Open Journal of
Clinical & Medical
Case Reports

Volume 2 (2016)
Issue 14

ISSN 2379-1039

A Case Report: Hyponatremia as the First Presentation of Empty Sella Syndrome

Sintija Iesalniece, MD; Sabīne Upmale; Justīne Māliņa; Ieva Ruža, MD*

***Ieva Ruza, MD**
Department of Endocrinolgy, Riga Eastern Clinical University Hospital, Latvia
Email: dr.ieva.ruza@gmail.com

Abstract

Hyponatremia is one of the most common electrolyte disorders seen in clinical practice. Often, especially in mild cases, the cause of this abnormality remains unclear.

We report a case of severe electrolyte disbalance seen in a patient with the diagnosis of empty sella syndrome with secondary adrenal insufficiency. Treatment with glucocorticoids is effective and normal levels of sodium may be reached. The diagnosis of hypopituitarism in hyponatraemic patients is often overlooked; however severe hyponatraemia due to hypopituitarism and adrenal insufficiency can be life-threatening.

Keywords

empty sella syndrome; hyponatremia; electrolyte disbalance

Introduction

Hyponatremia is one of the most common electrolyte disorders seen in clinical practice and the prevalence depends on the underlying cause and the age of the patient. Although most cases are mild or relatively asymptomatic, diagnosing hyponatremia is important as it can substantially decrease mortality. This electrolyte abnormality is divided into 3 types. The most common is hypotonic (including hypovolemic, euvolemic, hypervolemic) hyponatremia, however hypertonic and isotonic hyponatremia can occur in rare cases [1]. Hyponatremia has a broad differential diagnosis and finding the exact cause may be a challenge.

Case Presentation

A 77-years old white woman was admitted to the internal medicine ward for evaluation due to complaints of headache, fatigue, progressing mental deterioration. Laboratory findings showed marked electrolyte disbalance (K 6.38 mmol/l [3.5-5.1], Na 119.08mmol/l [136-145]), low renal function (creatinine 160 μmol/l [44-80], GFR 28.76 ml/min (**Table 1**)) and mildly elevated inflammatory markers. Any concomitant drug use interfering with sodium levels was excluded. Serum osmolality was normal, however urine osmolality and sodium levels were not measured. Endocrine work-up showed a mildly elevated TSH level with lower fT4 level, serum cortisol was normal, but low levels of ACTH were detected. Due to suspected secondary adrenal insufficiency, pituitary MRI was performed and it revealed possible empty sella. Diagnosis of empty sella syndrome with secondary adrenal insufficiency. severe

electrolyte disbalance, primary hypothyroidism, acute deterioration of chronic kidney disease was made. The patient was treated with 5.85% NaCl, Ca gluconate and glucose infusions, levothyroxine. Intravenous and subsequent oral hydrocortisone was added after the established diagnosis of secondary adrenal insufficiency. Renal function and elecrolyte levels were improved during hospitalization, though low normal levels of sodium persisted. The mental status of the patient improved significantly.

Discussion

Empty sella syndrome is a condition associated with the shrinkage or flattening of the pituitary gland as the sella fills with cerebrospinal fluid. The pathophysiological cornerstones of empty sella syndrome are an incompletely formed sellar diaphragm and elevated cerebrospinal fluid pressure which leads to intrasellar herniation of the subarachnoid space, thus compressing the pituitary gland [2]. Mainly patients with empty sella are asymptomatic and the finding can be incidental. Most often primary empty sella syndrome affects women, associated with obesity and multiparity. The symptoms that can occur in patients with empty sella are headache, hypertension, and visual abnormalities. Endocrine abnormalities are not common but hyperprolactinaemia, the abnormality of growth hormone and thyrotropin production, and gonadotropin deficiency can be seen [3]. Hyponatraemia as the presenting manifestation of empty sella syndrome is rare, but several cases have been reported. Secondary adrenocortical deficiency can cause excessive ADH secretion, thereby resulting in hyponatremia as cortisol is a physiological tonic inhibitor of vasopressin [4].

