

Irrational Corticosteroid Use Causing Extensive Striae Distensae

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Abstract: *Striae distensae are commonly seen in pregnancy, pubertal growth spurt, as well as conditions causing rapid change of weight such as obesity, anasarca, and corticosteroid excess. The research study has clearly analysed and reported that a 26-year-old male with history of long term corticosteroid use for a possible dermatophyte infection who presented with multiple, linear, atrophic lesions present over his limbs, chest and abdomen. Patient had received treatment from both allopathic and native medicine practitioners. This case serves to be a revelation as the irrational use of corticosteroids may cause harm in many aspects.*

Keywords: Striae distensae, Corticosteroids, steroids

1. Introduction

Striae distensae is described as a clinical entity hundreds of years ago, and in 1889 the first histologic descriptions appeared in the medical literature [7] Striae distensae are linear dermal scars which are produced as a result of excessive stretching of the skin. Striae distensae has been found in two forms i.e., striae rubrae and striae albae [6]. The acute stage (striae rubrae) is characterized by the initial erythematous, raised, bluish-to-white with a wrinkled surface and stretched flat (in some cases appear slightly raised) lesions which are aligned perpendicular to the direction of skin tension and can be symptomatic, whilst the chronic stage (striae albae) is classified when SD have faded and appear atrophic, wrinkled, and hypopigmented. Striae distensae are commonly seen in pregnancy, pubertal growth spurt, as well as conditions causing rapid change of weight such as obesity, anasarca, and corticosteroid excess^[2]. They are also seen in pathological conditions with hypercortisolism like Cushing's syndrome[15] and genetic disorders such as Marfan syndrome[1]. Striae distensae sometimes may occur as a side effect related to drugs such as local or systemic corticosteroid therapy [11] and anti-retroviral protease inhibitors (indinavir)[5]. Primary pathology lays in altered dermal connective tissue framework involving components of extracellular matrix (ECM) namely fibrillin, elastin, fibronectin and collagen [18,17]. Clinically Striae distensae appear as multiple, symmetric, well defined, irregularly linear, red to pale coloured (depending upon the stage) atrophic scars which follows the lines of cleavage and lies parallel to the skin surface. Diagnosis of striae is often clinical and straight forward without any need of specific investigation [3]. It is expectable that prescribing corticosteroids may produce a wide range of undesirable adverse effects. This has led, in fact, to a "steroid phobia" among patients [10]. The adverse effects of glucocorticoids tend to be more severe with

systemic rather than with topical treatment[13].

The aim of this paper was to analyze a case report of 26-year-old male noticed with dermatophyte infection, who was chronically on corticosteroids prescribed irrationally by both medical and native medicine practitioners which led to extensive striae distensae along with drug induced GERD.

2. Case Study

26-year-old male patient had with the history of nausea, regurgitation, weight gain and moderate alcohol consumption was investigated for this study. Patient was taking treatment for the skin disease – possibly a tinea infection for the past one year. He had noticed with itching and abdomen pain of 1-year duration with multiple striae present all over the body. He was apparently normal before 1 year then he developed a skin lesion on his right feet, which upon medication initially reduced but then gradually spread to other parts of his body. Patient had been taking treatment for the skin condition ever since. Patient had received medication and injections from allopathic and native medicine practitioners for his skin condition. Nonetheless, the patient was being gotten with the historical backdrop of taking cetirizine, fluconazole, clotrimazole, ketoconazole, terbinafine, beclomethasone and getting various infusions of dexamethasone through Intramuscular course. His vitals were stable and systemic examinations were within normal limits. Moreover multiple, hyperpigmented, symmetric, well defined, linear, atrophic lesions were present over both his upper limbs and lower limbs, trunk, chest and abdomen along with multiple hyperpigmented plaques with scaling seen over his neck, trunk and both upper limbs. He did not have a cushingoid habitus (Fig.1).



