

Dabigatran-induced esophageal injury: a case report

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To the Editor: Atrial fibrillation (AF) is one of the leading risk factors for stroke and is associated with a fivefold increase in the incidence of stroke. For years, warfarin has been prescribed to lower the thrombotic risk in patients with AF. However, because of the finicky nature of warfarin (*ie*, unpredictable pharmacokinetics, frequent international normalized ratio testing, complex food-drug interactions, etc.), it has been incrementally replaced by multiple direct oral anticoagulants (DOACs). Dabigatran, a potent, competitive, and reversible DOAC that directly targets thrombin, was approved by the US Food and Drug Administration in 2010 as an alternative antithrombotic option for nonvalvular AF. While the randomized evaluation of long-term anticoagulation therapy (RE-LY) trial (a noninferiority trial comparing warfarin with dabigatran in patients with AF) showed that dabigatran is as successful as warfarin for preventing stroke or systemic embolism, its adverse effects also need attention.^[1] Accumulating case reports have attracted attention to the issue of dabigatran-induced esophagitis (DIE).^[2,3] Recent studies have found that elderly patients are more likely to develop DIE.^[4] However, herein, we present a case of a younger male who developed DIE after taking dabigatran.

A 37-year-old male patient with a 2-year history of symptomatic, drug-refractory paroxysmal AF was referred to our center for catheter ablation. He had no comorbidities, including gastrointestinal (GI) problems, previously. After successful ablation, 150 mg of dabigatran etexilate twice daily and pantoprazole once daily were prescribed to prevent stroke and esophageal injury, respectively. Approximately 2 months after taking these medications, he presented to the GI clinic with a 4-day history of dysphagia and retrosternal discomfort. His vital signs were stable. Esophagogastroduodenoscopy (EGD) revealed erosive esophageal mucosal changes in the middle esophagus [Figure 1]. The patient was asked to replace dabigatran with rivaroxaban while continuing to take pantoprazole, and the symptoms improved within seven days.

Since its entry into the market of China in March 2013, dabigatran has been incrementally replacing warfarin as the antithrombotic option for nonvalvular AF due to its safety and convenience. Unlike other DOACs, dabigatran contains a tartaric acid core as an excipient to reduce variability in its absorption. However, if the capsule sticks to the esophageal wall, locally released tartaric acid can damage the lining of the esophagus, which could be the mechanism of DIE. Hence, the right way to take dabigatran is to swallow it with sufficient water (200–300 mL) or food and to maintain an upright position for at least 30 min after ingestion.

Previous studies found that aged patients are more prone to develop drug-induced esophagitis due to a prolonged duration of esophageal peristalsis, a diminished esophageal contraction amplitude, and reduced saliva production. Recent studies on DIE also showed that a sizable majority of patients are elderly individuals.^[5] However, the patient in our report was a younger male who developed esophagitis despite correct ingestion of dabigatran and the prophylactic use of pantoprazole. Hence, whether proton-pump inhibitors (PPIs) can alleviate esophageal injury caused by local dissolution of dabigatran remains unclear, and the mechanism behind DIE still needs to be further explored.

Because of the close proximity of the esophagus to the posterior wall of the left atrium, the reported incidence of esophageal injury in patients who underwent radiofrequency catheter ablation (RFCA) can range up to 47%. Bearing in mind the upper gastrointestinal nonbleeding adverse events associated with dabigatran, whether dabigatran-induced esophageal injury will aggravate esophageal changes and increase the incidence of LAEF, a lethal complication of catheter ablation for AF, has not yet been reported. At the same time, as there is an overlap in symptoms between DIE and LAEF, doctors should specifically ask patients about GI symptoms after RFCA and instruct them on how to take dabigatran correctly. When DIE is suspected, dabigatran should be replaced with other anticoagulants (rivaroxaban, apixaban, etc.)

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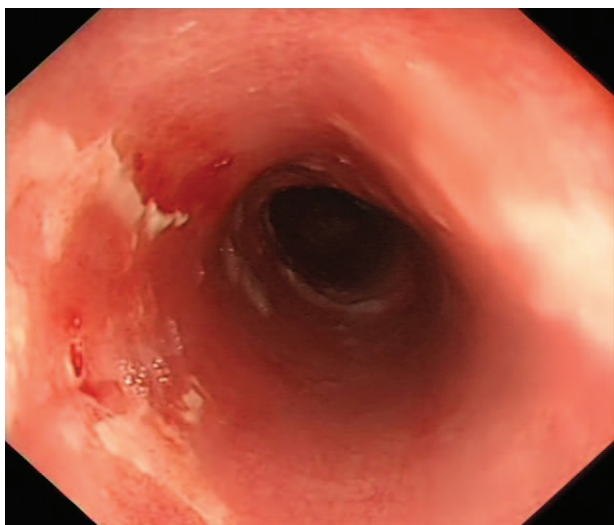


Figure 1: A photo of esophagogastroduodenoscopy showing semi-circumferential erosions in the middle esophagus.

and potent PPIs should be prescribed in combination, although this is an empirical approach.

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Conflicts of interest

None.

References

1. Connolly SJ, Ezekowitz MD, Yusuf S, Eikelboom J, Oldgren J, Parekh A, *et al*. Dabigatran versus warfarin in patients with atrial fibrillation. *N Engl J Med* 2009;361:1139–1151. doi: 10.1056/NEJMoa0905561.
2. Ueta E, Fujikawa T, Imagawa A. A case of a slightly symptomatic exfoliative esophagitis. *BMJ Case Rep* 2015;2015. doi: 10.1136/bcr-2015-211925.
3. Kajihara Y. Exfoliative esophagitis. *Eur J Intern Med* 2018;53:E1. doi: 10.1016/j.ejim.2017.12.013.
4. Toya Y, Nakamura S, Tomita K, Matsuda N, Abe K, Abiko Y, *et al*. Dabigatran-induced esophagitis: the prevalence and endoscopic characteristics. *J Gastroenterol Hepatol* 2016;31:610–614. doi: 10.1111/jgh.13024.
5. Lin S, Wang Y, Zhang L, Guan W. Dabigatran must be used carefully: literature review and recommendations for management of adverse events. *Drug Des Devel Ther* 2019;13:1527–1533. doi: 10.2147/DDDT.S203112.

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