

SYNDROME OF INAPPROPRIATE ANTIDIURETIC HORMONE (SIADH): AN UNCOMMON SYNDROME AFTER COMMON SURGERY: A CASE REPORTWasim Shabbir Shaikh^{*1}, Fahimuddin Syed², Zeyad Alrais³ and Mohammed Baqer⁴¹Specialist Intensivist, Rashid Hospital, Dubai.²Senior Specialist Intensivist, Rashid Hospital, Dubai.³Head of Dept., Medical ICU, Rashid Hospital, Dubai.⁴Consultant, Medical ICU, Rashid Hospital, Dubai.***Corresponding Author: Dr. Wasim Shabbir Shaikh**

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ABSTRACT

SIADH is known to occur postoperatively mainly after intracranial surgeries. However, SIADH presenting after cosmetic rhinoplasty is rare entity. We report case of severe symptomatic hyponatremia due to SIADH and its management following cosmetic rhinoplasty in young healthy lady.

KEYWORDS: SIADH, Rhinoplasty, Hyponatremia, Complications.**CASE REPORT**

43 year old lady underwent rhinoplasty under general anesthesia at private Clinic. Surgery lasted 2 hrs and she was discharged from hospital after 6 hrs uneventfully. She was apparently alright till same day evening when she started to develop some nausea, uneasiness. She took some analgesics and antiemetic and went to sleep.

At midnight she had fall from bed and was found by relative on floor in gasping state.

She was brought to hospital by paramedics. On arrival to emergency she was hypotensive, tachycardic, GCS 3, pupils reactive. She was intubated and ventilated for airway protection. ECG was normal. ABG analysis showed normal parameters except sodium 116 mEq/L. This demonstrated profound hyponatremia. Stat scan done for suspected polytrauma did not reveal any abnormality in brain, chest or abdomen. Her lab investigations revealed sodium 117mEq/L. The patient was transferred to the intensive care unit for invasive monitoring and slow correction of her sodium level.

Our patient had normal preoperative sodium. Hyponatremia after ICU admission was confirmed with low plasma osmolarity 264mOsm/kgH₂O, with high urinary sodium 72mEq/L in absence of any hypovolemia. Her renal, hepatic, cardiac functions all were within normal limits. [Table 1] According to time of onset and severity criteria of hyponatremia, patient was diagnosed with acute severe hyponatremia with need of urgent correction.

Correction was started with 3% hypertonic saline with serum sodium measurement frequently. We kept the goal of sodium correction not more than 8-12 mEq/day for first 24 hrs. Serum sodium was measured every 4 to 6 hours and within 24 hrs sodium concentration reached to 126 mEq/L and to 136 mEq/L after 2 days. Patient was extubated on third day without any neurological deficit and discharged from ICU on 5th day. She was followed up by endocrinology department 1 week later with normal electrolytes.

DISCUSSION

Syndrome of inappropriate antidiuretic hormone secretion (SIADH) described by Schwartz and barter is characterized by hyponatremia, low plasma osmolarity, high urinary sodium and high urine osmolarity.^[1]

There are several well documented causes of SIADH most common being head injury, brain tumors, and CNS infections. Its occurrence is also seen in malignant tumors mainly carcinoma lung where ectopic production of ADH is high. A number drugs like anticonvulsants, antidepressants, chemotherapeutics agents are also culprit in many cases. Operative procedures such as major abdominal, thoracic and intracranial surgery are important causes of post operative SIADH.^[2,3] Exact mechanism leading to increased production ADH during post operative period is unknown. Stress response and pain has been documented to cause increase in ADH secretion. SIADH following intracranial surgeries is common and well documented in various case reports. But in literature only one case is documented following cosmetic rhinoplasty where there was no underlying

medical disorder associated with SIADH nor did patient received any medications associated with SIADH.^[4]

Symptoms associated with SIADH encompass broad spectrum of clinical presentation ranging from subtle cognitive deficiencies to life threatening neurological disturbances as seen in our patient. Diagnosis of SIADH requires ruling out other causes resulting in similar water and electrolyte abnormalities include hypothyroidism, adrenal insufficiency.

Patient was euvolemic with normal thyroid and lipid status along with normal hepatic, renal function tests, so attempts were made to find out primary diagnosis. The approved criteria for SIADH are listed below.^[5]

Diagnostic criteria for SIADH

Bartter and Schwartz criteria for SIADH:

1. Decreased plasma osmolality (<275 mosm/kg)
2. Inappropriately concentrated urine (>100 mosm/kg)
3. Euvolemic
4. Elevated urine Na (>20 mEq/L)
5. Euthyroid, eucortisolemic and no diuretic use.

Almost all of the above criteria were fulfilled in our patient. Urinary sodium greater than 20 mEq/l is especially typical of SIADH.^[6,7] Neither biochemical investigation nor imaging revealed any obvious cause of SIADH except post operative status of patient.

One of the most common differential diagnosis of SIADH is cerebral salt wasting syndrome mostly seen after traumatic brain injury or neurosurgical procedures. Most important difference is hypovolemia in cerebral salt wasting compared to euvolemia in SIADH, as well as treatment with fluid restriction in one and fluid supplementation in other.^[8]

In cases of profound symptomatic and acute hyponatremia failure to timely correct hyponatremia places the patients at risk of hyponatremic encephalopathy, seizures, brain herniation whereas overzealous rapid correction of sodium may lead to osmotic demyelination syndrome.^[9] SIADH mainly causes euvolemic hyponatremia.^[10] Our patient was treated with 3% hypertonic saline with goal of sodium correction 8-12 mEq/day. Fluid restriction 500-1000 ml/day is also suggested in treatment of hyponatremia which was strictly followed in up our case.

This report highlights the fact that SIADH can occur following routine day care surgeries also. Expected symptoms of post of recovery like nausea, vomiting may mask potentially life threatening complications and should be corrected till resolution of symptoms. Critical thinking is necessary to avoid serious complications.

Table 1: Investigations of the Patient.

| Investigations(unit), (reference range) | Day 1 | Day 2 | Day 3 | Day 4 |
|--------------------------------------------------|-----------------|----------------|----------------|----------------|
| Hb (g/dl) | 11.2 | 10 | 10.2 | |
| WBC (x 10 ⁹ /L) | 12.1 | 11.4 | 10 | |
| Platelet (X10 ⁹ /L) | 440 | 420 | 395 | |
| Serum Sodium, Potassium(mEq/L) | 116, 3.6 | 126,3.9 | 136,3.8 | 136,3.7 |
| Blood Urea (mg/dl), serum creatinine (mg) | 15, 0.7 | 20,0.8 | 24,0.9 | 18,0.8 |
| C-reactive protein (mg/L), Procalcitonin(nng/ml) | 6, 0.04 | | | |
| Creatinine phosphokinase (U/L), Troponin(ng/L) | 166,6 | | | |
| Bilirubin(mg) | 0.3 | | | |
| TSH (uIU/ml) | | 0.411 | | |
| Free T4, Free T3(Pmmol/L) | | 19.3,2.9 | | |

CONCLUSION

SIADH can be the cause of post operative hyponatremia in major surgeries but its occurrence is very rare after rhinoplasty. Early identification of this complication in post operative state is necessary to avoid potentially life threatening complications. This case report of severe symptomatic hyponatremia following rhinoplasty supports vigilant monitoring of electrolytes in post operative period.

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