

# In Response to Author: Hiccups before a Pulmonary Embolism Speak against This as a Cause

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We thank Finsterer J for his interest in our case and his insightful comments. We feel happy to respond to his comments and clarify his queries.

The purpose of our case report was to highlight the importance of including pulmonary embolism (PE) as a rare cause of persistent hiccups besides neurogenic onset in patients with stroke. Also, keeping a high index of suspicion, to avoid delay in managing such life-threatening conditions.

First, the author raised an argument against PE as the cause of hiccups. He suggested raised intracranial pressure (ICP) as a possible cause of hiccups. We agree that raised ICP could be a possible cause of hiccups in such patients but in our patient, the absence of headache, increase in nausea, vomiting, and altered sensorium at the time of hiccups initiation that too after decompressive craniectomy goes against raised ICP as a causative factor. The author also suggested stroke itself could be a cause of hiccups. The lateral medullary syndrome is frequently associated with central hiccups however, brainstem strokes often result in intractable hiccups lasting over months.<sup>1-3</sup> In our case, hiccups persisted for only 6–7 days and disappeared 4–5 days after initiating anticoagulant therapy for PE. The author also suggested the possibility of drug-induced chronic hiccups due to glucocorticoid usage as part of anti-edema therapy. Our patient did not receive any glucocorticoid agent at any point in treatment. Other common causes of hiccups such as gastrointestinal disorders, drug-induced causes, and psychosomatic causes were also ruled out.

Second, the author raises concern regarding the diagnosis of PE due to non-informative repeat electrocardiogram (ECG) and 2D echocardiography. The ECG and echocardiography findings may vary with the severity of PE. The ECG findings in PE are non-specific and patterns such as right ventricular strain or right bundle branch block are uncommon.<sup>4</sup> Normal echocardiography cannot exclude PE (negative predictive value of 40–50%).<sup>4</sup> A large number of patients do not reveal any significant findings on echocardiography suggestive of PE.<sup>5</sup> Since computed tomographic pulmonary angiography (CTPA) was done immediately and diagnosis of PE was confirmed with CTPA, D-dimer levels were not evaluated in our patient.

Third, we understand that no specific cause of the stroke was identified in our patient. A thorough evaluation did not reveal the presence of atrial fibrillation, vertebral artery dissection, left ventricular dissection, or any signs of endocarditis although

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transesophageal echocardiography was not done in our patient. Cryptogenic stroke accounts for 30–40% of ischemic strokes.

We believe that in absence of other causes and ruling out stroke as the cause (as described above), our patient developed hiccups secondary to PE. Typical features of PE appeared later than hiccups probably due to the progression of PE.

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