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Atypical Presentation of Endogenous Cushing Syndrome

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Abstract: Cushing's syndrome is a rare disorder with varied clinical manifestations, often leading to delayed diagnosis. We report a case of a 35-year-old woman presenting with worsening dyspnea, secondary amenorrhea, and proximal muscle weakness. Initial evaluation revealed congestive heart failure and poorly controlled diabetes. Further endocrinological workup confirmed ACTH-independent Cushing's syndrome secondary to an adrenal adenoma. Following surgical adrenalectomy, the patient showed significant clinical improvement. This case highlights the importance of a high index of suspicion for endocrine disorders in patients with systemic symptoms like heart failure and myopathy.

Keywords: *Cushing's Syndrome, ACTH-Independent, Adrenal Adenoma, Proximal Myopathy, Secondary Amenorrhea, Congestive Cardiac Failure.*

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I. INTRODUCTION

Cushing's syndrome (CS) results from chronic exposure to excessive glucocorticoids and manifests as a wide array of clinical features, including truncal obesity, facial rounding, hypertension, diabetes, osteoporosis, and neuropsychiatric symptoms [1]. The condition is classified into ACTH-dependent and ACTH-independent forms, with the latter commonly caused by adrenal adenomas [2]. Although classic signs may be present, CS can have atypical and misleading presentations, particularly in young females. This case emphasizes the diagnostic challenges when CS initially presents with heart failure.

II. CASE PRESENTATION

A 35-year-old female presented with progressively worsening dyspnea of two months' duration. Associated symptoms included orthopnea, paroxysmal nocturnal dyspnea, and cough with white expectoration. She also reported secondary amenorrhea for 3 months, generalized weakness, and difficulty rising from a squatting position. The patient had type 2 diabetes mellitus (T2DM) for 1.5 years, initially treated with ayurvedic therapy and later oral hypoglycemic agents (OHA). There was no history of hypertension, tuberculosis, thyroid disorders, or known cardiac disease. Her mother had T2DM. No family history of endocrine or autoimmune disorders. The patient was a non-smoker, non-alcoholic, and consumed a mixed Indian diet. She had no history of steroid intake in any form.

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Examination showed BP 130/90 mmHg, PR 60/min (irregular), SpO_2 84% on room air (97% on 10L O_2). Physical examination revealed signs suggestive of Cushing's syndrome: a rounded face, buffalo hump, thin abdominal striae (non-purplish), and alopecia. CNS examination revealed proximal lower limb weakness without cranial nerve involvement or cerebellar signs. JVP was elevated, and fine inspiratory crepitations were noted bilaterally. Chest x-ray revealed features of congestive heart failure (Fig.1a)

Lab tests revealed: RBS 244 mg/dL, TSH 0.74mIU/L (0.5-5), FT3 2.6pg/ml (2-4.4), FT4 1.1ng/dl (0.6-2.2), LH 0.57mU/L (0.8-15.5), FSH 6.91mU/L (1.3-23.4), Serum 8 AM Cortisol 966 nmol/L (123-626), Overnight Dexamethasone test 436 nmol/L, 24-hr Urinary free cortisol 1283.1 µg (20.90-292), ACTH 1.54 pg/mL (5-46). 2D ECHO showed dilated all four chambers of heart and global hypokinesia with ejection fraction of 35%.

Cushing syndrome was conformed based on elevated urinary free cortisol, and lack of suppression with dexamethasone. A diagnosis of ACTH-independent Cushing's syndrome was suspected based on suppressed ACTH. CT abdomen showed right adrenal adenoma. The patient also had congestive heart failure, secondary amenorrhea, diabetes mellitus, and proximal myopathy.

