



Cushing Syndrome and Adrenal Insufficiency Following Topical Steroids Misuse: Case Report

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Abstract

Introduction: Cushing Syndrome (CS) results from abnormally high blood levels of cortisol or other glucocorticoids. Prolonged exogenous administration of glucocorticoid is the most common cause of CS. In children, iatrogenic CS due to topical steroid application is rare, and only a few cases were reported in the literature.

Case Report: We report the case of an infant who developed CS and adrenal insufficiency due to a topical corticosteroid, misused by her mother to treat diaper dermatitis for about a month.

Conclusion: While topical steroids are prescribed to treat various skin diseases, these medications are not without risks especially when they are misused by patients or parents. Physicians need to be aware of this misuse and inform patients of the correct use of steroids.

Keywords: Cushing syndrome; Adrenal insufficiency; Topical steroids; Adverse drug reaction; Misuse

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Introduction

Cushing Syndrome (CS) is a multisystem disorder resulting from prolonged glucocorticoid exposure. It can be iatrogenic or endogenous due to either an adrenal tumor or hypersecretion of adrenocorticotropic hormone by the pituitary gland [1].

Prolonged administration of oral or parenteral steroids is the most common cause of CS.

In children, iatrogenic CS due to topical steroid application is very rare, and only a few cases were reported in the literature [2,3].

Herein, we report a rare case of topical steroid-induced iatrogenic CS that led to adrenal insufficiency in an infant.

Method

This case was notified on July 2022 to the National Center of Pharmacovigilance of Tunisia. The causality was assessed according to the French method of Imputability [4].

Case Presentation

A seven-month-old girl with no medical and developmental history presented to the pediatric emergency department with face puffing and generalized edema developed over 20 days with a weight gain of 1 kg 400 in the last week.

The mother reported that she has been using topical corticosteroid (clobetasol propionate cream) as a treatment of diaper dermatitis three to four times a day during the past month. She used a total of 15 tubes.

The patient's physical examination revealed facial puffiness, hirsutism, telangiectasia, and generalized body edema (Figure 1, 2). There was no abdominal stria, and the cutaneous exam revealed nothing but diaper dermatitis.

The infant presented high blood pressure but was vitally stable. Her growth parameters were within normal limits.



Figure 1: Facial puffiness, hirsutism, and generalized body edema.



Figure 2: Telangiectasia.

The laboratory investigations revealed: A low Adrenocorticotropic Hormone (ACTH) level <1 (NV: 7.5), a serum cortisol level of 12 ng/ml (NV: 55-287), and a TSH level of 1,73 mUI/L (NV: 0.7-15.2).

The diagnosis of iatrogenic Cushing syndrome with adrenal insufficiency was made. The patient was treated with antihypertensive drug (nicardipine) and corticosteroid supplementation (Hydrocortisone). Clinical evolution was favorable with the degression of hydrocortisone doses and cessation of nicardipine. The causality assessment score was I2B3.

Discussion

We presented herein a case of drug misuse where the drug, in this case a topical corticosteroid, was taken for reasons other than why it was prescribed and with an incorrect dose, with major consequences.

In fact, prolonged exogenous corticosteroid administration can lead to several adverse reactions such as CS, cataract, hypertension, dyslipidemia, skin atrophy, failure to thrive, Hypothalamic Pituitary Adrenal (HPA) axis suppression, striae, glaucoma, and infections [1].

Iatrogenic CS is frequent following prolonged administration of oral or parenteral corticosteroids, but it is rare after topical corticosteroid use. It is usually a medication error or misuse, especially in the pediatric age, which is the case with our patient.

Typical clinical manifestations of CS include facial puffiness, generalized body edema and obesity, hirsutism, hypertension, and skin fragility.

Multiple factors can increase the probability of acquiring the condition, such as corticosteroid potency, frequency of the applications, age, skin quality, and duration of the treatment [2,5].

In fact, topical steroids can be divided into three groups varying from strong, medium to weak depending on the clinical activity and ability to suppress the HPA axis [6]. Clobetasol propionate is considered a strong topical medication.

Otherwise, infants are more likely to develop topical steroid-induced CS due to their large cutaneous surface and thin skin.

These factors increase the systematic absorption of the drug and lead to various adverse reactions [6].

According to the literature, most cases of iatrogenic CS following topical steroid application were infants treated with clobetasol propionate or betamethasone for diaper dermatitis. The mean application duration was 2.75 months [2,4].

Our patient presented a CS after one month of clobetasol propionate misuse as a cream to treat diaper dermatitis.

Conclusion

Physicians need to be aware of the extensive use of topical corticosteroids in children and take appropriate measures to avoid this misuse, especially with parents' education. Early detection and treatment are essential to reduce acute and long-term morbidity.

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