A woman with recurrent vomiting and body cramps

CLINICAL INTRODUCTION
A 68-year-old woman with pancreatic cancer undergoing chemotherapy presented to the emergency department with a week of vomiting and body cramps. Vital signs were: BP 130/70 mm Hg; HR 80 bpm; RR 14 bpm and oxygen saturation 100% while breathing ambient air. Laboratory investigations showed normal calcium, magnesium and albumin levels; hypokalaemia level at 2.3 mmol/L (normal range 3.5–5.0 mmol/L) and bicarbonate level at 42 mmol/L (normal range 22–29 mmol/L).

While the nurse was taking vital signs, the patient complained of a right hand cramp (figures 1 and 2) which disappeared after a few minutes.

QUESTION
What is the most likely diagnosis?

A. Parkinson disease
B. Stroke
C. Hyperventilation
D. Trousseau’s sign secondary to hypocalcaemia
E. Trousseau’s sign secondary to metabolic alkalosis

For the answer see page 968

Figure 1  Before inflation of sphygmomanometer cuff.

Figure 2  After inflation of sphygmomanometer cuff.
A woman with recurrent vomiting and body cramps

Answer: E

Trousseau’s sign secondary to metabolic alkalosis

Trousseau’s sign, first described in 1862, is a carpopedal spasm induced by ischaemia, such as that resulting from inflation of the sphygmomanometer cuff above systolic BP. Most cases are secondary to hypocalcaemia, but 1% are seen with normal calcium levels. In such cases, metabolic alkalosis or hypomagnesaemia is usually found. Metabolic alkalosis induces greater ionised calcium binding to albumin, resulting in a significant decrease of calcium in the blood. Treatment requires the correction of alkalosis. This patient was treated by intravenous hydration with saline 0.9% (2 L) and correction of hypokalaemia with alizapride 50 mg to prevent loss of gastric chloride.

Parkinson’s rigidity is manifested as increased resistance to the passive movement of joints and inability to achieve complete muscle relaxation. Since the patient doesn’t have other signs of parkinsonism and the cramp disappeared rapidly after the sphygmomanometer cuff was deflated, Parkinson disease can be excluded. Stroke would demonstrate persistent spasticity even after stopping deflation of sphygmomanometer. Hyperventilation is unlikely given normal vital signs.

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References
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