
CASE REPORT

Seizure Secondary to Hyponatremia Following a Urogynaecological Surgery: A case report

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ABSTRACT

Postoperative urinary retention after urogynaecological surgery is common. However urinary retention and hyponatremia is an association that is not known by many. Hyponatremia can be life threatening if it is not picked up early and managed appropriately. We reported a case of seizure following urogynaecological surgery due to severe hyponatremia caused by urinary retention. Early detection, patient education, postoperative bladder care and pain control are important measures to prevent this complication.

Keywords: urogynaecological surgery, seizure, hyponatremia, urinary retention.

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Introduction

Postoperative urinary retention after urogynaecological surgery is common and it can cause significant discomfort and anxiety to patients and may lead to various complications⁽¹⁾. The incidence is quoted as 2.5% to 24% and may be as high as 55% for colpocleisis and 61.9% for mid-urethral sling^(2,3). However urinary retention leading to severe hyponatremia causing seizure are very rare. Hyponatremia is defined as serum sodium < 135 mEq/L and it is more common in the elderly population which is the main cohort of urogynaecological

patients⁽⁴⁾. Hyponatremia is a life threatening medical condition if it is not managed properly. Correction should be gradual and not too rapid to avoid osmotic demyelination syndrome (ODS). Case of seizure following urogynaecological surgery is presented, where severe hyponatremia was caused by urinary retention. Different presentations of hyponatremia include general weakness, reduced alertness, nausea and vomiting, altered mental status, and even seizure⁽⁵⁾. Hyponatremia should be an important different diagnosis in postoperative delirium⁽⁶⁾, especially for urogynaecological surgery.

Case Report

A 64-year-old lady with underlying hypertension on amlodipine underwent vaginal hysterectomy and total colpocleisis for procidentia (Fig. 1). She has been healthy and her preoperative investigations were normal. Her serum sodium (141 mmol/L) and potassium (4 mmol/L) were within normal range. The 90-minute surgery was uncomplicated with a blood loss of 100 ml. Postoperatively, she was recovering well and vital signs were normal. Urinary catheter was removed and trial of void was carried out on day 2 post operation. She was able to pass 50 ml of urine and subsequently developed difficulty in voiding. In and out catheterisation was carried out and 600 ml of clear urine was drained. Reinsertion of urinary catheter was offered, however she insisted for another trial of void. She started to complain of giddiness and body weakness at 10 hours post urinary catheter removal. Nurses noticed that she was confused and had slurring of speech. She was attended immediately. Vital signs

were stable and blood sugar was normal. On examination her Glasgow Coma Scale (GCS) was E4M4V4, pupils were reactive and her bladder was distended. Indwelling urinary catheter was inserted and 1,000 ml of urine was drained. While arranging for computerized tomography (CT) brain, she developed generalised tonic-clonic seizure which lasted for 3 minutes. Her airway was secured and resuscitative measures were carried out. The seizure aborted following intravenous diazepam.

Her CT brain was normal. Serum sodium (112 mmol/L) and urine sodium (144 mmol/L) were low. Her serum (259 mOsm/kg) and urine (144 mOsm/kg) showed hypoosmolarity. She was transferred to intensive care unit, and hyponatremia was corrected with hypertonic 3% saline and fluid restriction. Her serum sodium level was normalised in a gradual manner to avoid ODS. She was intubated for 3 days and her recovery was uneventful. She was discharged well with no neurological deficit.



Fig. 1. Examination prior to surgery showed procidentia.

Discussion

Postoperative urinary retention and hyponatremia are complications that we should be familiar with. Both are interlinked. High index of suspicion, early detection and aggressive treatment are important to prevent fatal consequences.

Postoperative hyponatremia can occur after gynaecologic surgeries such as laparoscopy, hysterectomy and hysteroscopy. Death from acute hyponatremia following uneventful abdominal hysterectomy has been reported by George Villos et al⁽⁷⁾. It can be provoked by

surgical stress and pain, other causes such as edematous states, renal failure, volume depletion and hyperglycemia need to be ruled out as appropriate treatment will depend on the cause of hyponatremia⁽⁸⁾. This case report highlighted postoperative urinary retention as one of the causes of hyponatremia that is always forgotten. Preoperative baseline electrolytes, intake output charting and judicious use of intravenous fluid and distention media are among the preventive measures of postoperative hyponatremia.

