Letter by Littmann Regarding Article, “Giant J Waves and ST-Segment Elevation Associated With Acute Gastric Distension”

To the Editor:
I read with great interest the case report by Hibbs et al1 on a patient with acute gastric distension in whom the ECG showed prominent J waves and then marked ST-segment elevation in the inferolateral leads. Laboratory and imaging studies were not consistent with myocardial infarction. Resolution of the gastric distension was accompanied by normalization of the ECG. The authors hypothesized that the ECG abnormality likely represented a transient electrophysiologic phenomenon, perhaps from a change in ion channel function.1 I think that a nonelectrophysiologic explanation for this curious ECG abnormality is more likely.

A few years ago, we described a new ECG finding characterized by a dome-and-spike patterned apparent ST-segment elevation in which the upward shift of the baseline started before the onset of the QRS complexes.2 The ECG morphology resembled the shape of a German military spiked helmet.2 The presence of this “spiked helmet” sign was found to be associated with critical illness and a high risk of death. In each case, myocardial infarction was ruled out. In the original article and in subsequent publications, acute abdominal events such as ileus, bowel perforation, and gastric obstruction usually were associated with the spiked helmet pattern showing up in the inferior leads, whereas acute thoracic events such as aortic dissection, pneumothorax, and mechanical hyperventilation caused the spiked helmet sign in the chest leads.2–5 Similar to the case of Hibbs et al,1 normalization of the underlying noncardiac condition resulted in prompt resolution of the pseudo–ST-segment elevation.5 We and others have hypothesized that the most likely cause of the spiked helmet sign was pulsatile epidermal stretch that occurred in concert with the cardiac cycle in the setting of an acute rise in intracavitary pressures.2–5

In the case report by Hibbs et al also, the apparent ST-segment elevation seen in the lateral chest leads resembled the spiked helmet sign. An enlargement of leads V₃ through V₆ of their Figure 2 showed that the upright swing of the baseline started before the onset of the QRS complexes and therefore could not have reflected a true repolarization abnormality. The dome-and-spike morphology was quite similar to that described in previous reports on the spiked helmet sign.2–5

I applaud Hibbs et al for providing another striking example in which an acute abdominal event resulted in an ECG pattern resembling ST-segment–elevation myocardial infarction. Because now multiple centers have observed this clinical-electrocardiographic phenomenon independently,1–5 it may be time to educate providers who take care of critically ill patients of this strange ECG abnormality. Understanding the characteristics and clinical significance of the spiked helmet sign not only may help avoid unnecessary emergent cardiac catheterizations but also could assist in the early recognition and treatment of potentially life-threatening abdominal or thoracic events.

DISCLOSURES
None.
AFFILIATION
From the Carolinas Medical Center, Charlotte, NC.

REFERENCES
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