

CASE REPORT

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Gastric malignancy presenting as adrenal insufficiency: A case report

Harsh Vardhan Tevethia, Baskaran S, Tony Mathew Kadavanu, Riyaz M Panchbhaya, Sunny DAN, Siva PK

ABSTRACT

Introduction: Carcinomas in the lung, breast, and lymphomas are known to metastasize to the adrenal gland. However, these metastases initially do not present with signs and symptoms of adrenal insufficiency leading to a decreased chance of adrenal insufficiency being diagnosed. We report a case of adrenal insufficiency due to bilateral adrenal metastases as the presenting manifestation of gastric carcinoma. **Case Report:** A 72-year-old male was admitted to our hospital due to altered mental status, weakness, anorexia, hematemesis and urinary incontinence for three days. Hyponatremia, hyperkalemia, anemia, and mild metabolic acidosis were detected. A diagnosis of gastric carcinoma along with bilateral metastases of the adrenal glands was made after biopsy computed tomography and positron emission tomography scans. Initiation of mineralocorticoid replacement therapy, improved the condition of patient. **Conclusion:** There are only a few reports of adrenal insufficiency or true Addisonian crisis being the

presenting manifestation of underlying malignant tumors of the lung, colon, or lymphomas. One should also consider the possibility of malignancy as a differential in such cases.

Keywords: Adrenal insufficiency, Gastric malignancy, Hyponatremia, Addison's disease

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Harsh Vardhan Tevethia¹, Baskaran S², Tony Mathew Kadavanu¹, Riyaz M Panchbhaya³, Sunny DAN¹, Siva PK³

Affiliations: ¹MBBS, Resident, Department of Internal Medicine, Mahatma Gandhi Medical College and Research Institute, Puducherry, Puducherry, India; ²MB, DNB, Consultant physician, Department of Internal Medicine, Mahatma Gandhi Medical College and Research Institute, Puducherry, Puducherry, India; ³MB, MD, Assistant Professor, Department of Internal Medicine, Mahatma Gandhi Medical College and Research Institute, Puducherry, Puducherry, India.

Corresponding Author: Harsh Vardhan Tevethia, MBBS, Resident, Department of Internal Medicine, Mahatma Gandhi Medical College and Research Institute, Puducherry, Puducherry, India; Ph: +91-915902634; E-mail: hershey4686@gmail.com

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INTRODUCTION

Carcinomas in the lung, breast, and lymphomas are known to metastasize to the adrenal gland [1]. However, in most cases they do not attain clinical significance since these are diagnosed at autopsy. We report a case of adrenal insufficiency due to bilateral adrenal metastases as the presenting manifestation of gastric carcinoma.

CASE REPORT

A 72-year old male, without any known comorbidities, was admitted to our hospital due to altered mental status, weakness, anorexia, hematemesis and urinary incontinence for three days. He complained of abdominal distension and dyspepsia for the last two years. There was a loss of appetite and weight of about 10 kg. At the time of admission to hospital, physical examination revealed blood pressure 110/80 mmHg, tachycardia 120 bpm with no other specific systemic finding. The patient was severely dehydrated, presented with decreased reflexes

and his skin showed hyperpigmentation (Figure 1). Laboratory tests demonstrated hyponatremia (serum sodium 125 mEq/L), hyperkalemia (serum potassium 5.6 mEq/L), anemia (Hb 7.3 g/dL) and mild metabolic acidosis (pH 7.25). The electrocardiogram showed normal QRS complexes. There was a mild rise in serum urea 47 mg/dL and normal serum creatinine levels 0.8 mg/dL. After ruling out tuberculosis and drug induced adrenalitis, computed tomography (CT) scan of chest and abdominal was done. Gastric carcinoma with perigastric, periceliac and para aortic lymphadenopathy along with bilateral metastases of the adrenal glands was found (Figure 2). We performed a whole body positron emission tomography (PET) scan which further validated the CT findings (Figure 3). The biopsy showed a moderate to poorly differentiating adenocarcinoma in the gastric antrum. Based on the patient's clinical status and the laboratory test results, in addition to the magnitude of the adrenal masses, we decided to perform a high dose cosyntropin stimulation test. The serum cortisol level was 420 nmol/L before the intramuscular administration of cosyntropin (250 µg), and 61,438 nmol/L 60 minutes after the administration. These results combined with the elevated levels of adrenocorticotrophic hormones (ACTH) 165.7 pg/mL before the administration, and the diagnosis of adrenal insufficiency had been established.

After fluid substitution, administration of glucose/insulin, calcium gluconate, sodium bicarbonate,



Figure 1: Skin hyperpigmentation of the patient.



Figure 2: Computed tomography scan of abdomen.

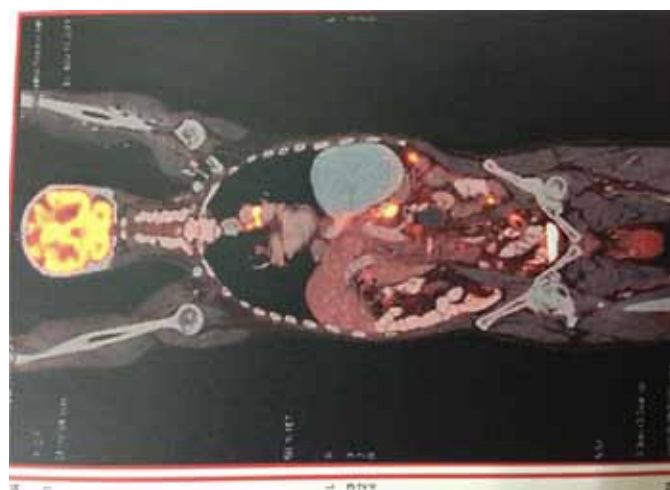


Figure 3: Whole body positron emission tomography scan.

salbutamol, furosemide, cation exchange resin, and initiation of replacement therapy with glucocorticoids and fludrocortisone, the patient improved within a few days. Sodium and pH levels normalized after two days. The patient returned to normal life activity under methylprednisolone administration and was able to undergo chemotherapy for his primary disease.

