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Editorial

Mystery Jets: A World of Possibilities

SOME 60,000 YEARS AGO, *homo sapiens* started migrating around the world. Their migration historically depended on climate, pressures of the population, and the invention of technologies. Today, similar factors determine the migration and movement of people across the globe, and with these movements, global physicians have a duty to learn about the diseases that are prevalent in different people from other areas of the world.

Frequently, perioperative physicians will encounter clinical findings that surprise us and force us to act quickly and decisively. Aortic regurgitation is not uncommon in a patient undergoing cardiac surgery. However, its origin and source can provide vital information for cardiac anesthesiologists and surgeons intraoperatively. Understanding these global clues will help us know the etiology of the disease process and its management as we manage patients in the global era.

In this issue, Ren et al. described a fascinating case of a 67-year-old Chinese male patient admitted to the hospital with shortness of breath, edema in the bilateral lower extremities, and signs and symptoms suggestive of congestive heart failure, who was diagnosed with severe aortic regurgitation with bicuspid aortic valve and was scheduled for a Bentall procedure.[1] The authors described the aortic regurgitation originating from disrupted fibrous bands of tissue originating in the aortic valve as an embryologic remnant. Bicuspid aortic valves have aortic regurgitation in 13% of the patients.[2] The etiology of aortic regurgitation in the bicuspid aortic valve can range from mechanical wear and tear of the valves to intrinsic embryologic defects.[3] Fibrous connective tissue bands represent embryologic remnants of the cusps of the aortic valve and may be a causative factor, as described by the authors. Geographically, most cases of aortic valve fibrous bands have been prevalent in Japan and Southeast Asia.[4] Some postulated mechanisms for the regurgitation are the rupture of the fibrous strands between the aortic valve and cusps and the aortic wall or perforation of the cusps.[5]

It is important to note that knowing the geographic and embryologic origin of these fibrous strands will allow us to make informed decisions about the care of these patients. Identifying predisposed populations can help obtain early imaging like transesophageal echocardiography (TEE) or sophisticated imaging modalities like computed tomography or magnetic resonance imaging. The use of TEE was shown to be superior in recognition of these fibrous bands in the aortic valves in comparison to transthoracic echocardiography, and it is important to bring TEE early into your imaging algorithm.[6]

As perioperative physicians and echocardiographers, it is important to differentiate the common causes of aortic regurgitation, such as infective endocarditis, aortic root dilation, rheumatic valve disease, neoplasms, and aortic dissection, from these rare causes like fibrous bands causing regurgitation secondary to band perforation found commonly in a subset of patients from another part of the world. Recognition of these exact pathologies by echocardiographers will help the decision-making process and the surgical approach for these patients. A clear differentiation from an infective vegetative process will allow for careful and timely surgical planning and a better postoperative outcome for these patients. A minority of the valves with ruptured fibrous strands will be amenable to valve repair with a suspension of the cusp, plication, or reinforcement with geometric annuloplasty.[1]

Modern humans, much like our early ancestors, need to learn from the experiences of different people from different regions of the world, their local environmental factors, and their habitats that predispose them to certain pathologies. Our early ancestors carved and etched their experiences on the walls of ancient architecture, Vedas, texts, manuscripts, and tablets. Modern humans like us need to continue the tradition of documenting the origins of many such pathologies in different parts of the world.

Conflict of Interest

None.

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