Reviewer's report

Title: Extreme ST-segment elevations in seemingly no significant angiographic coronary artery abnormalities: a case report

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Reviewer: Naoki Misumida

Reviewer's report:

I had an opportunity to review a case report of unfortunate middle age man who presented with CP and had tombstone type ST elevation but had no obstructive CAD on angiogram. He subsequently had cardiac arrest and passed away.

1. In my view, this is a classic example of Prinzmetal angina (although cardiac arrest is rare) because patient had a documented tombstone type ST elevation along with typical chest pain without obstructive CAD on angiogram. Rupture of plaque, thrombus, Takotsubo, or myocarditis are all extremely unlikely based on angiography findings and echo findings. The cause was highly likely coronary spasm. Death or Vfib due to Prinzmetal angina is rare but has been well-described in the old literature. I do not think classifying this case into MINOCA is clinically meaningful.

2. Please provide further history about presence or absence of baseline chest pain prior to initial presentation. If there is any, was that exertional, or did it occur early in the morning?

3. Did he smoke? If he was a smoker, did he stop smoking after the first event? Any recreational drug use?

4. Medications effective for Prinzmetal angina or coronary spasm are calcium channel blocker and nitrate. Beta-blocker use without CCB or nitro is controversial since it can worsen spasm. Why he was not treated with calcium channel blocker or nitrate after his first admission? Along the same line, P2Y12 inhibitor has not been studied for coronary spasm, to my knowledge.

5. The location of spasm is not clear. Given catastrophic outcome, left main may well be the culprit lesion, but multivessel spasm affecting both LAD and LCx is another possibility.
6. I do not think further functional testing such as FFR or IVUS will help (suggested in the discussion). I agree that spasm provocation test may help, but may lead to serious complications such as Vfib.

7. Please provide ECG after resolution of ST elevation for comparison.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Unable to assess

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