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Commentary: Abdominal wall hernia: An important risk association in aortic aneurysmal disease or just a dull ache?

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Juan A. Crestanello, MD (left), and Phillip G. Rowse, MD (right).

CENTRAL MESSAGE

A significant risk association of subsequent aneurysm formation following the diagnosis of abdominal hernia exists among Taiwanese adults.

Depletion of essential structural proteins (ie, collagen and elastin) within the media layer of the aortic wall is a well-established pathological feature in the development of aortic aneurysmal disease. Interestingly, apart from incisional hernia formation due to poor wound healing/fascial dehiscence or other acquired forms of collagen defects, such as tobacco dependency and lathyrism, the development of primary abdominal wall hernia has a very similar biologic mechanism. In their article in this issue of the *Journal*, Hung and colleagues¹ report their institutional experience with the association of known abdominal wall hernia and subsequent development of aortic aneurysms among Taiwanese residents.

Data regarding the association of either abdominal wall or inguinal hernia and the subsequent development of aortic aneurysm are sparse and mostly localized to small-scale studies or sex-biased population-based studies with mixed associative results.²⁻⁵ Evaluating this association on a larger, unbiased, longitudinal scale and particularly among geriatric patients, in whom there is a higher prevalence of both disease processes, would be advantageous for cardiologists and surgeons alike as a means to identify and hopefully prevent the onset of acute aortic syndrome among a higher-risk subgroup of patients. In addition, if such a higher-risk group of patients were discoverable, then the development of tailored

screening programs for the “at-risk aorta” would help guide physician decision making and aid healthcare cost containment.

In their article, Hung and colleagues¹ report that Taiwanese adults (male and female) with abdominal or inguinal hernias did have a significantly higher overall incidence rate and hazard ratio for subsequent development of aortic aneurysms compared with matched controls. This increased risk was found principally among patients age ≥ 65 years. Interestingly, the incidence of thoracic or abdominal aortic aneurysmal rupture in this higher-risk group of patients was only marginally elevated over controls during the follow-up period. One major limitation of the study includes the possibility of preexisting undiagnosed aortic aneurysmal disease among enrolled patients with hernias, given the current lack of screening programs for abdominal or thoracic aortic aneurysms in Taiwan. Nonetheless, we believe that the authors’ findings are intriguing and will hopefully generate a serious evaluation and future study in populations in which preventive screening for aortic disease is provided, to substantiate the authors’ findings.

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Commentary: Does a bulge beget a bulge? Association of abdominal wall hernias and aortic aneurysms

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Aortic aneurysms have long been of clinical interest given the high mortality associated with rupture, which can be prevented with surgical repair. Abdominal wall hernias, a more common and benign entity, have been studied and compared with aneurysms in an attempt to find a shared pathophysiologic mechanism. Matrix metalloproteinase activity has been shown to be abnormal in patients with both hernias and aneurysms.^{1,2} Observational studies have been limited by small numbers. Larger studies have been done, but have not been inclusive of all abdominal hernia and aortic aneurysm patients.³ Given the low prevalence of aneurysms, routine screening via imaging is only indicated in patients with either known connective tissue disorders or with specific risk factors.⁴ Thus, identifying a common, benign diagnosis that may predict another less common and more lethal diagnosis could be of clinical significance for early detection and treatment.

Hung and colleagues⁵ report their findings of a retrospective, population-based cohort study to see if the presence of an abdominal wall hernia is associated with developing an aortic aneurysm. They used Taiwan's national health care database to identify all patients with nonincisional

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CENTRAL MESSAGE

Geriatric hernia patients had a higher incidence rate, adjusted hazard ratio and adjusted sub-distribution hazard ratio of aortic aneurysm and marginally high aneurysm rupture than did those without.

abdominal wall hernias who subsequently developed either a thoracic or abdominal aortic aneurysm within a 12-year period. Additionally, they compared rates of aneurysm rupture between hernia and nonhernia patients. Patients with known aneurysms at the time of hernia diagnosis, or those with known high-risk conditions for aneurysm formation, were excluded. In both unadjusted and risk-adjusted analysis, the incidence of aortic aneurysm was higher in those with a hernia than those without. This increase was significantly higher within the geriatric (age ≥ 65 years) subgroup. Moreover, patients in the hernia group who developed an aneurysm had a higher risk for rupture. They found no difference in the total number of imaging studies between groups, suggesting no detection bias for aneurysms.

There are several limitations to this study. First, the authors only considered new diagnoses of both hernia and aneurysm, thus only capturing a portion of a potentially longer time interval for aneurysm development. This may

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