Sir,

Transcatheter arteriography and intervention (TAI) is becoming a more prevalent and accepted treatment of lower gastrointestinal bleeding (LGIB) and is being applied in increasingly complicated patients. The present report describes a case in which surgically altered anatomy—the presence of an aortic endograft—necessitated the use of a collateral vessel to access the source of a LGIB.

The patient is an 82-year-old male with a medical history that includes bladder and lung cancer, chronic obstructive pulmonary disease, and abdominal aortic aneurysm (AAA), status post endovascular aneurysm repair (EVAR). He was undergoing chemotherapy and radiation and was on Pradaxa and Plavix when he presented to our hospital with bright red blood per rectum. He was admitted for monitoring and received numerous blood product transfusions; however, the bleeding failed to resolve with conservative means. A technetium-99-tagged red blood cell study localized the bleed to his right pelvis. The patient was referred to our department for diagnostic mesenteric arteriography and transcatheter embolization.

The right common femoral artery was accessed using micropuncture technique, and a Bentson wire (Merit Medical, South Jordan, Utah) was advanced into the abdominal aorta under fluoroscopic guidance, with subsequent placement of a 5 French vascular sheath (Merit Medical, South Jordan, Utah). A 5 French visceral selective catheter (Cook, Bloomington, Indiana) was then advanced over the wire. As the patient’s Zenith bifurcated, aortic stent graft prevented direct catheterization of the inferior mesenteric artery (IMA); the catheter tip was positioned in the superior mesenteric artery (SMA). Arterial anatomy was delineated with digital subtraction arteriography.

The images were reviewed and the catheter tip was advanced beyond the middle colic artery and into the marginal artery of Drummond [Figure 1]. These arteries were hypertrophied and easily accommodated the catheter. Additional arteriography was performed, localizing the bleeding to the sigmoid colon. This corresponded to the nuclear medicine scintigraphy evaluation. Two greater than third order branches of the IMA proved to be implicated in the hemorrhage [Figure 2a, b]. These were selectively catheterized and embolized using three 3-mm coils (VortX; Boston Scientific, Cork, Ireland) via a microcatheter system (Renegade Hi-Flo; Boston Scientific, Cork, Ireland).

Post-embolization control arteriography was performed [Figure 2c]. This demonstrated cessation of hemorrhage, and the catheter was removed. There were no post-procedural complications and the patient experienced no further episodes of hemorrhage.

Our aging population yields increasing numbers of patients with AAAs. A growing majority of these patients are undergoing EVAR instead of traditional open repair.[1,2] This trend is associated with a decrease in AAA-related deaths.[3] Thus, a growing demographic of post-EVAR patients are older, medically complicated patients who are considered poor surgical candidates should they happen to experience a gastrointestinal bleed.

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[Figure 1]: Angiography after catheterization of the middle colic artery revealing hypertrophy of the marginal artery of Drummond. There is opacification of the inferior mesenteric artery whose origin is inaccessible from the aorta (circled) by the presence of a stent-graft placed for abdominal aortic aneurysm repair.
TAI has proven to be an effective means of localizing and controlling acute LGIB. This technique is frequently superior to endoscopic management, which is technically difficult in the setting of rapid hemorrhage. Unless there is pathology that mandates bowel resection, TAI is preferable to surgery in high-risk patients, such as an elderly post-EVAR patient.

Lower gastrointestinal hemorrhage in the post-EVAR population presents the unique challenge of accessing IMA branches should they be the source of bleeding; the stent graft occludes the origin of the IMA. As demonstrated, it is possible to access branches of the IMA by cannulating the SMA. Such a strategy has already been exploited to repair type II endoleaks stemming from the IMA in post-EVAR patients.

The marginal artery of Drummond follows the arc of the right colon and provides collateral blood flow between the superior and inferior mesenteric arterial territories. In the event that either the SMA or IMA is occluded, the marginal artery hypertrophies to compensate for increased circulatory demand. This dilation facilitates use of the marginal artery as a conduit between the SMA and IMA branches during catheter angiography. As such, we experienced little difficulty in taking this route.

Mesenteric arteriography and transcatheter embolization of IMA branches remains possible in patients with aortic stent-grafts. This post-EVAR patient was experiencing gastrointestinal hemorrhage emanating from the sigmoid arteries. Although his IMA origin was occluded, we accessed the bleeding circuitously via the SMA and the marginal artery of Drummond. The procedure successfully treated his LGIB without adverse effects.

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