Premature Atrial Contraction as an Etiology for Cough

To the Editor:

Comprehensive contemporary reviews of cough do not include cardiac arrhythmia as a potential cause of unexplained cough, although cough itself has been described as a cause for tachyarrhythmia. I have encountered three patients recently with a clinical history of cough immediately following a palpitation. During echocardiography, these patients were seen to have a single premature atrial contraction (PAC) prior to a cough, which reproduced their symptoms. The patients’ histories all include a description of the cough as reflexive after feeling a “thump” in the chest, with an inability to stifle the cough. None of the patients were receiving angiotensin-converting enzyme inhibitors or had any other recognized etiology for cough. One of these patients had complete resolution of cough when his PACs resolved. I have not yet demonstrated the recurrence of the cough through withholding treatment for PAC. A literature review and an Internet search reveal no prior descriptions of PACs in association with cough; there has been one recent case report of chronic cough induced by premature ventricular contractions.

In discussing this observation with colleagues, several physicians have noticed a similar association between cough and PACs, including two cardiologists who report experiencing it themselves. I suspect that if more clinicians look for this association and query patients appropriately, the connection may be quite frequent. The association of cough and asthma, as well as cough and gastroesophageal reflux disease, were not commonly recognized prior to landmark case reports on these phenomena.

The phrenic nerve is adjacent to the left atrium in close proximity to the entry of the upper pulmonary veins. The nerve has been documented in dog studies to be damaged in some instances of atrial fibrillation ablation. Patients sometimes cough during atrial fibrillation ablation procedures as well. It is possible that a PAC arising in the portion of the atrium near the phrenic nerve triggers the cough reflex in susceptible patients. Extrapulmonary vagal afferent C-fibers and rapidly adapting stretch receptors may also be stimulated somehow by PACs. It is also possible that this is a subtype of habit cough, triggered by palpitations from PACs. The recent case report on premature ventricular contraction-induced cough notes a transient increase in pulmonary artery blood flow as another possible mechanism.

Sharing this observation may lead to further recognition of the association, as well as to research on the prevalence, pathophysiology, and treatment of this potential PAC/cough syndrome. In addition, there may be patients whose cough is due to otherwise asymptomatic PACs.

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References