Downhill esophageal varices are a rare cause of upper gastrointestinal hemorrhage. We present a case of downhill variceal bleeding due to superior vena cava thrombosis resulting from a prior central venous catheter. The patient was managed with endoscopic band ligation and later with surgical axillary vein to right atrium bypass grafting. Successful long-term resolution of varices was achieved at 1 year of follow-up. This is the longest follow-up described for combined endoscopic and surgical management in the existing literature for catheter-associated downhill varices.
She received transfusion of 2 units of packed red blood cells. The tachycardia resolved. Esophagogastroduodenoscopy demonstrated Grade I/II esophageal varices in the upper esophagus and Grade III esophageal varices in the midesophagus with the presence of red wale sign and white nipple sign (Figure 1). There were no varices seen in the distal esophagus. Fresh blood was found in the gastric cardia and fundus. Endoscopic band ligation of a proximal varix was performed. The melena resolved, and the hemoglobin level remained stable. Abdominal ultrasound with Doppler demonstrated a normal liver with patent portal and hepatic veins. Thoracic and abdominal computed tomographic angiography demonstrated numerous abdominal and chest wall collateral vessels, occlusion of the SVC at its junction with the right brachiocephalic vein, and a prominent azygous vein (Figure 2). The diagnosis was downhill esophageal varices secondary to SVC thrombosis due to multiple prior central venous catheters. 

The patient underwent repeat esophagogastroduodenoscopy 1 month later demonstrating improvement of the varices, which were Grade I. At that time, the patient underwent right axillary vein to right atrium appendage bypass grafting. At this time, it was felt safe to resume anticoagulation. Follow-up endoscopy was performed at 1 year post operation, which demonstrated Grade I varices and no signs of bleeding (Figure 3).

DISCUSSION
Downhill esophageal varices are a rare cause of bleeding. Occlusion of the SVC results in increased pressure to the
azygous and hemiazygous systems responsible for drainage of the upper two-thirds of the esophagus. This leads to varix formation. Varices due to intrinsic narrowing of the SVC from thrombosis have been described, such as in the setting of hemodialysis catheters and Behcet’s disease. Extrinsic compression has been described from intrathoracic goiters as well as thymoma and lung cancer. Our patient’s occlusion was proximal to the azygous vein-SVC junction with varices involving only the upper two-thirds of the esophagus. Occlusion distal to the azygous vein’s drainage results in varices throughout the esophagus. Treatment of downhill varices focuses on restoring venous drainage. Options include balloon angioplasty, SVC stenting, and open surgical therapies. In the present case, angioplasty had been unsuccessful in the past at treating the SVC stenosis, and therefore the more invasive surgical option was necessary. Endoscopic treatment options include banding, with recent emphasis placed on banding proximally. Sclerotherapy is avoided due to concerns over embolization and spinal cord infarction. In general, endoscopic surveillance is recommended; however, the optimal interval is unknown.

**DISCLOSURES**

Author contributions: JC Berkowitz, S. Bhusal, and S. Inamdar drafted the manuscript. D. Desai and MA Cerulli critically revised the manuscript. S. Inamdar is the article guarantor.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Received November 3, 2015; Accepted February 17, 2016

**REFERENCES**

1. Blam ME, Kobrin S, Siegelman ES, et al. “Downhill” esophageal varices as an iatrogenic complication of upper extremity hemodialysis access. *Am J Gastroenterol*. 2002;97(1):216–8.
2. Pop A, Cutler AF. Bleeding downhill esophageal varices: A complication of upper extremity hemodialysis access. *Gastrointest Endosc*. 1998;47(3):299–303.
3. Orikasa H, Ejiri Y, Suzuki S, et al. A case of Behçet’s disease with occlusion of both caval veins and “downhill” esophageal varices. *J Gastroenterol*. 1994;29(4):506–10.
4. Mönkemüller K, Poppen D, Feldmann K, et al. Downhill varices resulting from giant intrathoracic goiter. *Endoscopy*. 2010;42(suppl 2):E40.
5. Papazian A, Capron JP, Rémond A, et al. Upper esophageal varices. Study of 6 cases and review of the literature [in French]. *Gastroenterol Clin Biol*. 1983;7(11):903–10.
6. Tanaka H, Nakahara K, Goto K. Two cases of downhill esophageal varices associated with superior vena cava syndrome due to lung cancer [in Japanese]. *Nihon Kyobu Shikkan Gakkai Zasshi*. 1991;29(11):1484–8.
7. Hsu YH, Yang MT, Hsia CC, et al. Esophageal varices as a rare complication of central venous dialysis tunneled cuffed catheter. *Am J Kidney Dis*. 2004;43(2):e20–4.
8. Pratap A, Dendrinos K, Farraye FA. An unusual case of upper gastrointestinal bleeding. *Am J Gastroenterol*. 2006;101:S373.
9. Chandra A, Tso R, Cynamon J, et al. Massive upper GI bleeding in a long-term hemodialysis patient. *Chest*. 2005;128(3):1868–9, 1870–3.
10. Ibis M, Ucar E, Ertugrul I, et al. Inferior thyroid artery embolization for downhill varices caused by a goiter. *Gastrointest Endosc*. 2007;65(3):S45–5.
11. Heller SL, Meyer JR, Russell EJ. Spinal cord venous infarction following endoscopic sclerotherapy for esophageal varices. *Neurology*. 1996;47(4):1081–5.
12. Hussein FA, Mawla N, Befeler AS, et al. Formation of downhill esophageal varices as a rare but serious complication of hemodialysis access: A case report and comprehensive literature review. *Clin Exp Nephrol*. 2008;12(3):407–15.