



# Exogenous Cushing's syndrome due to misuse of topical corticosteroid therapy

**Maria Korpala-Szczyrska, Malgorzata Mysliwiec**

Clinic of Paediatrics, Diabetology and Endocrinology  
Medical University of Gdansk, Poland

The authors have nothing to disclose

The development of Cushing's syndrome due to usage of topical corticosteroids in children is rare (about 25 described cases).

90% of reported cases occurred in infants after misuse of high potency steroid creams (clobetasol or betamethasone) for diaper dermatitis.

The mean period of topical steroid use in iatrogenic Cushing syndrome in children is 2,7 months.

The recovery period of hypothalamic-pituitary-adrenal axis suppression is reported to last  $3.49 \pm 2.92$  months.

0,1% mometasone is a mild-strength topical steroid. So far to our knowledge no Cushing's syndrome in children after usage of mometasone was documented.

## Case study:

A 4 year old girl was admitted to endocrinological department because of short stature and symptoms of Cushing's syndrome. She had been suffering from atopic dermatitis since birth. From 6th month till 4th year of life 0,1% mometasone cream had been applied 2-3 times a week (30g/ month) on face and body parts affected by the disease. In the period of 3.5 years about 120 tubes of the cream were used. At the age of 2 years her height was <3 percentile

## On presentation

Height 89,2 cm (-4,09 SD), weight 14 kg  
Central obesity, a moon face, redness, a buffalo hump, gluteal muscle atrophy, BP 110/70 mmHg (>97cc), HR 130/'.  
No striae.

## Laboratory

WBC 14.51 G/l, RBC 4.32 T/l, Hb13,8 g/dl, Ht 38,7%,  
RBC 4,22 T/l, PLT491 G/l  
K 4.2 mEq/l, Na 137 mEq/l, Ca 9,8 mg%, P 4,5 mg%  
ALT 21 U/l, AST 34 U/l  
TSH 2,1 mU/l, fT4-15,3 pmol/l  
25OHD3 8,9 ng/ml (N:20-60)

OGTT: glucose (mg% ):40 -145-134-148-96-88  
insulin (mU/l): 1,5-11,2-10,9-51,9-23,7-35,3  
HbA1C 5,05% (N:4,0-6,0)

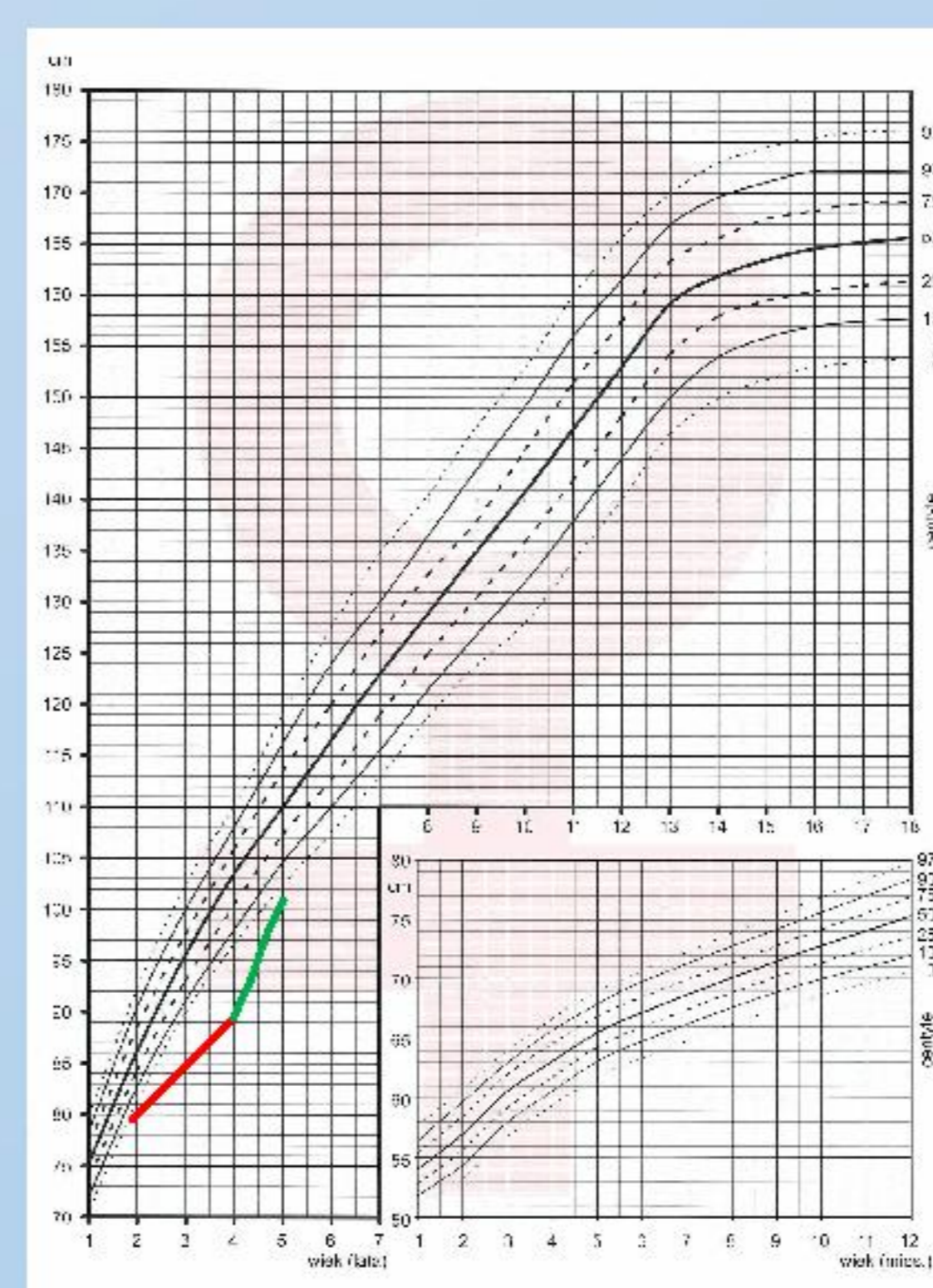
Abdomen ultrasound showed no adrenal abnormalities.  
Urine free cortisol from a 24 h collection <27,6 nmol/l

	8:00	20:00
serum cortisol (N:101-536 nmol/l)	<22,1 nmol/l	<22,1 nmol/l
ACTH (pg/ml)	26.4 pg/ml	24.9 pg/ml

Cortisol after ACTH stimulation test	
0'	<22.1 nmol/l
30'	56.5 nmol/l
60'	62.8 nmol/l

## Treatment

Application of topical steroids was terminated. Replacement doses of hydrocortisone were administered (3 times/day). Hydrocortisone therapy was continued for the next 6 months in gradually decreasing doses which corresponded to the results of periodically performed ACTH stimulation tests. Patient's height velocity has increased during that time to 11,6 cm/yr, she achieved height of -3,07 SD and normalized body proportions (BMI decreased from 90 to <50 percentile)



## CONCLUSIONS

Prolonged use of topical mometasone in children may result in iatrogenic Cushing's syndrome which initially presents as growth failure.

Parents of children treated with topical steroids should be thoroughly educated about their potential side effects and methods of application.

The height of children with atopic dermatitis treated with topical steroids should be monitored.