

## QT Interval Abnormalities with Pulmonary Emboli



To the Editor:

I read with interest the report “Telltale T Waves” by Kondamudi et al<sup>1</sup> in the February 2019 issue of *The American Journal of Medicine*. While I take no issue with the findings and points discussed, I believe at least 2 items of importance received no attention but should have. First, marked and diffuse T-wave inversion in association with pulmonary emboli have been reported previously.<sup>2,3</sup> Given Kondamudi et al’s<sup>1</sup> focus on the T-wave abnormalities in this patient, I am surprised no references to this point were mentioned. Second, and most striking: In the presenting electrocardiogram (Figure 1 in Kondamudi et al<sup>1</sup>), the QT interval was significantly prolonged. To my eye, the QT as shown is about 480 ms with an R-R interval about 870 ms, giving a corrected QT in excess of 500 ms. The T peak to T end interval in lead V1 was also somewhat long at about 80 ms. Prolonged QT intervals in the setting of acute pulmonary embolism have been reported repeatedly in the literature, with longest QT intervals, greatest QT dispersion, and longer T peak to T end intervals being possibly associated with worse outcomes.<sup>4–8</sup> Because these abnormalities have been reversible in pulmonary embolism patients who have survived, it is of no surprise that the prolonged QT interval in Kondamudi’s report resolved as the T wave abnormalities resolved (Figure 2 in Kondamudi et al<sup>1</sup>). In my 40-year experience of caring for patients, I have also seen marked QT prolongation occur in the setting of severe pain, almost certainly an autonomic nervous system-mediated phenomenon, but pain was not cited in the presentation

of the patient in this report. Because pulmonary embolism is among the causes of acquired QT prolongation and because QT abnormalities may be of note prognostically in pulmonary embolism, they should be noted on the electrocardiogram in patients where pulmonary emboli are being considered.

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