophy, atrophy and tachyphylaxis[1]. Steroid induced small skin blood vessels dilation(telangiectasia) is due to stimulation of release of nitric oxide from endothelial cells of dermal blood vessels leading to abnormal dilatation of capillaries. Inhibition of keratinocyte proliferation, collagen I and III synthesis by steroids results in skin atrophy[1]. Topical steroids induced chronic immunosuppression results in profuse growth of micro-organisms, which acts as superantigen, resulting in superantigen induced inflammatory reaction (inflammatory pustules and papules)[4].

It is important to differentiate topical steroid damaged face from other entities as line of management depends on the proper diagnosis. Rosacea presents with similar features as steroid damaged face so differentiating it is important. Clinical features alone are not helpful in diagnosis. Here comes the role of dermoscopy, where the features observed on dermoscope leads to confirmation of diagnosis of Topical steroid damaged face.
Dermoscopy is also known as ‘epiluminoscopy’. Dermoscopy is a non-invasive method that allows assessment of microstructures of epidermis, dermo-epidermal junction and papillary dermis which are not visible to naked eye. The main use is to evaluate pigmented skin lesions. It is composed of superior magnifying lens and strong lighting system. The light emitted from the dermoscope is either reflected, refracted, diffracted or absorbed depending upon the physical property of the skin examined. Dermoscopy can help us to identify features of steroid damaged face and help in confirming the same without any invasion. The dermoscopic features of Topical steroid damaged face which helps in its diagnosis are small dilated blood vessels(telangiectasias), ivory white-to-strawberry-coloured patches and increased hair width and thickness of affected area (lesionalhypertrichosis)[7]. Hence we try to study the various dermoscopical features observed in topical steroid damaged face. We also try to understand the importance /superiority of dermoscope as a non-invasive method and minimal time consuming technique in diagnosing topical steroid damaged face.

RATIONALE/NEED FOR THE STUDY:

Steroid abuse is on increase in recent years due to easy availability, wrongly suggested by chemists, continuance of application inspiteof non-recommendation by medical practitioners, friends, relatives and neighbours.Rapid relief of symptoms and skin brightening being the main reasons behind the abuse.Patients are not aware of the severity of damage done by steroid creams.
Dermoscopy being a non-invasive and minimal time-consuming method helps in early diagnosis of damage done to face by steroid creams. Dermoscopy is useful in differentiating steroid damaged face from other disorders presenting with similar manifestations as rosacea. It helps in confirming cases of topical steroid damaged face when only clinical manifestations are present. It helps in preventing prolonged misdiagnosis and thus further damage caused to face by topical steroids by continuation of their application. The need for this study is to observe the various dermoscopic features of topical steroid damaged face and understand the

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importance of dermoscopy as a non-invasive method in early diagnosis as also in confirming the diagnosis of topical steroid damaged face.

RESEARCH QUESTION

What are the various dermoscopic features observed in cases diagnosed/suspected of topical steroid damaged face?

AIM AND OBJECTIVES

AIM

To study the variousdermoscopic features/findings in patients of Topical Steroid Damaged Face.

OBJECTIVES

1) To study the clinic-epidemiological pattern of topical steroid damaged face cases
2) To study dermoscopic findings in Topical steroid damaged face.

MATERIALS AND METHODS

PLACE OF STUDY: Out-patient department of dermatology, Venereology and Leprosy, AVBRH Sawangi Meghe, Wardha

STUDY DESIGN

Observational prospective and cross sectional study.

PERIOD REQUIRED FOR DATA COLLECTION

2 years

STUDY SETTING

Patients diagnosed/suspected of topical steroid damaged face >18years attending Out patient Department of Dermatology, Venereology and Leprosy AVBRH, Jawaharlal Nehru Medical College, Sawangi, Wardha India from October 2020 to September 2020

SAMPLE SIZE

n = [Zα/2]2 xP(1-P)/ d2

Where, Z α/2 is the level of significance at 5% i.e 95%

confidence interval=1.96

P=Prevalence of steroid damaged face=5.63 = 0.0563

d=Desired error of man = (1.96)2 x 0.00563x (1-0.0563)/(0.07)2

n = 41.65

n = 45

STUDY POPULATION

45 patients as cases including both male and female, with age >18years, who has been diagnosed for Topical steroid damaged face in outpatient department of Dermatology, Venereology and Leprosy at AVBRH Sawangi

INCLUSION CRITERIA

1) Patients with age >18 years irrespective of gender.
2) Patients willing to participate
3) Patients irrationally applying/applied topical steroids on face for variable indications