Figure 1: Disseminated location of striae distensae all over the body after abuse of corticosteroids

His routine laboratory investigations such as CBC, RFT, RBS, Electrolytes, lipid profile and urine routine were within normal limits. Chest X ray and ECG was normal. HIV – negative, HBsAG- non-reactive and anti HCV – negative. Other investigations revealed an elevated AEC – 2250, USG abdomen showed Fatty liver grade III and Mantoux test – negative (Table 1). UGI Endoscopy was done on account of chronic abdomen pain and it showed an impression of Gastroesophageal reflux disease. A provisional diagnosis of a combined dermatophyte infection with steroid induced striae and drug induced GERD was contemplated. Patient was treated with itraconazole 200mg per day in divided doses, Ketoconazole soap, antihistamines and proton pump inhibitors. Patients dermatophyte lesions showed 30-40% improvement in 7 days time, his GI symptoms improved and he was discharged at request with periodical review and advised to abstain from alcohol.

3. Discussion

The clinical discoveries in the current case are perfect with the highlights of striae distensae due to the intake of steroids for a while and associative oral contraceptives in youthfulness. Regardless of various aetiological hypothesis, the pathogenesis of striae distensae stays a challenge. Corticosteroids are one of the most commonly prescribed drugs for systemic as well as topical use. From the time of their discovery in 1940's, steroids have been found to be beneficial in many auto-immune and inflammatory conditions. The adverse effects attributed to their use include osteoporosis, adrenal suppression, hyperglycemia, cardiovascular diseases, psychiatric disturbances, immunosuppression and dermatologic changes [16].

Corticosteroids rapidly relieve the symptoms in fungal diseases but ultimately suppress the local immunity leading to recurrences of the infection. Evidences indicate that combinations of topical corticosteroid and antifungals should be avoided due to the relapse of fungal infections, and the ultra-high topical steroids should be restricted only to severe dermatoses and not to be used for more than 3 weeks.[2]

Striae distensae are the type of atrophic dermal scars produced due to overstretching of skin in a direction perpendicular to the force of greatest tension. They are not only produced in physiological conditions such as pregnancy or weight gain but may also result due to excess endogenous or exogenous corticosteroids.[9] Steroids cause skin atrophy possibly due to changes in the dermal connective tissue framework by reducing synthesis and altering the structure of collagen, glycosaminoglycans, and fibroblast [11].

Striae distensae are characterized by a thinning of connective tissue stroma to produce linear, atrophic-appearing skin, which appear in areas of dermal damage produced by stretching of skin. The striae appear as white or purple parallel streaks of thinned and glossy skin. The striae may be slightly depressed and have a different texture than surrounding normal skin. Striae are dermal scars accompanied by epidermal atrophy. They are often associated with abdominal enlargement of pregnancy

Table 1: Investigation of the study Patient

S.No	Investigation	Value
1.	Complete Blood Count (CBC)	
	Haemoglobin	13.1 g/dl
	Total WBC Count	8100 cells/cumm
	Platelets count	2,71,000/ μ L
	ESR (1 hour)	10mm
2.	Random Blood Sugar (RBS)	104 mg/dl
3.	Renal Function Test (RFT)	
	Urea	18 mg/dl
	Creatinine	0.9 mg/dl
4.	Electrolytes	
	Sodium	138mmol/L
	Potassium	3.9 mmol/L
	Chloride	99 mmol/L
	Bicarbonate	25 mmol/L
5.	Lipid Profile	
	Total cholesterol	129mg%
	Triglycerides	130mg%
	HDL	35 mg%
	LDL	57 mg%
	VLDL	37 mg%
6.	HIV	Non-reactive
7.	HBsAG	Negative
8.	HCV	Negative
9.	Mantoux test	Negative
10.	Chest X-Ray	Normal
11.	ECG	Normal

(abdomen and breast), in obese adults and children, during rapid growth of puberty in males and females (inner aspect of arms and thighs), on the shoulders of young male weight lifters, and hypercortisolism due to Cushing's syndrome or prolonged use of oral or topical corticosteroid (breasts, hips, thighs, buttocks, abdomen, and flanks). Very rarely, severe, extensive striae may ulcerate or tear when an accident or excessive stretching occurs. Striae distensae are an appreciable cosmetic problem, especially in pregnant women.

Seshadri et al.[14] and Choe et al. [4] have proposed different mechanisms for this phenomenon of edematous SD, namely altered dermal mechanics with higher content of hydrophilic glycosaminoglycans, disintegration of collagen, and lowered tensile strength of striae. As compared to other striae, the systemic steroid-induced SD is larger and broader in nature, leading to preferential stretching and swelling of these SD by edema fluid rapidly.

