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Case Study

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HYPONATREMIA IN HYPOPITUTARISM DUE TO LYMPHOCYTIC HYPOPHYSITIS

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ABSTRACT

Hyponatremia is a common electrolyte disorder especially in the elderly but also as a laboratory sign of hypopituitarism. Hypopituitarism is a relatively rare condition that is often misdiagnosed. Several case series of hyponatremia associated with hypopitutarism have been reported. Hypopituitarism is an under investigated endocrine disorder in the elderly, since its clinical features are unspecific and more often attributed to aging itself. The misdiagnosis of hypopituitarism is common due to its rarity and its nonspecific clinical manifestations. Our case report highlights the importance of critical evaluation regarding hypopituitarism as a cause of recurrent, hyponatremia, and headache in patients, as misdiagnosis might be fatal to the patient. Panhypopituitarism is a condition of inadequate or absent production of the anterior pituitary hormones. It is associated with increased morbidity and mortality. Clinical manifestations are influenced by the cause, severity, and rate of onset of pituitary hormone deficiency. We herein described a case of recurrent hyponatremia complicated by hypopituitarism that was possibly due to lymphocytic hypophysitis. The development of recurrent hyponatremia, electrolyte abnormalities, and gastrointestinal symptoms; however, should arouse suspicion of glucocorticoid insufficiency. Our case report highlights the importance of evaluating hypopituitarism as a cause of recurrent hyponatremia.

INTRODUCTION

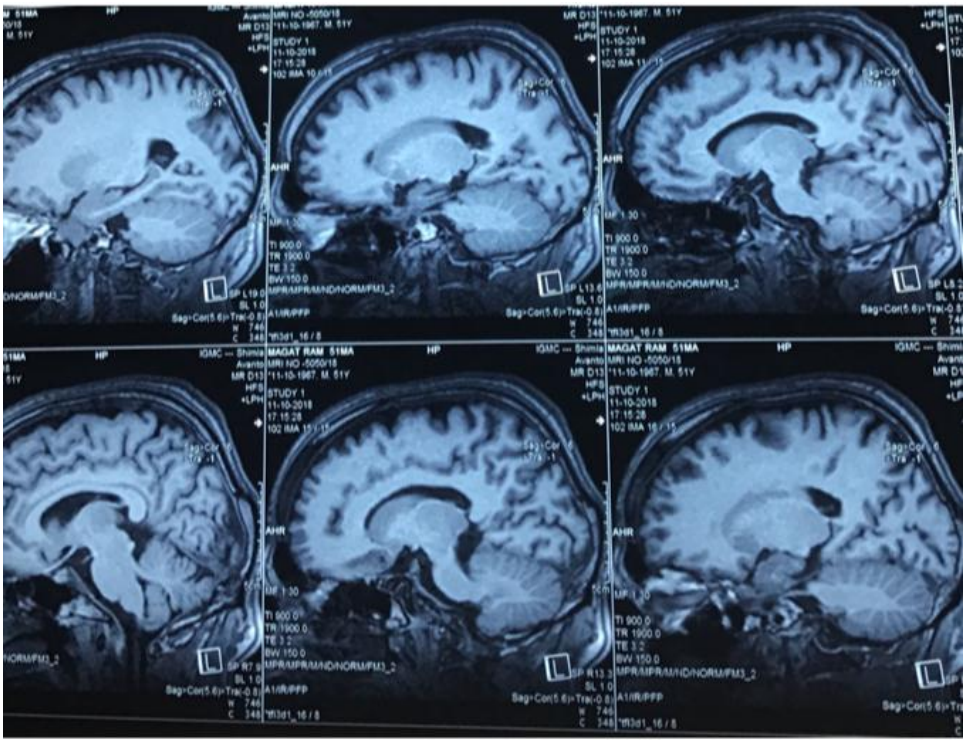
Hypopituitarism is a rare condition that may present as recurrent hyponatremia.[1,2] However, hypopituitarism often develops insidiously,[1] the diagnosis of hypopituitarism still remained challenging and often delayed by several months. In the present case report, we aimed to demonstrate the uncommon association of hyponatremia, and headache with hypopituitarism in a male patient with recurrent admission for hyponatremia. This is a potentially fatal condition to the patient if not recognized and treated. Presentation of hypopituitarism can be nonspecific. It is affected by degree, type, and rate of onset of the pituitary hormone deficiency. Hypopituitarism arising from an expanding mass lesion or from irradiation produces a characteristic evolution of pituitary failure caused by an initial loss of GH secretion, followed by LH and FSH, and finally by failure of ACTH and TSH secretion.

