CASE REPORT

Severe necrotic oesophageal and gastric ulceration associated with dabigatran

Saurabh Singh,¹ Louis Savage,¹ Martin Klein,¹ Cherian Thomas²¹Department of Surgery, Barnet and Chase Farm Hospitals Trust, London, UK²Department of Radiology, Barnet and Chase Farm Hospitals Trust, London, UK**Correspondence to**
Dr Saurabh Singh,
saurabh.singh@nhs.net**SUMMARY**

A 69-year-old Caucasian man, who had been discharged 2 days previously, 5 days post-elective right total hip replacement, was re-admitted with a 16 h history of coffee-ground vomiting and epigastric pain. He had been discharged with 220 mg dabigatran, a novel oral anticoagulant. The coffee-ground vomiting started within minutes of taking the first dose. Haemodynamic compromise, agitation, decreasing conscious level and aspiration pneumonia necessitated intubation, ventilation and inotropic support in the intensive care unit. A CT on admission showed extensive intramural air seen within the lower oesophagus and a dilated stomach, duodenum and jejunum. Endoscopy of the upper gastrointestinal tract showed extensive ulceration, sloughing and multiple areas of necrosis in the distal oesophagus and stomach. The patient made a fully recovery with supportive management.

BACKGROUND

Dabigatran etexilate a direct thrombin inhibitor, is given orally for prophylaxis of venous thromboembolism, as an alternative-to-alternative oral and subcutaneous anticoagulants.¹

This is the second reported case of oesophago-gastric ulceration occurring shortly after dabigatran ingestion. This case describes a more serious potential reaction, which may result from a similar suggested mechanism.

CASE PRESENTATION

A 69-year-old Caucasian man, 5 days post-elective right total hip replacement, was readmitted with a 16 h history of coffee-ground vomiting and epigastric pain, nausea, vomiting and diarrhoea.

He had been discharged with 220 mg dabigatran (as a single daily dose), co-codamol and senna. The coffee-ground vomiting started within minutes of taking the first dose of dabigatran.

On admission he was haemodynamically stable, but had a tense and distended abdomen. During the course of the admission he had a large volume haematemesis. Owing to haemodynamic compromise with an associated significant haemoglobin drop (14–7.6 g/dl) he was subsequently managed in the intensive care unit. He developed agitation, decreasing conscious level and aspiration pneumonia, and required intubation, ventilation and inotropic support.

His medical history was unremarkable, other than osteoarthritis. He had no history of renal impairment, vascular disease or prolonged non steroidal anti inflammatory drugs use.

Figure 1 CT on the day of admission: intramural air in lower oesophagus, stomach and portal vein, likely due to extensive ulceration.

INVESTIGATIONS

The patient was initially stable on presentation and due to the clinical findings a CT scan of the abdomen was performed on the day of admission. This showed evidence of extensive intramural air seen within the lower oesophagus and a dilated stomach, duodenum and jejunum (figures 1 and 2). This finding was thought to be caused by the extensive ulceration, which allowed air to be present in the wall of these structures. Repeat CT scan 2 days after admission showed resolution of the intramural air and no vascular abnormality (figures 3 and 4).

Endoscopy was not performed until day 5 of admission due to systemic instability and risk of iatrogenic oesophageal perforation in the context of the CT findings. When performed, endoscopy of

Figure 2 CT on the day of admission: intramural air around stomach and duodenum.

To cite: Singh S, Savage L, Klein M, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009139

Figure 3 Follow-up of CT: resolution of intramural air.

the upper gastrointestinal tract showed extensive ulceration, sloughing and multiple areas of necrosis in the distal oesophagus and stomach (figures 5 and 6).

OUTCOME AND FOLLOW-UP

The patient was managed with an omeprazole infusion, intravenous antibiotics, nasogastric tube and cardiorespiratory support in the intensive care unit.

The patient was discharged after a 4-week admission, having made a full recovery.

DISCUSSION

Dabigatran etexilate, a direct thrombin inhibitor, is given orally for prophylaxis of venous thromboembolism.¹ It is being used increasingly in patients with non-valvular atrial fibrillation and in patients after elective orthopaedic surgery, mainly because it does not require laboratory monitoring.

This is the second reported case of severe oesophagogastric ulceration occurring shortly after dabigatran ingestion.² It is unusual to have such a severe reaction within minutes of taking an oral anticoagulant. The risk of upper gastrointestinal bleeding-associated oral anticoagulants such as warfarin is well known. However, it is extremely rare to have a severe reaction within minutes of taking an oral anticoagulant. The risk of bleeding is usually due to long-term use of anticoagulants and

Figure 5 Endoscopy of oesophagus, punctate necrosis of the oesophagus and sloughing.

most adverse effects are not life threatening. Anticoagulants increase the risk of bleeding from pre-existing ulcers, which manifest as haematemesis or melaena. The sudden onset of such severe symptoms, in a previously asymptomatic patient, suggests pre-existing oesophagogastric disease as being unlikely.

The acute onset of symptoms, over just a few minutes, suggests that the drug has an adverse local or contact effect on the mucosa as it is swallowed. Dabigatran capsules contain a tartaric acid core as a low pH is required to enhance absorption.³ It has been suggested that this acidic core may cause local damage to the gastrointestinal mucosa and subsequently ulceration.² To minimise the possible local effect of the drug, patients should be advised to take the drug with a cup of water ideally with their evening meal or remaining in the standing posture for at least 90 s to encourage transit through the upper gastrointestinal tract.

Figure 4 Follow-up of CT: resolution of intramural air in stomach and duodenum.

Figure 6 Endoscopy of stomach: gastric ulceration and necrosis.

Learning points

- ▶ The similar clinical features and endoscopic findings add weight to a suggested association between dabigatran and acute severe gastrointestinal ulceration.
- ▶ Previous advice that dabigatran be taken in an upright position with sufficient water may be beneficial.
- ▶ There needs to be more vigilance in monitoring patients being discharged with dabigatran to ensure its safety.

REFERENCES

- 1 Gómez-Outes A, Terleira-Fernández AI, Suárez-Gea ML, *et al.* Dabigatran, rivaroxaban, or apixaban versus enoxaparin for thromboprophylaxis after total hip or knee replacement: systematic review, meta-analysis, and indirect treatment comparisons. *BMJ* 2012;344:e3675.
- 2 Okada M, Okada K. Exfoliative esophagitis and esophageal ulcer induced by dabigatran. *Endoscopy* 2012;44(Suppl2UCTN):E23–4.
- 3 Connolly SJ, Ezekowitz MD, Yusuf S, *et al.* Dabigatran versus warfarin in patients with atrial fibrillation. *N Engl J Med* 2009;361:1139–5.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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