EXCLUSION CRITERIA

4) Patients with age >60 years
5) Patients on systemic steroids

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METHODOLOGY

Patients with clinical diagnosis/suspected of Topical steroid damaged face with age > 18years, who will be attending the Out Patient of Dermatology, Venereology and Leprosy AVBRH, Jawaharlal Nehru Medical College, Sawangi, Wardha, will be enrolled from October 2020 to September 2022. Institutional Ethics Committee's permission will be taken. Written informed consent will be taken/written from all the patients for voluntary participation. A thorough history including age, gender, educational status, socio-economic status, Employment, Marital status, occupation, Topical drug history of steroids application, Indication of application and Duration of application, potency of the topical steroids will also be noted. A thorough history of source of recommendation of steroids (friends, relatives, neighbours, chemists, salesmen, Non-allopathic doctors, M.B.B.S or quacks), frequency, content with percentage of steroid creams and duration of application of steroids will be noted. Brand of steroid with its potency will also be noted. Indication of application, frequency of application (number of tubes used per week /month), adverse effects caused due to the misuse along with detailed clinical cutaneous examination will be taken. Dermoscopic examination will be done at the outpatient department of dermatology, venereology and leprosy,A.V.B.R.H, Sawangi with Dermlite 3N.The dermoscopic features/changes will be observed and noted.

OUTCOME MEASURES

To observe the various dermoscopic features of topical steroid damaged face in patients with age >18 years.

STATISTICS

Statistical analysis will be done using appropriate parametric and non-parametric tests

SCOPE

This study will help in discerning various dermoscopic features of topical steroid damaged face and based on those features: scope of dermoscopy as an non-invasive, and superior, minimal time consuming method for accurate diagnosis of topical steroid damaged face will be highlighted. Importance of dermoscopy in ruling out other clinical entities presenting similar to topical steroid damaged face will also be highlighted

LIMITATIONS: It is a hospital-based study and not a population-based study.

DISCUSSION

Topical steroid damaged skin: Anil Abraham et.al, Gillian Roga: In this study the importance of appropriate use of topical steroids with right potency and right duration is highlighted. Also the prolonged use of steroids is to be avoided is suggested by this article[1]

Topical Corticosteroid Misuse: The Scenario in Patients Attending a Tertiary Care Hospital in New Delhi SantwanaMahar et.al, KhushbuMahajan , Swati Agarwal , Hemanta Kumar Kar , Swapan Kumar Bhattacharya : The study was conducted for 5 months over 2174 outpatients of which 256 showed misuse of topical steroids with acne and tinea incognito as most common side effects.[2]

Misuse of topical corticosteroids: A clinical study of adverse effects Vivek Kumar Dey et.al : the study was conducted on 6723 outpatients of which 379 misused topical steroids with acne, generalised erythema, hypertrichosis, hypopigmentation, cutaneous atrophy, tinea incognito were noted as adverse effects.[3]

Topical corticosteroids abuse: A clinical study of cutaneous adverse effects SoniyaMeena et.al Lalit Kumar Gupta, Ashok Kumar Khare, ManishaBalai, Asit Mittal, Sharad Mehta,

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GarimaBhatri: in this study out of 85280, 370 presented with adverse effects of tc. Males predominantly of age group 11-30 years with tinea as most common indication were noted abusing tc.[4]

Topical steroid damaged face: an entity of cutaneous pharmaco-dependence: In this article the various cutaneous side effects of topical steroid damaged face is described. The role of government, health workers, pharmaceutical companies, chemists in preventing cases of topical steroid damaged face is emphasized.[5]

Misuse of topical corticosteroids: A.L Dhalimi et.al, N. Aljawahiry : In this study out of 1780 patients, 140 patients abused topical corticosteroids due to recommendation by paramedical personnel, patients friends and family. Importance of education to public through various media programmes regarding adverse effects of topical steroids was highlighted.[6]

The role of dermoscopy in topical steroid damaged face: SiddharthSonthalia et.al, Abhijeet k Jha, Reena Sharma: a 29year old male presented with erythema of 6 month duration; on dermoscopy prominent telangiectasia, ivory white to strawberry coloured patches and hypertrichosis were noted. The patient was in denial of steroid use and here dermoscopy played an important role in early diagnosis preventing delay in diagnosis and further damage to skin.[7].

A number of related studies and interesting cases were reported in this region [8-10]. Few of the key studies were reviewed [11-13]. Verma and Madke reported a case of Topical Corticosteroid Induced Ulcerated Striae[14]. Verma et. al. also reported a rae case of Pseudoedematous Striae [15].

CONCLUSION:

In this study, the various dermoscopic features of patients diagnosed/suspected with topical steroid damaged face are observed. The importance of dermoscopy in differentiating and thus diagnosing topical steroid damaged face is highlighted. It being a non-invasive technique and minimal time consuming, its superiority over other techniques is highlighted.

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