CASE REPORT

Symptomatic hypocalcaemia secondary to PTH resistance associated with hypomagnesaemia after elective embolisation of uterine fibroid

Tomas Patrick Griffin,¹ Michael Murphy,² John Coulter,³ Matthew StJohn Murphy⁴

¹Department of Endocrinology, South Infirmary Victoria University Hospital, Cork, Ireland

²Department of Radiology, South Infirmary Victoria University Hospital, Cork, Ireland

³Department of Gynaecology, South Infirmary Victoria University Hospital, Cork, Ireland

⁴Department of Medicine, South Infirmary Victoria University Hospital, Cork, Ireland

Correspondence to

Dr Matthew StJohn Murphy; murphy.matthew@sivuh.ie

SUMMARY

Four weeks after elective embolisation of a symptomatic benign uterine fibroid, a lady presented to her general practitioner with facial twitching and severe lassitude. Acute hypocalcaemia was diagnosed. Further investigations demonstrated hypomagnesaemia. Parathyroid hormone (PTH) was within normal limits. Symptoms and the acute metabolic disturbance resolved with treatment by oral magnesium and calcium supplementation. While lassitude is a common symptom of postfibroid embolisation and may last for up to 6 weeks, the presentation with facial twitching alerted the clinician to a potential electrolyte or metabolic imbalance. This is a first reported case of hypomagnesaemia associated with PTH resistance leading to hypocalcaemia precipitated by alcohol particle embolisation for benign fibroid disease.

CASE PRESENTATION

A lady in her mid-40s underwent elective embolisation of an enlarged symptomatic multifibroid uterus, the largest fibroid being 8.8 cm, using three vials of 355–500 μ polyvinyl alcohol embolisation particles. She had a medical history of metabolic syndrome, hypothyroidism, previous *Helicobacter pylori* eradication, laproscopic cholecystectomy for chronic cholecystitis and affective mood disorder. Her medications at the time of the procedure were losartan, hydrochlorothiazide, rosuvastatin, esomeprazole, escitalopram and quetiapine. Approximately 4 weeks postfibroid embolisation she presented to her general practitioner with symptoms of facial twitching. Blood testing was performed that demonstrated severe hypocalcaemia (figure 2).

INVESTIGATIONS

Acute hypocalcaemia was diagnosed with a calcium level of 1.60 mmol/l (normal range 2.1–2.62) and an albumin of 43 g/l (normal range 35–52). PTH was 38 ng/l (normal range 15–65). Hypomagnesaemia was also diagnosed with a low serum magnesium 0.37 mmol/l (normal range 0.7–1.0).

TREATMENT

Treatment was started with oral calcium carbonate and magnesium supplementation.

BACKGROUND

While lassitude is a common symptom of postfibroid embolisation and may last for up to 6 weeks, the presentation with facial twitching alerted the clinician to a potential electrolyte or metabolic disturbance. This is the first reported case of hypomagnesaemia associated with parathyroid hormone (PTH) resistance leading to hypocalcaemia precipitated by alcohol particle embolisation for benign fibroid disease (figure 1).

Figure 1 Selective angiographic image with catheter in left uterine artery demonstrating fibroid blood supply.

Figure 2 Sagittal T2-weighted MRI demonstrating enlarged multifibroid uterus.

To cite: Griffin TP, Murphy M, Coulter J, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-008708

OUTCOME AND FOLLOW-UP

Treatment was started with oral calcium and magnesium supplementation. With correction of her serum calcium and magnesium, she had full resolution of symptoms.

DISCUSSION

We present a case of acute severe hypocalcaemia diagnosed postuterine fibroid embolisation. We hypothesise it was secondary to PTH resistance, secondary to hypomagnesaemia associated with the embolisation procedure. Hypocalcaemia secondary to PTH resistance has been associated with hypomagnesaemia.¹ There are few case reports of acute hypomagnesaemia described postchemo-embolisation of hepatic tumours,² but not postembolisation for benign fibroid disease. The symptoms emerged in the weeks postinvasive procedure suggesting this was an acute metabolic disturbance. Contributing causes to the hypomagnesaemia are thiazide diuretic³ and proton-pump inhibitors.⁴ We note previously normal serum calcium measurements prior to the procedure and onset of symptoms in the following weeks postprocedure. In addition, thiazide diuretics are associated with hypercalcaemia.³ While a low serum magnesium is indicative of low whole body magnesium stores, a normal serum magnesium may still be seen even with significant whole body deficiency of magnesium.⁵

While lassitude is a common symptom postfibroid embolisation and may last for up to 6 weeks the presentation with facial twitching alerted the clinician to a potential electrolyte or metabolic imbalance. This is the first reported case of hypomagnesaemia associated with PTH resistance leading to hypocalcaemia precipitated by alcohol particle embolisation for benign fibroid disease.

Contributors TPG contributed to the manuscript through acquisition and interpretation of data, drafting the article and final approval of the submitted version. MM contributed to the manuscript through acquisition, analysis and interpretation of data, revision of the manuscript and the final approval of the submitted version. MSM contributed to the manuscript through analysis and interpretation of data, revision of the manuscript and the final approval of the submitted version.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Rude RK, Oldham SB, Singer FR. Functional hypoparathyroidism and parathyroid hormone end-organ resistance in human magnesium deficiency. *Clin Endocrinol (Oxf)* 1976;5:209–24.
- 2 Mavligit GM, Pollock RE, Evans HL, *et al.* Durable hepatic tumor regression after arterial chemoembolization-infusion in patients with islet cell carcinoma of the pancreas metastatic to the liver. *Cancer* 1993;72:375–80.
- 3 Palmer BF, Naderi AS. Metabolic complications associated with use of thiazide diuretics. *J Am Soc Hypertens* 2007;1:381–92.
- 4 Tamura T, Sakaeda T, Kadoyama K, *et al.* Omeprazole- and esomeprazole-associated hypomagnesaemia: data mining of the public version of the FDA Adverse Event Reporting System. *Int J Med Sci* 2012;9:322–6.
- 5 Reinhart RA. Magnesium metabolism. A review with special reference to the relationship between intracellular content and serum levels. *Arch Intern Med* 1988;148:2415–20.

Learning points

- ▶ While lassitude is a common symptom of postfibroid embolisation and may last for up to 6 weeks the associated facial twitching alerted the clinician to a potential electrolyte or metabolic imbalance precipitated by alcohol particle embolisation for benign fibroid disease.
- ▶ Hypomagnesaemia can be associated with parathyroid hormone resistance leading to hypocalcaemia.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow