A Case of Thickened Pleura Induced Siadh

Medical Science

KEYWORDS : hyponatremia; SIADH; thickened pleura

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ABSTRACT

The causes of hyponatremia are several , evaluation starts with assessment of volume status and followed by investigations .The diagnosis of syndrome of inappropriate antidiuretic hormone(SIADH) is suggested when euvolemia with serum osmolality <280mmol/kg, urine osmolality >100mmol/kg, urine sodium>20mmol/L. The common causes of SIADH are lung disease like tubercolosis of lung, pneumonia,bronchogenic carcinoma.There are few cases of pleural diseases causing SIADH were reported. We herein report a case of severe hyponatremia due to SIADH caused by thickened pleura.

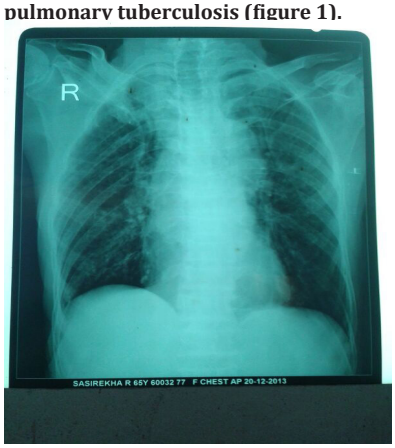
INTRODUCTION

Hyponatremia is defined as plasma sodium concentration <135mmol/L. It is divided into three types: hypovolemic, euvolemic, hypervolemic hyponatremia. The reported prevalence in hospitalized patients ranges between 3% and 15%[1]. Patients may present with acute or chronic symptoms or may be asymptomatic. The initial evaluation includes estimation of volume status, serum electrolytes, serum osmolality, urine osmolality, urine sodium. The common causes of euvolemic hyponatremia are SIADH and hormonal abnormalities(11). Further evaluation of SIADH needs to rule out chest pathology, central nervous system, malignancies, drugs. The treatment should be prompt and symptomatic. In this present case SIADH due to thickened pleura lead to severe symptomatic hyponatremia.

CASE REPORT

A 65 year old female (body mass index 19.5kg/m2) presented to emergency room with altered sensorium, irrelevant talk, headache from one day. On examination her vitals were stable , blood pressure 110/70mmHg, heart rate 78/min and respiratory rate 14/min. Her electrolytes were as follows: sodium 103mmol/L, potassium 5mmol/L, chloride 84mmol/L, arterial blood gas analysis were normal, serum osmolality 240mosmol/kg, urine osmolality 450mosmol/kg, urine sodium 55.6mmol/L. The remaining laboratory tests performed on admission including whole blood count, liver and renal function tests were normal. There was history of pulmonary tuberculosis in the past, now there is no evidence of active lesions. Sputum for gram's stain and acid fast bacilli was negative and culture sterile.

Chest roentgenogram revealed features suggestive of old pulmonary tuberculosis (figure 1).



On physical examination the patient appeared euvolemic, no signs of heart or liver failure, afebrile and neurological tests were unremarkable, yet the patient is disoriented. Computed tomography (CT) scan of head was normal. In view of altered sensorium and serum sodium 103mmol/L patient was put on hypertonic saline solution (3%), and further laboratory workup was performed. Differential diagnosis included SIADH and hormonal abnormalities. Serum cotisol, aldosterone, and thyroid hormonal levels were with in the normal range. High resolution computed tomography (HRCT) of chest and abdomen were done, which revealed irregular thickened pleura predominantly involving posterior aspect of bilateral apical lobe (figure 2) and fibrotic strand (figure 3) suggestive of old pulmonary tuberculosis.



