

Spontaneous bilateral carpopedal spasm in a bulimic patient¹

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DESCRIPTION

A 36-year-old woman presented to the emergency department after she woke up with painful spasm of bilateral hands. She had been vomiting 10–15 times daily for the past few days. She denied any laxative or diuretic abuse. She had 18-year history of bulimia nervosa, primarily involving self-induced vomiting and excessive exercising. Her body mass index was 20.7 kg/m². Vital signs and physical examination were unremarkable except for dry oral mucosa, poor oral dentition and classic bilateral carpopedal spasm (figure 1). Labs revealed hypocalcaemia (ionised calcium 0.88 mmol/L), hypokalaemia (potassium 2.8 mEq/L), hypomagnesaemia (magnesium 1.6 mEq/L),

metabolic alkalosis (serum bicarbonate 34.5 mEq/L), hypochloraemia (chloride 78 mEq/L), hypophosphataemia (phosphorus 1.6 mg/dL), acute kidney injury (serum creatinine 2.49 mg/dL, baseline of 0.9), leucocytosis (white blood cells 15 700 $\times 10^9/L$ mm³) and normal serum albumin 4 g/dL. ECG showed normal sinus rhythm with prolonged QTc of 550 ms (figure 2). Urine drug screen was positive for cocaine. She was resuscitated with intravenous fluids and repleted with electrolytes, leading to resolution of her carpopedal spasm, leucocytosis, electrolyte and ECG abnormalities.

Tetany is a syndrome characterised by painful flexion of wrist and ankle joints (carpopedal spasm), muscle cramps, twitching, seizure, laryngospasm, syncope or myocardial dysfunction. It occurs due to hyperexcitable nerves and muscles in the setting of decreased extracellular ionised calcium.¹ Bulimia nervosa, to the extent of causing spontaneous carpopedal spasm, has not been reported in literature. Bulimia is an eating disorder characterised by recurrent episodes of binge eating and inappropriate compensatory behaviours like self-induced vomiting, laxative or diuretic abuse. Bulimia occurs mostly in women (female-to-male ratio of 10:1).² Acid-base and electrolyte disturbances are the most dangerous medical complications of bulimia and can result in death from cardiac arrhythmias.³ In bulimia, as in our patient, persistent vomiting



Figure 1 Spontaneous bilateral carpopedal spasm.

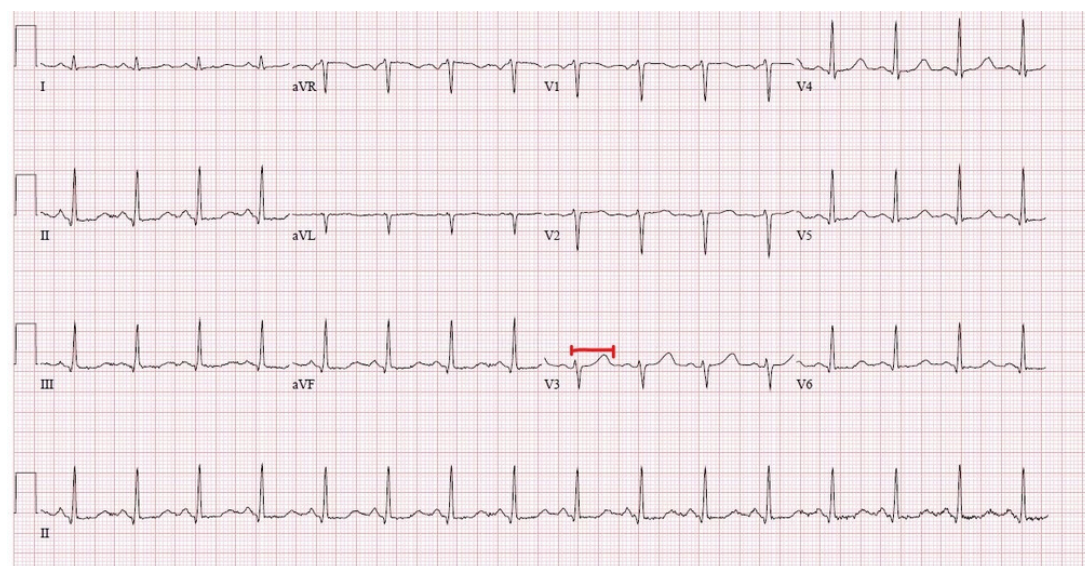


Figure 2 ECG showing prolonged QTc from hypocalcaemia.



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induces metabolic alkalosis and hypokalaemia due to loss of gastric acid and potassium in the vomitus. Alkalosis causes dissociation of hydrogen ion from albumin. As a result, calcium can bind to albumin causing decrease in free ionised calcium. Hypomagnesaemia occurs by similar mechanism. Hypokalaemia is worsened by intracellular shift of potassium due to alkalosis. Tetany can manifest from hypocalcaemia, hypomagnesaemia, hypokalaemia or alkalosis.¹ Our patient had all four factors, which greatly increased the neuromuscular irritability and induced spontaneous carpopedal spasm. High index of suspicion may

be required to diagnose bulimia as the patient may not always admit it. Unexplained hypokalaemia when present in an otherwise healthy woman is highly specific for covert bulimia nervosa.³

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Learning points

- ▶ Spontaneous carpopedal spasm may occur in bulimic patients if severe acid-base and electrolyte disturbance occurs.
- ▶ Bulimia nervosa should always be considered in otherwise healthy women with unexplained hypokalaemia and metabolic alkalosis.

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