DISCUSSION

Addison's disease refers to partial or complete adrenal insufficiency. According to recent series, its prevalence is estimated at 93 to 117 per million [2–4]. When this 'disease of the suprarenal capsules' was originally described by Thomas Addison, tuberculosis was the main cause of adrenal insufficiency. Today, autoimmune adrenalitis is responsible for Addison's disease in 69–93% of the cases, while the rest are caused by tuberculosis, drugs, infections, adrenal hemorrhage, infarction, or

thrombosis [5–8]. Metastatic infiltration of the adrenal glands is a common finding in malignant tumors, especially in adenocarcinomas. The most common primary tumors sites are breast, lung, esophagus, kidney, colon, rectum, liver and bile ducts. They are also observed in lymphomas and melanomas [9, 10]. In this patient, the primary lesion was in the gastric antrum. Unfortunately, adrenal insufficiency is characterized by nonspecific clinical features. Usually, patients complain of vague constitutional symptoms such as generalized weakness, fatigue, malaise, and weight loss. Many patients may present with hypotension, dehydration, postural hypotension and in case of adrenal crisis, syncope, or shock. Hyperpigmentation is evident in nearly all patients, especially over the extensor surfaces of the body and the mucosa.

Laboratory tests often reveal hyponatremia, hyperkalemia, mild metabolic acidosis, hypoglycemia, anemia, and lymphocytosis. In most of these cases, the metastases are unilateral without clinical significance. In this patient, bilateral adrenal metastases were present at the time of the initial diagnosis, being responsible for clinical evident adrenal insufficiency. There are only a few reports of adrenal insufficiency or true Addisonian crisis being the presenting manifestation of underlying malignant tumors of the lung, colon, or lymphomas [11]. One also needs to be aware of the possibility of malignancy as a differential in cases presenting as adrenal insufficiency.

CONCLUSION

There are only few reports of adrenal insufficiency or true Addisonian crisis being the presenting manifestation of underlying malignant tumors of the lung, colon, or lymphomas. One should also consider the possibility of malignancy as a differential in such cases.

Author Contributions

Harsh Vardhan Tevethia – Acquisition of data, Critical revision of the article, Final approval of the version to be published

Bhaskaran S – Conception and design, Critical revision of the article, Final approval of the version to be published

Kadavanu Tony Mathew – Conception and design, Acquisition of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Panchbhaya Riyaz – Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Sunny DAN – Conception and design, Drafting the article, Critical revision of the article, Final approval of the version to be published

SIva P K – Conception and design, Critical revision of the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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REFERENCES

1. Bullock WK, Hirst AE Jr. Metastatic carcinoma of the adrenal. *Am J Med Sci* 1953 Nov;226(5):521–4.
2. Willis AC, Vince FP. The prevalence of Addison's disease in Coventry, UK. *Postgrad Med J* 1997 May;73(859):286–8.
3. Laureti S, Vecchi L, Santeusano F, Falorni A. Is the prevalence of Addison's disease underestimated? *J Clin Endocrinol Metab* 1999 May;84(5):1762.
4. Erichsen MM, Løvås K, Skinningsrud B, et al. Clinical, immunological, and genetic features of autoimmune primary adrenal insufficiency: Observations from a Norwegian registry. *J Clin Endocrinol Metab* 2009 Dec;94(12):4882–90.
5. Irvine WJ, Barnes EW. Adrenocortical insufficiency. *Clin Endocrinol Metab* 1972;1:549.
6. Zelissen PM, Bast EJ, Croughs RJ. Associated autoimmunity in Addison's disease. *J Autoimmun* 1995 Feb;8(1):121–30.
7. Kasperlik-Zaluska AA, Migdalska B, Czarnocka B, Drac-Kaniewska J, Niegowska E, Czech W. Association of Addison's disease with autoimmune disorders--a long-term observation of 180 patients. *Postgrad Med J* 1991 Nov;67(793):984–7.
8. Moreira AC, Martinez R, Castro M, Elias LL. Adrenocortical dysfunction in paracoccidioidomycosis: comparison between plasma beta-lipotrophin/adrenocorticotrophin levels and adrenocortical tests. *Clin Endocrinol (Oxf)* 1992 Jun;36(6):545–1.
9. Seidenwurm DJ, Elmer EB, Kaplan LM, Williams EK, Morris DG, Hoffman AR. Metastases to the adrenal glands and the development of Addison's disease. *Cancer* 1984 Aug 1;54(3):552–7.
10. Serrano S, Tejedor L, Garcia B, Hallal H, Polo JA, Alguacil G. Addisonian crisis as the presenting feature of bilateral primary adrenal lymphoma. *Cancer* 1993 Jun 15;71(12):4030–3.
11. Gul W, Qazi AM, Barde C. Gastric carcinoma presenting with adrenal insufficiency caused by bilateral adrenal metastasis. *Gastrointest Endosc* 2008 Nov;68(5):998.

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