ENDOVASCULAR TREATMENT OF INFECTED SUPERIOR MESENTERIC ARTERY ANEURYSM : A CASE REPORT AND SYSTEMATIC REVIEW

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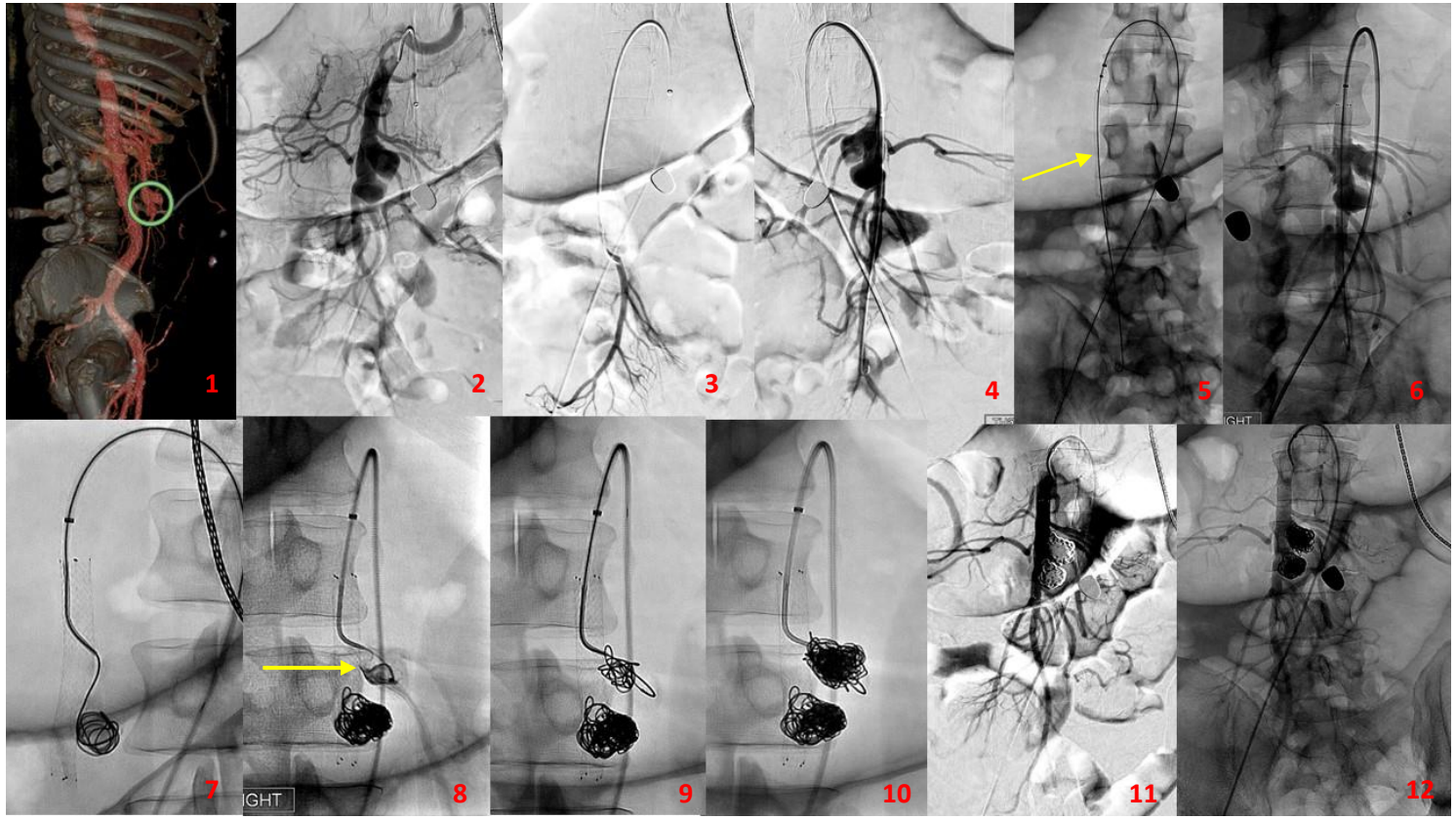
Background :

Superior Mesenteric Artery (SMA) aneurysms that have been infected are a very rare occurrence. The management of such aneurysms is based on existing cases in the literature and medical expertise due to a lack of randomized studies. However, the role of interventional radiology in the management of infected aneurysms is increasingly important as endovascular methods become more widely used.

Material and Methods :

A 47 years old male complaints of right upper quadrant abdominal pain, vomiting, dyspnea, fatigue, malaise and afebrile. Sagittal 3D CT angiography demonstrating a bi-lobed irregular shaped aneurysm arising from the mid-SMA (green circle) (Fig. 1). Angiography confirms the SMA pseudoaneurysm (Fig. 2). Stent graft was not desirable given ongoing infection (i.e., potential for seeding the graft) and location in SMA that may compromise branch vessels and cause mesenteric ischemia. Stent-assisted coiling of the aneurysm is carried out (Fig. 3). Distal branch to place stent into was selected and confirmed with angiography. Iliocolic artery was selected to place stent and confirmed with angiography (Fig. 4). 'Zilver self-expanding stent' (Cook Medical, Cook Medical, Bloomington, Indiana) (yellow arrow) 8mm x 60mm was first deployed (Fig. 5). SMA was patent with filling of aneurysm post stent placement (Fig. 6).



Through an interstice of the stent, the lower component of the aneurysm selected with a hi-flo microcatheter. The Penumbra Ruby Coils (Penumbra Inc., Alameda, California) 30cm in length were placed to fill the aneurysm (Fig. 7). Second component of aneurysm was selected with microcatheter (yellow arrow) (Fig. 8). 30 cm ruby coil was followed by a 60cm packing coil (Figs. 9 & 10). Aneurysm excluded and maintained perfusion of SMA branches (Figs. 11 & 12).

A literature search was performed by using MEDLINE-OVID (from 1996 to December 2021). The MeSH terms included were Infected Aneurysm.mp. or exp Aneurysm, Infected/ and mesenteric arteries/ or exp mesenteric artery, superior/. The search strategy was confined to English language. In total, 10,803 citations were identified, and 35 publications were included. Full reports were obtained for the included ones.

The patients underwent surgical repair technique which is either open vascular surgery or Stent grafting or laparoscopic surgical technique in 30 articles. The patients underwent endovascular therapy by an interventional radiologist in two articles and a combination of endovascular and surgical repair in another article. Spontaneous resolution of the aneurysms was reported in two publications. In one of the endovascular reports, 3 cases were reported. A small ileal branch was the site of the aneurysm, which made transcatheter arterial embolization (TAE) feasible in one case and in the other 2 cases, the mycotic aneurysm was detected in the main ileal artery just at the distal ileocolic artery. As a result, it was required to carefully assess if collateral flow had been established after TAE. Emergent visceral arteriography revealed a 3-mm aneurysm in the third jejunal branch of SMA in another article on lower gastrointestinal hemorrhage. During the same procedure, the branch was selectively catheterized using coaxial technique and a microcatheter, and embolization was carried out with three 2-cm x 3-mm complex helical fiber platinum micro coils (Boston Scientific). Subsequent digital subtraction scans revealed that the branch had been successfully occluded and there was no filling of the aneurysm.

Conclusion :

Endovascular interventions using the insertion of stents, coils, adhesive, endovascular plugs, or thrombin, is a feasible technique for treating infected Superior Mesenteric Artery aneurysms with very high technical success rate.