



## Case Report on Dexamethasone Induced Iatrogenic Cushing Syndrome

Gireesh KM\*, Sushma Priya MS, Sanjeev M, Prajwal, Manjunatha R and Vinod N

Department of Pharmacy Practice, TVM College of Pharmacy, India

### Abstract

Corticosteroids are the pharmacotherapeutics agents that are used to treat various autoimmune diseases. Prolonged use of corticoids can induce some specific side effects like iatrogenic Cushing syndrome (moon face, central obesity, plethora, buffalo hump). Sudden withdrawal of corticosteroids will lead to adrenal hypertrophy which releases insufficient cortisol into the blood and leads to adrenal crisis. Here, a 52 years old female patient experienced Cushing syndrome after taking dexamethasone tablet for prolonged period. She presented with all physical symptoms of Cushing syndrome. As patient is under adrenal crisis patient collapsed due to septic shock. The prominent ways to avoid these conditions are to provide patient counseling before initiating corticosteroids and warning the patient about sudden withdrawal of corticosteroids.

**Keywords:** Iatrogenic Cushing syndrome; Corticosteroids; Dexamethasone; Adrenal crisis; Cortisol

### Introduction

Cushing's Syndrome (CS) was discovered in 1912 by the American neurosurgeon Harvey Cushing [1]. CS is a relatively rare disease, with an annual incidence of 0.2 to 5.0 per million people [2].

It is a condition characterized by high blood levels of cortisol or other exogenous compounds of glucocorticoids [3].

It can be caused by either endogenous factors such as excess steroid production and secretion due to adrenal or pituitary tumors, or exogenously through prolonged use of corticosteroid medications (ex: Budesonide, Cortisone, Dexamethasone, Hydrocortisone, Methylprednisolone, Prednisolone, Prednisone, Triamcinolone) resulting in iatrogenic CS [4,5].

The clinical manifestations weight gain, usually presenting as central obesity with redistribution of body fat to truncal areas and the appearance of dorsocervical and supraclavicular fat pads and the classic moon face. Plethora, easy bruising, thin skin, striae, myopathy, and muscle weakness (particularly proximal muscles) can be seen, patients are susceptible to poor wound healing and increased incidence of infection [3]. The aim of the current study is to present a rare case of oral corticosteroid induced iatrogenic CS in an 52 years old female patient.

### Case Presentation

A 52 years old female patient was admitted to emergency department, of Vijayanagara Institute of Medical Sciences, Ballari, Karnataka.

The patient presented with complaints of abdominal pain and distension, breathlessness, pedal edema, rashes all over the body for 1 day.

On examination, patients BP was not recordable, as patient was obese, her PR was 83 bpm, SpO<sub>2</sub> was 93%.

#### Physical examinations: (Figure 1, 2)

- Moon face (facial edema)
- Central obesity
- Pedal edema
- Bruises all over the body

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#### \*Correspondence:

Gireesh KM, Department of Pharmacy Practice, TVM College of Pharmacy, Ballari, Karnataka, India

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Figure 1: Physical examinations.



Figure 2: Systemic examination.

- Abdominal stairs

#### On systemic examination

RS: Bilateral fine crept at intrascapular and intra axillary area.

CNS: Patient was conscious and disoriented to place and time.

CVS: S1 S2 + no murmurs.

PA: Soft non tender no organomegaly.

On enquiring patient attenders, the medical and medication history of patient as follows:

She was K/C/O Rheumatoid arthritis in the past 1 year; she was on treatment with TAB. Dexamethasone (4 mg) in the past 1 year. The tablet was discontinued 5 days back.

Patient was taking OTC tab. Diclofenac tab. Omeprazole along with dexamethasone since past 1 year.

Patient attenders reported that she gained weight significantly in the last 8 months and she got red colored bruises all over body in the last 3 months.

Blood withdrawal was not possible at time of admission as patient is very obese blood vessel detection was not possible so no preliminary

tests like CBC RFT LFT cortisol levels was not checked. Canulation done to left lower limb after several attempts.

Patient was under 5 L oxygen as she was complaining of breathlessness and her  $SpO_2$  on 5L  $O_2$  was- 90% PR: 54 bpm.

Patient treated symptomatically with 5 L  $O_2$  therapies, 2-pint IV Fluids, inj. Noradrenalin, and inj. Ondansetron. Due to sudden discontinuing of dexamethasone the patient experiencing adrenal crisis and she diagnosed with sepsis with septic shock. Due to aspirational pneumonia the patient collapsed before initiating ventilator support.

## Discussion

Glucocorticoids are commonly used in clinical practice for the management of various autoimmune, inflammatory and allergic diseases. Drugs like dexamethasone can cause Cushing syndrome, irrational administration of glucocorticoids is most common particularly in chronic therapies which lead to many side effects like hypothalamic pituitary adrenal axis suppression, Cushing's syndrome, increased risk of infections and changes in mental status [6]. Before initiating steroid therapy, patients should be well informed about the possible side effects of steroids.

Otherwise, it may lead to severe systemic side effects including Cushing's syndrome, hypertension, dyslipidemia, and suppression of hypothalamic pituitary adrenal axis, striae, glaucoma, skin atrophy, cataract and predisposition to life threatening infections [3].

Iatrogenic Cushing's syndrome was suspected if the patient had: AM Cortisol of  $\leq 4$  mcg/dL and ACTH of  $\leq 10$  pcg/mL. Iatrogenic Cushing's syndrome is the most common cause of hypercortisolism [7]. Most patients with Cushing syndrome have round, red, full moon face, growth retardation in children, fat accumulation on the trunk along with weight gain, fat loss from the buttocks, legs, and arms (central obesity), skin infections, purple marks (striae) on the skin of the breast, abdomen and thighs, thinly skin with easy bruising, backache while doing routine activities, fat deposit between the shoulders and above the collar bone, hips and shoulder muscle weakness, fracture of the rib and spine due to thinning of the bones.

Treatment is done by tapering the dose of corticosteroids which may take a year. Sudden stoppage corticosteroids after chronic intake can results in adrenal crisis [8,9]. Slowly tapering the corticosteroid that is causing Cushing syndrome can help reverse the effects of adrenal gland atrophy [10].

In our case patient is under adrenal crisis as she stopped the drug suddenly and patient is in septic shock condition so before initiating steroid tapering therapy patient collapsed due to pneumonia.

## Conclusion

In our case, we found that the Dexamethasone was a sole reason for occurrence of Cushing syndrome. The patient was prescribed with Dexamethasone for her rheumatic arthritis disorder, she had discontinued this drug suddenly, which lead her to adrenal crisis and eventually mortality. Hence this case report delineates us about the importance of patient counseling and early detection of symptoms. It is suggestive that she or her family members should have been enlightened about early symptoms of CS and the potential risk associated with the sudden withdrawal of this drug, so that impending severity of ADR is either prevented or reduced and expected mortality is hampered.

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