

Reviewer 1

The authors described a patient diagnosed with AST which might caused by coronary artery spasms and was treated with percutaneous transluminal coronary angioplasty (PTCA). I think that this paper may be precious providing useful data to the literature and adding new evidence, but I have some concerns:

Major concerns:

1. In addition to platelet count, the authors should also pay attention to the patient's coagulation function and other conditions to exclude other causes of AST. Among the risk factors, the authors did not express whether the patient had a history of smoking, which is not only a risk factor for atherosclerosis, but also for certain malignancies. And there are case reports that malignant tumor is also one of the causes of the AST.

Thank you very much for your kindly advisement, the patient did not have a history of smoking and the Tumor marker tests for the patient was normal.

2. Was the author's first treatment of the patient correct? Coronary angiogram and IVUS showed insufficient evidence of atherosclerosis in the patient. Also, as the author said, “The stenosis at the distal RCA disappeared after 2 mL of nitroglycerin was injected (Figure 2C)”. So it is possible that the patient's first myocardial infarction caused by vasospasm rather than atherosclerosis. In this case, is it necessary to install stents? Please specify.

Thank you very much for your kindly comments. I am sorry we described in the paper that we found the complete occlusion of the middle and distal parts of the RCA (Figure 2A), this maybe caused the misunderstanding and we corrected it in the paper.

As shown in fig2A, the complete occlusion part of the RCA was in the middle and the distal RCA showed the vasospasm (Fig2B). We did PTCA in the distal RCA and then found it was

vasospasm rather than atherosclerosis, and inserted a 2.5 × 33.0-mm DES in the middle part of the RCA without covering the vasospasm in the distal part of RCA (fig2C).

3. Please provide images of the proximal end of the stent to determine whether there is stent thrombosis.

Thank you very much for your kindly advisement, we added Video 1 to show the stent thrombosis in the thrombosis in the proximal end of the stent.

4. The author used diltiazem to relieve coronary artery spasms after surgery. Although diltiazem is a commonly used drug, there are still other drugs that can be used to relieve coronary artery spasms. What is the reason for the author to choose these drugs, please specify.

Thank you very much for your kindly comments, as diltiazem was commonly used in our department to relieve coronary artery spasms and coronary myocardial bridge, and we thought it is necessary to treat the spasm for this patient, so, we choose to use diltiazem for this patient. Thank you.

Reviewer 2

During the first and second treatments, coronary spasm occurred in the distal RCA, which may indicate that the patient was prone to coronary spasm. However, we often experience coronary spasm due to mechanical effects on the distal coronary artery after balloon or stent implantation. In this case of acute stent thrombosis (AST), there was occlusion on the proximal side of the stent despite the use of sublingual nitroglycerin. Has it been confirmed by IVUS at the stage when the wire has passed? Thrombus was still the most likely

possibility, but it was difficult to determine whether there was distal coronary spasm that led to in-stent thrombosis or whether the patient's condition or antiplatelet drug resistance led to AST. The authors should discuss this. Personally, I don't think we can say that coronary spasm alone caused AST.

Thank you very much for your kindly comments. It was a pity we did not do IVUS at the stage when the wire has passed to confirm the thrombus. As the wire was easy to pass the occlusion and there was no stenosis in the proximal side of the stent, and from the CAG images of the occlusion(Video), we thought it was in-stent thrombosis and did not use IVUS.

The risk factors for developing AST can be classified into four groups. The first is the clinical factors of the patient. These include the presence or history of acute coronary syndrome, diabetes, and smoking. The second group includes factors surrounding coronary artery disease such as restenosis, bridging vessel disease, opening, coronary artery bifurcation, chronic occlusive arterial disease, and small vessel disease. The third group includes intraoperative technical factors such as the use of inappropriate stent diameters, multiple overlapping stents, or excessively long stents; incomplete coverage of the dissection; incomplete stent expansion; poor stent adherence; formation of thrombosis or intramural hematomas, and vascular damage secondary to mechanical manipulation. The fourth group includes drug-related factors such as poor response to aspirin or clopidogrel and premature discontinuation of antiplatelet drugs.

In this patient, antiplatelet drugs were still aspirin and clopidogrel which was the same as before, so, we thought antiplatelet drug resistance maybe not the reason the the AST and the patient had no history of smoking, diabetes or malignancies which may cause AST. We thought it was coronary artery spasms caused AST, however, it was still difficult to determine that distal coronary spasm was the sole cause that led to AST despite the patient's condition or any other reasons. Thank you very much for your kindly comments. We added this in the discussion section. Thank you.