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Commentary: Rational decision making for a rare case

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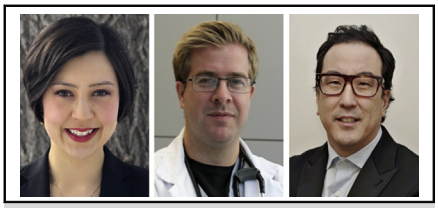

Rachel Eikelboom, MD, Aaron Spooner, MD, and Bobby Yanagawa, MD, PhD

CENTRAL MESSAGE

The authors exhibit rational decision making to guide the surgical management of a rare condition.

Arterial thoracic aneurysms are much more common than venous thoracic aneurysms. Even what constitutes a venous aneurysm remains controversial, and there remains no universally accepted size criteria. Superior vena cava (SVC) aneurysms have been described fewer than 50 times in the literature. The majority of cases are fusiform aneurysms found incidentally as mediastinal widening on chest X-ray. These are most often managed conservatively with serial imaging and selective antithrombotic therapy to prevent thromboembolic complications. Honda and colleagues provide a step-by-step description of their successful management of a rapidly expanding SVC aneurysm.[1]

The patient in question presented clinically with syncope and on investigation was found to have a saccular SVC aneurysm with associated pulmonary embolism. The etiology of the syncope is unclear in this case, but it is likely related to impaired left ventricular filling and subsequent diminished cardiac output. Known clinical sequelae of SVC aneurysms include pulmonary embolism, symptoms related to compression of surrounding structures, and rupture. The patient's aneurysm was large, and generally speaking, saccular aneurysms are associated with a greater risk of rupture than fusiform aneurysms. However, unlike for aortic aneurysms, for SVC aneurysms there is insufficient experience on which to base a precise size threshold for surgical replacement. As such, the patient was appropriately managed conservatively with watchful waiting and oral anticoagulation.

By 6 months, the aneurysm exhibited "rapid expansion," and the decision was made to surgically correct the SVC to prevent further expansion and rupture. In a literature review of 19 cases of SVC aneurysm, 11 were managed conservatively with no complications, and the other 8 were managed operatively.[2] The reasons for operative intervention were evenly divided between treating symptoms (eg, dyspnea, chest pain, contained rupture) and preventing complications (eg, risk of rupture due to expanding size).

The surgical workup included anatomic assessment with repeat computed tomography scan and aortography. This allowed the team to create an effective procedural plan and to rule out arteriovenous fistula. The authors shared decision making with the patient, who was averse to the use of xenogeneic material such as bovine pericardium, which is commonly used to patch vascular structures and cardiac defects. Autologous pericardium was chosen; other possible options were Teflon, Dacron, and an autologous vein patch. Controversy remains as to the ideal patch material for venous, arterial,[3] and intracardiac repairs.[4]

Finally, from an operative standpoint, the authors used an on-pump approach. The advantages of this approach are the ability to isolate the aneurysmal segment using snares or clamps, fillet open the aneurysm to inspect the tissues, scavenge blood, obtain controlled hypothermia, facilitate the potential for circulatory arrest, remove any thrombus, and patch-repair the SVC. Yet another approach is off-pump ligation at the aneurysm stalk or aneurysmectomy.[5,6]

The authors exemplified rational decision making in their management of this rare condition. Adhering to the principle of "first, do no harm," they chose conservative

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management with watchful waiting in the absence of compelling data to the contrary. Expansion of the aneurysm forced their hand to intervene surgically, and they proceeded as safely as possible by ruling out devastating complications preoperatively and using cardiopulmonary bypass to reduce the risks of the operation. Finally, they prioritized patient preference, an important principle in the management of rare conditions when clinical evidence is sparse.[7]

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