Percutaneous endoscopic gastrostomy tube placement complicated by a gastric pseudoaneurysm and recurrent hemorrhage

Percutaneous endoscopic gastrostomy (PEG) tube placement is a common and safe procedure. We present a rare case of PEG tube placement complicated by visceral pseudoaneurysm formation with associated recurrent hemorrhage.

A 71-year-old obese male on chronic anticoagulation presented with a cerebral hemorrhage. He ultimately underwent PEG tube placement with the "pull" technique. Over the subsequent 3 weeks the patient developed multiple self-limited episodes of severe upper gastrointestinal bleeding. Multiple upper endoscopies revealed old blood within the stomach without an overt bleeding source. Computed tomography (CT) angiography revealed a 1.1-cm pseudoaneurysm anterior to the gastric wall, adjacent to the PEG tube (**Fig. 1**).

Transabdominal ultrasonography revealed a 1.1-cm hypoechoic focus with the classic "Ying Yang" (biphasic) Doppler findings of a pseudoaneurysm (**Fig. 2**). Under ultrasound guidance, a 21-gauge needle was inserted into the pseudoaneurysm and 1500 units of thrombin were injected, with cessation of the Doppler color flow. Subsequent CT angiography confirmed thrombosis of the pseudoaneurysm (**Fig. 3**). There were no further episodes of bleeding, and the patient was ultimately discharged to a nursing facility.

Gastric hemorrhage following PEG tube placement occurs in 0.6%–1.2% of cases [1] and is typically caused by the puncture of small gastric vessels during trocar insertion. In the present case, PEG tube placement was complicated by gastric pseudoaneurysm formation from arterial injury with resultant recurrent severe gastric hemorrhage, which was ultimately diagnosed with CT angiography.

Prompt treatment is indicated for symptomatic pseudoaneurysms, because there is a high risk of rupture and mortality [2]. Treatment options have evolved from surgical repair to minimally invasive endovascular techniques which have high success and low mortality rates [3]. Initial consideration was given to endovascular embolization for this patient; however, given his obesity and fluctuat-

Fig. 1 Computed tomography (CT) angiography demonstrating a 1.1-cm enhancing nodular focus (arrow) in the arterial phase, consistent with a pseudoaneurysm along the gastrostomy tube tract: **a** axial plane; **b** sagittal plane.

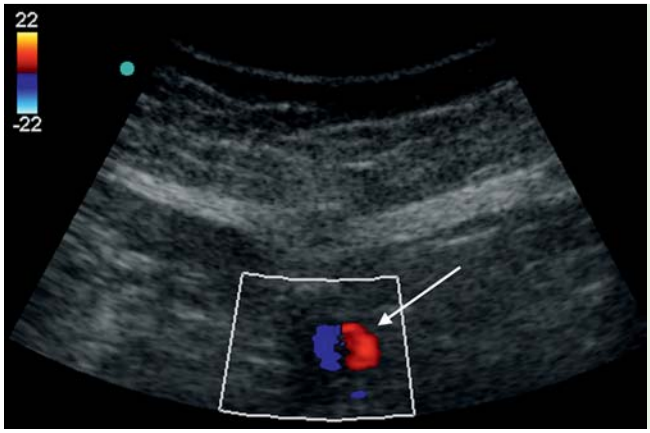

Fig. 2 Doppler ultrasound demonstrating the classic "Ying Yang" or biphasic appearance (arrow) of a pseudoaneurysm.

Fig. 3 Computed tomography (CT) angiography demonstrating a lack of focal enhancement (arrow) along the gastrostomy tube after thrombin injection, confirming interval thrombosis of the gastric pseudoaneurysm.

ing renal function, percutaneous injection of thrombin was favored.

Percutaneous thrombin injection is typically employed in treating post-catheterization femoral pseudoaneurysms, with recent successful reports of its use in visceral pseudoaneurysms [4–6]. The main complication of thrombin injection is systemic embolization, which is avoidable by placing the needle tip away from the neck of the pseudoaneurysm. Direct thrombin injection was successful in treating our patient without any complications.

To the best of our knowledge, this case represents the first published report of PEG site hemorrhage caused by a pseudoaneurysm which formed as a direct result of PEG tube placement. In selected patients, percutaneous thrombin injection may be considered as a novel treatment alternative to surgical or endovascular therapy.

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Competing interests: None

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