Topical Steroid Misuse: An Unrecognized Cause Of Iatrogenic Cushing Syndrome In Infancy

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Abstract

Summary: Cushing's syndrome represents a condition of excess cortisol activity, arising either from internal overproduction or external administration of glucocorticoids, leading to a wide range of clinical features.[1] Cushing's syndrome in infancy is rare and most often iatrogenic. We report an infant who presented with rapid-onset weight gain and hypertrichosis due to chronic application of an over-the-counter steroid-containing ointment for diaper rash. Recognition of exogenous steroid exposure allowed timely withdrawal and clinical recovery. This case highlights the importance of medication history and the regulation of topical corticosteroid sales in resource-limited developing countries.

Keywords: Cushing Syndrome; Glucocorticoids; Administration, Topical; Infant; Iatrogenic Disease; Adrenal Insufficiency.

Introduction

Infants are particularly vulnerable to developing topical corticosteroid–induced iatrogenic Cushing's syndrome because of their thin, highly permeable skin, a relatively greater surface area–to–body weight ratio, and the frequent occurrence of dermatologic conditions requiring topical therapy. Most reported iatrogenic cases have involved the use of potent preparations such as clobetasol or betamethasone for diaper dermatitis. The clinical manifestations in iatrogenic cases are similar to those of endogenous Cushing's syndrome. Characteristic findings include moon-shaped facies, abnormal weight gain, truncal adiposity with supraclavicular and subscapular fat accumulation, excessive hair growth, facial plethora, and skin fragility with telangiectatic changes. Complications related to mineralocorticoid or androgenic activity—such as hypertension, acne, and hirsutism—are less frequently encountered than in endogenous disease. Abrupt cessation of exogenous steroid exposure may precipitate acute adrenal insufficiency, which can be life-threatening if unrecognized.

Case Presentation

A previously healthy 9-month-old female infant presented to the Paediatric Medicine outpatient clinic with progressive weight gain and facial puffiness for 2 months. The parents initially perceived the chubby cheeks as healthy growth, but became concerned as the weight continued to rise rapidly. They also noticed excessive hair growth over the forehead, nape of the neck, periauricular area, and trunk. There was no history of irritability, vomiting, seizures, polyuria, polydipsia, abdominal pain, cough, dyspnoea, oedema, or jaundice. There was no prior systemic steroid use. Birth History was unremarkable, with birth weight 3 kg, uneventful perinatal course. Past History also not significant. Developmental milestones were appropriate for age. She was fully immunised. She was breast-fed until 6 months, and from 6 months onwards was on complementary feeds also. On further enquiry, parents revealed daily use of a commercially available nappy-rash ointment for 4 months. The cream was later identified to contain a potent fluorinated corticosteroid, Clobetasol.

On examination, the child was active, playful, cushingoid with rounded plethoric facies, central obesity, and hypertrichosis. She was vitally stable with a heart rate of 120/min, respiratory rate 34/min, and BP 80/40 mmHg (normal for age). There were no striae, acne, skin thinning, oedema, hypertension, hepatosplenomegaly, or features of virilization.

Contributions:
VI NI - Conception, Design
NI HS NR - Acquisition, Analysis, Interpretation
VI NI - Drafting
HS NR - Critical Review

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Differential Diagnosis
- Iatrogenic Cushing's syndrome from exogenous steroids
- Adrenocortical tumour (adenoma/carcinoma)
- Pituitary-dependent Cushing's disease
- Ectopic ACTH production
- Obesity/metabolic syndrome

Investigations
Morning serum ACTH was quite suppressed, i.e., 1.5 pg/mL (reference 7.2–63.3 pg/mL), while random blood sugar, serum electrolytes, thyroid profile, HbA1c, and lipid profile were within normal limits. No imaging was performed as adrenal pathology was unlikely given suppressed ACTH and a clear drug history.

Treatment
The offending topical steroid ointment was discontinued immediately. Oral Hydrocortisone was started in physiologic doses, i.e., 10mg/m2/day in 3 divided doses, as such patients can go into adrenal crises if steroids are withdrawn immediately. Parents were counseled on avoiding unsupervised steroid use. Supportive skin care for diaper dermatitis was advised.

Outcome And Follow-Up
At the 4-week follow-up, the patient showed a gradual regression of cushingoid facies, reduction in hypertrichosis, and reduction in weight. Vital signs and developmental progress remained normal. Long-term follow-up was planned to monitor for hypothalamic–pituitary–adrenal axis recovery and growth parameters.

Discussion

In developing regions, unsupervised or inappropriate use of pharmacological agents remains prevalent because of inadequate regulation of over-the-counter drug sales and the use of potent corticosteroid-containing ointments for diaper rash. Management centres on the withdrawal of the exogenous steroid slowly, treatment of the primary dermatologic condition, and monitoring for adrenal insufficiency during recovery. Public health measures, including the regulation of over-the-counter steroid sales and parent education, are crucial to prevent such cases. Pediatricians should maintain a high index of suspicion for steroid-induced Cushing's syndrome in infants presenting with cushingoid appearance, particularly if topical preparations have been used in the diaper area. Caregivers should always be questioned about the use of any creams or ointments applied to the skin.[3]

Learning Points:
- Always obtain a detailed drug history, including topical agents, in any child with cushingoid features.
- Topical steroids under occlusion in infants can lead to systemic Cushing's syndrome.
- Early recognition and gradual withdrawal of the offending agent usually result in reversal of clinical features without long-term sequelae.
- There is a pressing need for stricter regulation of potent topical corticosteroids in resource-limited settings.

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