CASE PRESENTATION

A 51 year old male patient with multiple admission for complaints of headache, decreased sleep, decreased apetite, generalised weakness and vomiting. Clinical examination was normal and laboratory investigations were suggestive of chronic euvolemic hyposmolar hyponatremia, FT4 and TSH were low, ESR was raised ACTH, serum cortisol, testosterone and LH were also decreased.

DERANGED LAB INVESTIGATIONS

SERUM SODIUM	124 mmol/L
URINE SODIUM	220 mmol/L
URINE POTTASIUM	84 mmol/L
URINE CHLORIDE	192 mmol/l
URINE OSMOLALITY	508
FT4	0.44 LOW
TSH	0.30 LOW
ACTH	<10
SERUM CORTISOL	2.64 ug/dl
TESTOSTERONE	11.35 ng/dl
LH	0.60 Miu/ml
FSH	1.45
PROLACTIN	15.58
GH	0.52
ALDOSTERONE	11.9



MRI BRAIN; Pitutary gland measures 1.1X1X1.3 cm and is enlarged in size with loss of demarcation between anterior and posteriorpitutary gland. Pitutary stalk is thickened. Possibilty of LYMPHOCYTIC HYPOPHYSITIS.

TREATMENT

- Free fluid restriction.
- Incresed oral salt intake.
- The patient was treated with 100 mg/d of hydrocortisone intravenously for 2 weeks, which produced an improvement in his symptoms, and serum sodium returned to normal (138 mmol/L).
- Two weeks later, he continued on 15 mg/d of prednisone, and then 25 µg/d of levothyroxine was administered.

DISCUSSION

We herein describe the case of a male patient who developed recurrent severe hyponatremia, electrolyte abnormalities, and gastrointestinal symptoms. He was diagnosed with hypopituitarism based on his endocrinologic and radiological findings. The presence of low-normal adrenocorticotropic hormone and blood cortisol; a low level of urinary cortisol excretion; low-level estradiol, testosterone, and low follicle-stimulating hormone and luteinizing hormone, and secondary hypothyroidism indicated that hypopituitarism was the most likely diagnosis. Twenty-four-hour urinary cortisol excretion is often used to measure hypothalamic-pituitary-adrenal axis activity. It has the advantage of being unaffected by the circadian rhythm of cortisol and by varying plasma protein-binding capacities. Replacement therapy with glucocorticoid restored the patient's symptoms and lab abnormalities.

Lymphocytic hypophysitis has been recognized to be a cause of hypopituitarism with the disorder first documented by Goudie and Pinkerton in 1962,[3] and it is reported frequently in women during the antepartum or postpartum period, with the infiltration of lymphocytes into the pituitary gland a key histologic feature. Insufficient secretion of adrenocorticotropic hormone is usually the earliest and most frequent feature in patients with lymphocytic hypophysitis, presenting in approximately 65% of cases. Pituitary MRI usually shows a pituitary mass, pituitary enlargement with homogeneous contrast enhancement, and a thickened pituitary stalk.[4] Akahori reported a patient with lymphocytic hypophysitis who experienced regression of the pituitary mass 3 years after the onset of central diabetes insipidus. Therefore, a diagnosis of lymphocytic hypophysitis was suggested based on the clinical course.[5] Study has reported a prevalence of hypopituitarism of 290 and 450 cases per million from two cross-sectional surveys in 1992 and 1999, respectively, and a corresponding incidence of 60 per million per year. Hypopitutarism is associated with innapropriately high secretion of ADH. Glucocorticoid deficiency stimulates the secretion of ADH, leads to hyponatremia by impaired water excretion and increase in renal sodium excretion. Glucocorticoid substitution is the mainstay of treatment in this setting.

HYPOPHYSITIS

• Hypophysitis in the inflamation of pitutary gland. 5 clinicopathologic forms have been described.