4. Conclusion

Lack of qualified dermatologists, more so in rural areas, is also compounding the problem of irrational use of corticosteroids. There are about 7.5 lakh chemists in India, who in the absence of qualified medical practitioners, are the point of first contact for majority of Indian population for minor healthcare ailments. Also, it has been sometime observed that even trained physicians and dermatologists are prescribing either the wrong strength of TC or for the wrong indication.[12] Topical tretinoin (0.1%) and Lasers of various types are used in treating striae, and seem to be a promising mode of treatment. [7,8].

References

- [1] Agg B, Benke K, Szilveszter B, Polos M, Daroczi L, Odler B, et al. "Possible extracardiac predictors of aortic dissection in Marfan syndrome". *BMC Cardiovasc Disord*, pp.14:47,2014.
- [2] Alston SJ, Cohen BA, Braun M. "Persistent and recurrent tinea corporis in children treated with combination antifungal/corticosteroid agents", *Pediatrics*, 111, pp.201–3,2003.
- [3] Archana J. Lokhande and Venkataram Mysore, "Striae Distensae Treatment Review and Update", *Indian Dermatol Online J*. 10(4), pp.380–395,2019.
- [4] Choe SW, Yoon YH, Seo SJ, Hong CK, Yu SH. "A case of edematous striae distensae by corticosteroid and generalized edema in nephritic syndrome", *Korean J Dermatol*, 42, pp.1238-40,2004.
- [5] Darvay A, Acland K, Lynn W, Russell-Jones R, "Striae formation in two HIV-positive persons receiving protease inhibitors," *J Am Acad Dermatol*, 41, pp.467–9,1999.
- [6] Elson ML. Topical tretinoin in the treatment of striae distensae and in the promotion of wound healing: a review. *J Dermatol Treat*, 5, pp. 163–165,1994.
- [7] Garcia Hidalgo L, "Dermatological complications of obesity". *Am J Clin Dermatol*, 3, pp.497-506,2002.
- [8] Kang S, Kim KJ, Griffiths CE, et al. "Topical tretinoin (retinoic acid) improves early stretch marks", *Arch Dermatol*, 132, pp 519-26,1996.

- [9] Maari C, Powell J. "Atrophies of connective tissue". In: *Bohlognia JL, Schaffer JV, Cerroni L, editors. Dermatology*. 4th ed. China: Elsevier, pp. 1727- 1728,2017.
- [10] Maibach H.I and C. Surber, *Topical Corticosteroids*, Karger, New York, NY, USA,1992.
- [11] Nuutinen P, Riekkari R, Parikka M, Salo T, Autio P, Risteli J, et al. "Modulation of collagen synthesis and mRNA by continuous and intermittent use of topical hydrocortisone in human skin. *Br J Dermatol*. 148, pp.39–45,2003.
- [12] Rathod SS, Motghare VM, Deshmukh VS, Deshpande RP, Bhamare CG, Patil JR. "Prescribing practices of topical corticosteroids in the outpatient dermatology department of a rural tertiary care teaching hospital", *Indian J Dermatol*. 58, pp.342–5,2013.
- [13] Schacke H, W. D. Döcke, and K. Asadullah, "Mechanisms involved in the side effects of glucocorticoids," *Pharmacology and Therapeutics*, 96(1), pp. 23–43,2002.
- [14] Seshadri D, Rathi M, George J, Kanwar AJ. Fluid "Within Striae—An Unusual Phenomenon". *J Case Rep*, 3, pp.331-3, 2013.
- [15] Shuster S. "The cause of striae distensae". *Acta Derm Venereol Suppl (Stockh)*, pp.59:161–9,1979.
- [16] Singh N, Rieder MJ, Tucker MJ. "Mechanisms of glucocorticoid-mediated anti-inflammatory and immunosuppressive action", *Paediatr Perinat Drug Ther*, 6, pp.107–15,2004.
- [17] Tung JY, Kiefer AK, Mullins M, Francke U, Eriksson N. "Genome-wide association analysis implicates elastic microfibrils in the development of nonsyndromic striae distensae", *J Invest Dermatol*, 133, pp.2628–31,2013.
- [18] Watson RE, Parry EJ, Humphries JD, Jones CJ, Polson DW, Kielty CM, et al. "Fibrillin microfibrils are reduced in skin exhibiting striae distensae", *Br J Dermatol*, pp.138:931–7,1998.

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