The common causes of hyponatremia are the loss of circulating volume, heart failure, cirrhosis, syndrome of inappropriate ADH secretion, and medication (thiazide diuretics, mannitol) [5]. The symptoms of hyponatremia can vary and they depend on the rapidity in which the electrolyte disbalance has occurred. In mild cases patients can be asymptomatic or the symptoms are non-specific, but severe hyponatremia presents with neurological symptoms due to brain oedema and an increased intracranial pressure. In cases of moderate hyponatremia the symptoms can include nausea, confusion, and headache. Severe hyponatremia may present with cardiorespiratory distress, vomiting, somnolence, seizures, and coma [1].

Glucocorticoid substitution is the mainstay treatment for empty sella syndrome presenting with hyponatremia, normal levels of sodium are usually reached within 3–5 days [4]but our patient showed improvement over weeks (**Table 1**). Frequent monitoring of the sodium level is necessary to prevent neurologic deficit and myelinolysis.

Severe hyponatremia due to hypopituitarism with adrenal insufficiency can be life-threatening, and the treatment with glucocorticoids is very effective once the diagnosis of the underlying disorder has been made. The diagnosis of hypopituitarism in hyponatremic patients is often overlooked.It is necessary to perform pituitary MRI in cases when secondary hormonal deficiency is suspected, especially in obese elderly females.Before correcting glucocorticoid deficiency in cases of empty sella syndrome it is essential that sodium levels are tested frequently as rapid correction can be the cause of a serious neurological deficit.

Table

	Creatinine (µmol/l)	GFR (ml/min)	K (mmol/l)	Na (mmol/l)	Urea (mmol/l)	Uric acid (µmol/l)
At presentation	160.02	28.76	6.38	119.08		
24 hours	208.33	21.21	6.84	120.23	8.00	
48 hours	139.00	33.83	5.88	127.00		437.00
5 days	120.00	40.90	5.72	124.00		
17 days	79.00	64.93	4.53	125.00		
1 month				132.00		

Table 1: Laboratory values during the time of hospitalisation

References

1. Spasovski G, Vanholder R, Allolio B, Annane D, Ball S, Bichet D et al. Clinical practice guideline on diagnosis and treatment of hyponatraemia. Eur J Endocrinol. 2014;170:G1-47. DOI: 10.1530/EJE-13-1020

2. Kaufman B. The "empty" sella turcica--a manifestation of the intrasellar subarachnoid space. Radiology. 1968;90:931–946. DOI: http://dx.doi.org/10.1148/90.5.931

3. Kanan CR. The empty sella syndrome. In: The Pituitary Gland. New York: Springer US. 1987; 513-25. DOI: 10.1007/978-1-4613-1849-1_18

4. Diederich S, Franzen NF, Bähr V, Oelkers W. Severe hyponatremia due to hypopituitarism with adrenal insufficiency: report on 28 cases. Eur J Endocrinol. 2003;148:609-17. DOI: 10.1530/eje.0.1480609

5. Verbalis JG, Goldsmith SR, Greenberg A, Korzelius C, Schrier RW, Sterns RH et al. Diagnosis, Evaluation, and Treatment of Hyponatremia: Expert Panel Recommendations. Am J Med. 2013;126(10 Suppl 1):S1-42. DOI: http://dx.doi.org/10.1016/j.amjmed.2013.07.006

Manuscript Information: Received: July 02, 2016; Accepted: July 26, 2016; Published: July 28, 2016

Authors Information: Sintija Iesalniece, MD[1*]; Sabīne Upmale[2]; Justīne Māliņa[2]; Ieva Ruža, MD[2,3]
[1]Department of Internal Medicine,Riga Eastern Clinical University Hospital, Latvia
[2]Riga Stradins University, Latvia
[3]Department of Endocrinolgy, Riga Eastern Clinical University Hospital, Latvia

Citation: Iesalniece S, Upmale S, Malina J, Ruza I. A case report: hyponatremia as the first presentation of empty sella syndrome . Open J Clin Med Case Rep. 2016; 1143