A rare and potentially fatal complication of endoscopic submucosal dissection: iatrogenic type B aortic dissection

Esophagus perforation occurs in 3%–4% of endoscopic resections [1,2], however, the complication of aortic dissection has not been previously reported. We present the first case in this brief report.

A 59-year-old man with isolated lower esophageal squamous cell carcinoma, stage T1aN0M0 was scheduled for endoscopic submucosal dissection (ESD). The preprocedural chest computed tomography (CT) showed aortic plaques but was otherwise normal (Fig. 1). Total intravenous anesthesia with alfentanil and propofol was used for patient sedation during the endoscopy. An irregular mucosal lesion was found in the right dorsal lower third of the esophagus (Fig. 2a). An ESD was performed using an IT Knife 2 (KD-611 L, Olympus Inc., Japan) and Hook Knife (KD-620LR, Olympus Inc., Japan) following injection of hyaluronic acid and indigo carmine.

The lesion could not be removed en bloc, therefore, it was removed in three pieces using a cap-fitted endoscope. After 45 minutes of procedure time, the patient became hypertensive and tachycardic. Subcutaneous emphysema was found over the lower neck and anterior chest wall. Because perforation was suspected (Fig. 2b), the endoscopist closed the wound and suspended the procedure. Emergency chest CT revealed a new 3.0-cm aneurysmal dilation between the aortic arch and celiac trunk diagnostic of acute type B aortic dissection (Fig. 3). After conservative management of blood pressure and pain, the patient was discharged on post-procedural day 14.

To prevent aortic intimal injuries, we note the following potential risk factors: (i) resection of lesions located in the dorsal region of the thoracic part of the esophagus; (ii) gastrointestinal lesions adjacent to pre-existing aortic disease, including atherosclerosis and cystic medial necrosis [3]; (iii) patients with poorly controlled hypertension. Aortic dissection as a result of perforation may be life-threatening if not identified and managed promptly. The endoscopist and anesthesia team need to be aware of this rare complication. Unexpected hypertension or tachycardia with subcutaneous emphysema during endoscopy warrants imaging of the thoracic structures following the procedure.

Competing interests: None
Hsiang-Ling Wu1,2, *, Ying-Hsuan Tai1,3, *, Ming-Chih Hou1,4, M. Susan Mandell5, Mei-Yung Tsou1,3

1 Department of Anesthesiology, Taipei Veterans General Hospital, Taipei, Taiwan
2 School of Medicine, National Defense University, Taipei, Taiwan
3 School of Medicine, National Yang-Ming University, Taipei, Taiwan
4 Endoscopy Center, Taipei Veterans General Hospital, Taipei, Taiwan
5 Department of Anesthesiology, University of Colorado Health Sciences Center, Aurora, Colorado, United States

* Dr. Hsiang-Ling Wu and Dr. Ying-Hsuan Tai have made equal contributions to this paper.

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Corresponding author
Mei-Yung Tsou, MD, PhD
Department of Anesthesiology
Taipei Veterans General Hospital No. 201 Sec. 2 Shipai Rd.
Beitou Dist.
Taipei 11217
Taiwan
Fax: +886-2-28751597
mytsou@vghtpe.gov.tw