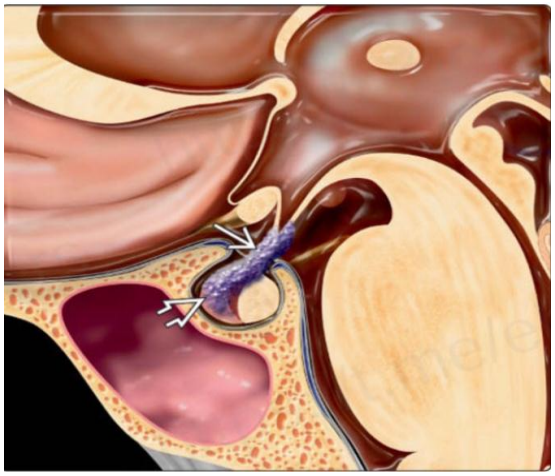
1) Lymphocytic hypophysitis.
2) Granulomtous hypophysitis.
3) Xanthomatous hypophhysitis.
4) Necrotising infundubulo-hypophysitis.

5) Iplimumab- induced hypophysitis.

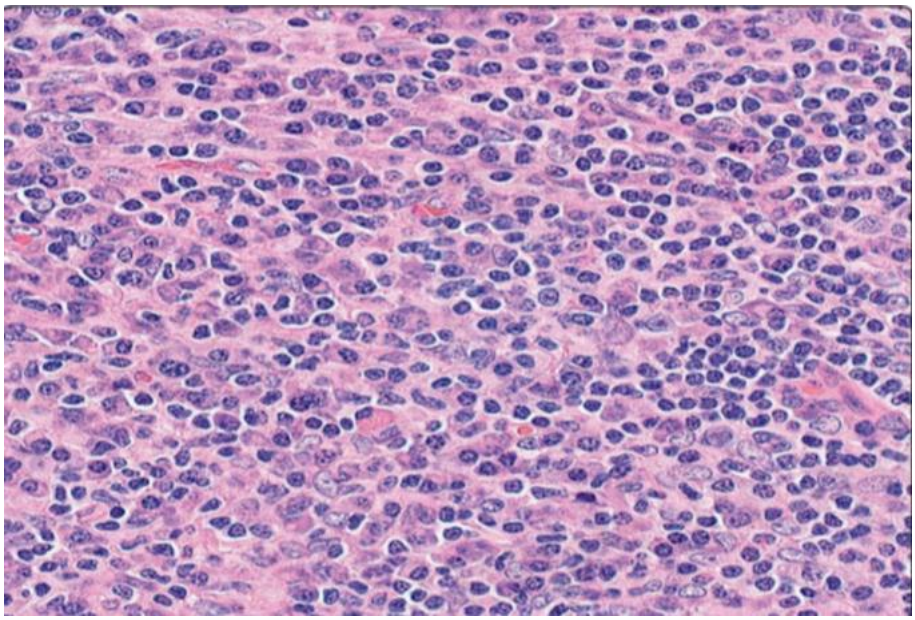
Lymphocytic hypophysitis

• Autoimmune inflamatory disorder shortly after parturation.
• 15% reported cases occurs in males.
• Characterized by a lymphocytic and plasma cell pitutary infiltrate.
• C/F: • Headache. • Visual field impairment. • Hyperprolactinemia. • Inflamatory process often resolves with time.
• ESR is often raised. • GH • ACTH • TSH deficency.

In the absence of visual field defects surgical therapy should be witheld.
• Pitutatry hormone deficency is appropriately replaced and spontaneous resolution of the inflamatory mass is expected.



Saggital graphic shows lymphocytic hypophysitis. Note the thickening of infundibulum and infiltration into the anterior pituitary gland.



Lymphocytic hypophysitis is typified by numerous infiltrating cytologically benign lymphocytes overrunning the gland.

SUMMARY

While the pathogenesis of lymphocytic hypophysitis is unclear, an autoimmune etiology has been suggested. Because of the burden of high mortality rate observed in patients affected from hypopituitarism there is evidence to support an adequate hormone assays in the initial diagnostic work-up of hyponatremia. Unfortunately, most consider hyponatremia, virtually a "normal" consequence of aging. 40% patients with hyponatremia aged 65 years or older have insufficiency of the pitutary adrenal axis. Hyponatremia can be the leading sign of hypopitutarism. Insufficiency also predisposes patient to hypoglycaemia. In addition hypothyroidism also contributes to development of hyponatremia in hypopitutarism. Hponatremia is an early sign of hyponatremia and should not be overlooked. Because of the excess mortality associated with hypopituitarism, hormone assays should be included in the initial diagnostic work-up of hyponatremia. Appropriate and timely therapy of hyponatremia and hypopituitarism is key to reduce the related high mortality rate.

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