Management and treatment of hyponatremia

depend on the types of hyponatremia: hypovolemic, euvolemic or hypervolemic. Urinary retention, water intoxication and syndrome of inappropriate secretion of antidiuretic hormone (SIADH) cause euvolemic hyponatremia. Acute symptomatic hyponatremia needs to be corrected with bolus hypertonic 3% saline (1-2 ml/kg/ hour) with the goal of serum sodium correction 6-8 mmol/L in 24 hours. Serum sodium need to be checked 2 hourly until stable because rapid correction of sodium can lead to ODS. The role of vasopressin-receptor antagonists in the treatment of hyponatremia is still controversial⁽⁹⁾.

Postoperative urinary retention after urogynaecological surgery is common and multifactorial. This may be due to the dissection and manipulation over the paravesical and paravaginal areas. Pubocervical plication and closure of paravaginal space may lead to bladder and urethral dysfunction. Some patients are afraid to urinate because of the pain over the surgical site. In our experience over 6 weeks, 3 out of 12 (25%) patients who underwent vaginal surgery has voiding dysfunction that require prolonged indwelling catheterisation. All these 3 patients had procidentia. We have hypothesized that the greater the prolapse, the higher the chance of voiding dysfunction postoperatively. In procidentia, urinary tract is pulled down and stretched out with the bladder exposed to the external environment. This may lead to inflammation and edema of the bladder and innervation of the urinary tract may be disturbed.

Postoperative bladder care and pain management

are essential in urogynaecological surgery. Trial of void, residual urine measurement, clean intermittent self-catheterisation (CISC) and prolonged indwelling catheterisation are important components of postoperative management. These must be included in the preoperative counselling. House officer, residents and nurses must be educated on these as urogynaecology is a subspecialty that they might have limited exposure to. Protocols and algorithms must be in place.

On the other hand, patient must be educated and made aware of post-operative bladder care. Many patients may get upset and stressed out when they are unable to void after removal of catheter. Close monitoring, input output charting and palpation of the abdomen are important to ensure that the patients are not retaining urine. Reassurance and support must be given to the patients. Patients that have voiding dysfunction, early CISC and reinsertion of indwelling catheter maybe considered.

Many patients are not aware of the correct drinking habit and the daily water intake requirement of 1.5-2 litres⁽¹⁰⁾. They have the misconception that the more they drink the better it is and not seldom we come across patients that drink 4-6 litres of water per day. These may lead to urgency, frequency, nocturia and causing distress to the patients. In postoperative patient with voiding dysfunction, this can be dangerous as rapid filling of the bladder with urinary retention may lead to inappropriate release of antidiuretic hormone (ADH) that leads to hyponatremia (Fig. 2).

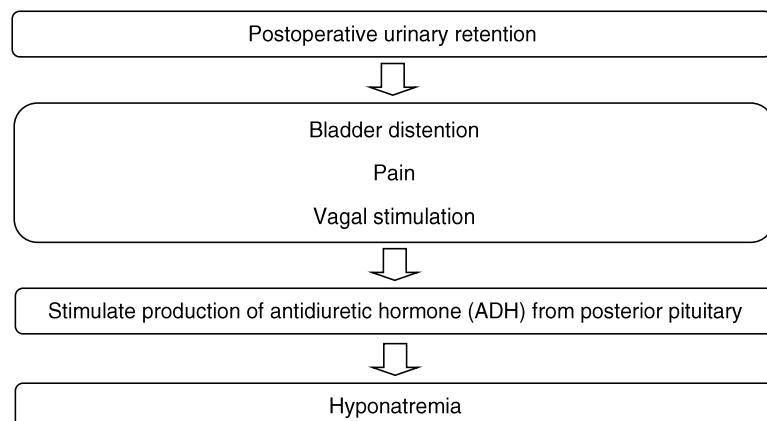


Fig. 2. Pathophysiology of hyponatremia in urinary retention⁽¹¹⁾.

Conclusion

Urinary retention can be a common yet fatal complication following urogynaecological surgery if not managed well. We recommend monitoring of electrolyte levels in patient with urinary retention. Clinically, signs and symptoms of hyponatremia should be watched for. Patient and staff education is important.

Potential conflicts of interest

The authors declare no conflict of interest.

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