

Topical-steroid-induced iatrogenic Cushing syndrome in the pediatric age group: A rare case report

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ABSTRACT

Cushing syndrome, a systemic disorder, is the result of abnormally high blood level of cortisol or other glucocorticoids. The most common cause of Cushing syndrome is prolonged exogenous administration of glucocorticoid hormones. Prolonged use of topical corticosteroids, particularly in children, may cause Cushing syndrome and suppression of the hypothalamopituitary-adrenal axis, which is less common than that of oral or parenteral route. However, iatrogenic Cushing syndrome in the infantile age group due to topical steroid is very rare and only a few patients have been reported to date in the literature. Here we report a case of iatrogenic Cushing syndrome due to topical steroid application in a 5-month-old female child admitted to the hospital for repeated episodes of fever and cough.

Key words: Hypothalamopituitary axis, Iatrogenic Cushing's syndrome, topical corticosteroid

INTRODUCTION

Cushing syndrome is the result of abnormally high blood levels of cortisol or other glucocorticoids. This can be iatrogenic or the result of endogenous cortisol secretion, due either to an adrenal tumor or to hypersecretion of corticotrophin (adrenocorticotrophic hormone) by the pituitary (Cushing disease) or by a tumor.^[1] The most common cause of Cushing syndrome is prolonged exogenous administration of glucocorticoid hormones, especially at the high doses used to treat lymphoproliferative disorders. Cushing syndrome because of topical application is a rarely reported cause.^[2] This case of 5-month-old female developed Cushing syndrome due to topical steroid application. Only low-dose and low-potency steroids are indicated in pediatric dermatological disorder. Topical corticosteroid betamethasone was the causating agent in this case, which is a high-potency

topical steroid.^[3] This product was prescribed from some quack once only and mother repeatedly took drug from local medical store with same prescription. She used to apply it on most of the body parts for 3-4 times a day for about 2 months. Children are at greater risk of toxicity from topical steroids as they have a large surface area compared to adults.^[3]

CASE REPORT

A 5-month-old female was admitted in our hospital for complaint of fever, cough, increased rate of breathing since 1 month. The patient also had a complaint of swelling over face and all over the body since last 2 month.

On examination the patient was febrile; tachycardia and tachypnea were also there. Anemia, generalized anasarca, and hepatomegaly were the other significant findings. There were fading rashes present all over the body. Blood pressure in supine position was 84/66 mm Hg, which was above the 95th centile for this age group.

In the past the patient had a history of skin infection at 2 months of age after which mother took treatment from a quack who prescribed betamethasone for topical application. Since then she was applying betamethasone ointment on the whole body.

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Figure 1: A case of iatrogenic Cushing syndrome due to topical steroid application in a 5-month-old female child admitted to the hospital for repeated episodes of fever and cough

In laboratory findings the patient found to have decreased hemoglobin (8 g%), raised total leukocyte count (12,000) with raised polymorphs (80%), abnormal liver function (SGPT-1100, SGOT 700), hyperglycemia (serum glucose 164 mg%), abnormal coagulation profile (INR 1.7), normal renal function and urinalysis.

Serum cortisol was raised [34.95 mcg/dl (normal 3-5 mcg/dl)] eight times the baseline value for this age;^[4] a dexamethasone test was negative.

Ultrasound abdomen showed hepatomegaly with minimal ascite; no suprarenal mass was reported. Transcranial ultrasound and neuroimaging of the brain were within normal limits. Dermatology opinion was taken and the patient was diagnosed as seborrheic dermatitis. Treatment was started but unfortunately the child could not be saved.

DISCUSSION

Oral and topical corticosteroids have been used extensively by medical practitioners for many dermatological

disorders. Parents should be informed thoroughly about the possible side effects of steroids before starting it; otherwise it may cause severe systemic side effects including hypertension, dyslipidemia, Cushing's syndrome, hypothalamopituitary-adrenal axis suppression, failure to thrive, glaucoma, cataract, skin atrophy, striae, and a predisposition to life-threatening infections.^[3] Cushing syndrome is having multisystem presentation affecting every organ system. The disorder appears to be more severe and the clinical findings more flagrant in infants than in older children. The face is rounded, with prominent cheeks and a flushed appearance (moon facies) [Figure 1]. Generalized obesity is common in younger children. An increased susceptibility to infection may also lead to sepsis. Hyperglycemia and hypertension are a common association as it was there in this case. Osteoporosis is common and may cause pathological fracture. So high-potency topical steroid should not be used in children, and proper information about side effects should be provided to the parents. Beside this, due precautions should be taken for topical steroid use, particularly in children, for its dose and most importantly, its prescripational obligation.

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