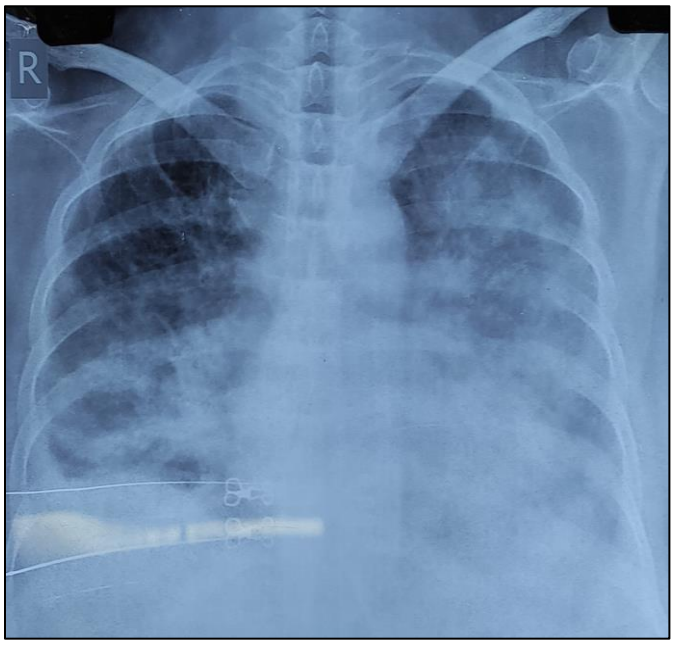

Fig. 1a: Chest X-Ray Showing Cardiomegaly with Increased Bronchovascular Markings with Bilateral Pleural Effusion Suggestive of Congestive Heart Failure.

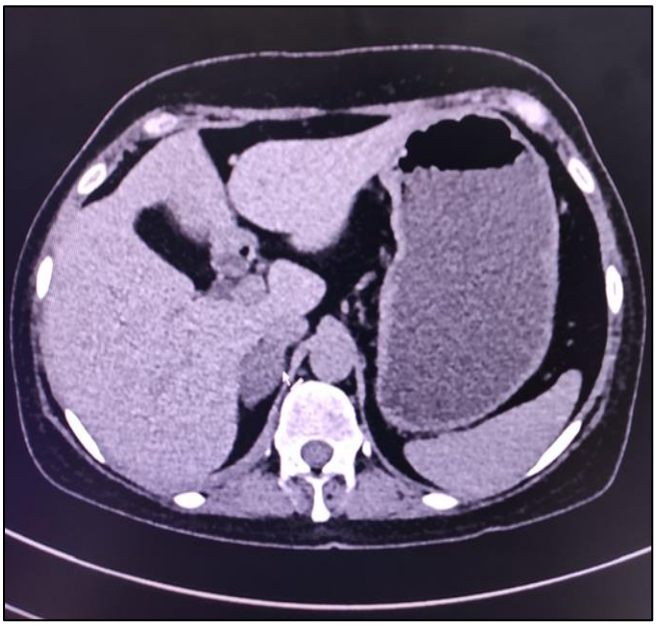

Fig. 1b: CT Abdomen Showed a Right Adrenal Adenoma (White Arrow).

She was stabilized with oxygen therapy, intravenous diuretics, antibiotics, and insulin. After stabilization she underwent right adrenalectomy. Postoperatively, she was started on hydrocortisone to prevent adrenal insufficiency due to HPA axis suppression [1].

On follow up after 6week her condition improved significantly with better glycemic control (on metformin 500 mg BID), proximal myopathy resolved. 2D ECHO showed normal left ventricular function with ejection fraction 55%.

III. DISCUSSION

Cushing's syndrome is uncommon, with an estimated incidence of 1–2 per 100,000/year [1]. The clinical features reflect the catabolic effects of excess cortisol and suppression of pituitary hormones. These include central obesity, menstrual irregularities, myopathy, psychiatric symptoms, and hypertension [1,2].

This patient presented atypically with heart failure which is rarely the primary presentation but are recognized consequences of cortisol excess [2,3]. Myopathy in CS is due to glucocorticoid-induced protein catabolism, especially affecting type II muscle fibers [3].

The low ACTH level and failure to suppress cortisol with dexamethasone confirmed the adrenal origin of cortisol excess. Adrenal adenomas are the most common cause of ACTH-independent CS and surgical resection is the treatment of choice [2]. Following adrenalectomy, glucocorticoid replacement is essential due to suppression of the contralateral adrenal gland and HPA axis [1].

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IV. CONCLUSION

This case highlights the need for high clinical suspicion for endocrine disorders in patients presenting with systemic complaints like heart failure, myopathy, and amenorrhea. Atypical presentations of Cushing's syndrome can lead to misdiagnosis or delay in management. Prompt diagnosis and surgical intervention in ACTH-independent cases can lead to significant clinical improvement.

- *Patient Consent*

Written informed consent was obtained from the patient for publication of this case report and accompanying clinical details.

- *Conflicts of Interest*

None declared.

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