Figure – 2

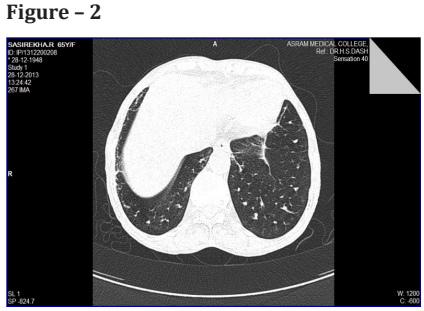


Figure - 3

We adviced pleural biopsy for further evaluation but patient refused the invasive procedure. Patient was kept on hypertonic saline for acute symptoms followed by fluid restriction, increase salt intake and vaptans(5) for chronic management. As there was no other usual cause for SIADH, we diagnosed this case as thickened pleura induced SIADH.

DISCUSSION

Hyponatremia

Hyponatremia defined as plasma sodium concentration <135mmol/L. Depending on clinical history and volume sta-

tus(2). It is subdivided into hypovolemic, euvolemic, hypervolemic hyponatremia. Measurement of urinary sodium, plasma osmolality and urine osmolality are necessary to diagnose the type of hyponatremia.

Patients with hypovolemic hyponatremia losses salt in excess of water. If urine sodium>20mmol/L, causes include renal losses, diuretics excess, mineralocorticoid deficiency, salt losing deficiency(11) . If urine sodium <20mmol/L, causes are extra renal losses, vomiting, diarrhea, third spacing of fluids. Most of these cases respond to isotonic saline infusion.

In Patients with hypervolemic hyponatremia, there is inappropriate water retention leading to reduction in sodium concentration. Causes include cardiac failure, cirrhosis, renal failure, nephrotic syndrome. Management includes treatment of the underlying causes along with diuretic and fluid restriction.

In euvolemic hyponatremia urine osmolality greater than serum osmolality along with urine sodium excretion>20mmol/L, as seen in our patient. The causes for euvolemic hyponatremia are glucocorticoid deficiency, hypothyroidism, drugs, SIADH. In our case there is no nausea, vomiting, drug intake and no hormonal abnormalities. So SIADH is the cause of hyponatremia in this case.

SIADH
SIADH is a diagnosis of exclusion that usually made from the history, physical examination and basic laboratory data. Causes of SIADH(11) are

Neoplasms :
lung, duodenum, pancreas, ovary, bladder, ureter.

Pulmonary disorders:
infections, pneumonia (bacterial, viral), pulmonary abscess, tuberculosis, aspergillosis, asthma, cystic fibrosis.

Central nervous system disorders:
encephalitis, meningitis, brain abscess, subdural haematoma, subarachnoid hemorrhage, cerebrovascular accident, head trauma, brain tumours.

Drugs:
drugs stimulating release of arginine vasopressin(AVP) or enhance its action. Chlopropamide, selective serotonin reuptake inhibitors, tricyclic antyidepressants, clofibrate, carbamazepine, vicristine, nicotine, narcotics, antipsychotic drugs.

Treatment for euvolemic hyponatremia includes administration of hypertonic saline for acute symptoms and fluid restriction, increase salt intake, and vaptans(4) for chronic management.

Thickened pleura
Causes for thickened pleura are bacterial pneumonias, chemotherapy, drugs, infections,injury to ribs, lung contusion, lupus, pleural effusion, pulmonary embolism, radiation therapy, rheumatoid lung disease, tuberculosis, tumours (9,10). In our case the thickened pleura most likely due to old pulmonary tuberculosis as there were no other obvious etiology was present.

CONCLUSION
In conclusion severe symptomatic euvolemic hyponatremia need extensive workup to find out the etiology such as addisons disease, hypothyroidism and SIADH. In a case of SIADH initial hypertonic saline to control the symptoms. Later water restriction and vaptans are good options for chronic management. We report a case of SIADH due to Thickened pleura who presented as acute symptomatic hyponatremia and managed wth initial hypertonic saline followed by water restriction and vaptans. We therefore suggest that the SIADH due to thickened pleura and other chronic lung diseases can be effectively managed with water restriction and vaptans.

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