

### Multiple coronary artery-pulmonary artery fistulas presenting with cardiac arrest

To the Editor,

I read the interesting case about multiple coronary artery fistulas (CF) to the pulmonary artery published recently in your journal.<sup>[1]</sup> I thank the authors for presenting this rare coronary abnormality. There are some points I would like to criticize about this case.

Coronary artery fistula (CF) is a rare finding, with an incidence of 0.17%.<sup>[2]</sup> It is commonly congenital, but atherosclerosis, Takayasu arteritis, and trauma might also cause CF.<sup>[3]</sup> In this case report, the authors did not discuss the possible etiology.

Adult patients with CF are mostly asymptomatic. Nevertheless, the most common symptoms of CF are angina, fatigue, stroke, orthopnea, myocardial infarction, heart failure, arrhythmias, or endocarditis.<sup>[3]</sup> The patient presented here had ventricular fibrillation, but it is unclear how they ruled out the other possible causes of ventricular fibrillation. Furthermore, the authors did not investigate coronary steal phenomenon, and did not measure the pulmonary to systemic flow ratio to calculate the shunt ratio. However, both of them might have explained the cause of the arrhyth-

mia and are also important in the selection of the treatment modality.<sup>[3]</sup> The authors did not explain how they treated the patient or on what evidence it was based.

In conclusion, the incidence of multiple CF is very low, and increased publications might improve patient care.

I thank the authors for presenting this rare coronary variation.

Best Regards.

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*Conflict-of-interest issues regarding the authorship or article: None declared*

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### Authors reply

To the Editor,

We thank the author(s) for their interest in our article regarding "Multiple coronary artery-pulmonary artery fistulas presenting with cardiac arrest."

The etiology of fistulas is classified as acquired, e.g., infection, trauma, neoplasm, surgery, and arteritis, or congenital.<sup>[1]</sup> Our patient had no history of any disease that could have led to such a fistula. Therefore, the fistulas in this case may be thought to be congenital. The possible causes of ventricular fibrillation, such as long QT syndromes, preexcitation syndromes, abnormal ECG findings, structural heart diseases, regional wall motion abnormalities, and abnormal electrolyte imbalance, were excluded. Routine biochemical investigations and cardiac enzymes

were also in normal ranges. There was no history of illicit drug use, cigarette smoking, or any medical or family history. For these reasons, the fistulas in this case may have been the possible cause of the ventricular fibrillation. The most frequent complaints of patients with coronary artery fistula have included heart failure, myocardial ischemia, infective endocarditis, arrhythmias, and rupture.<sup>[2]</sup> The pathophysiologic mechanisms of the symptoms are volume overload as a result of the shunt, coronary steal that causes decreased myocardial oxygen supply, and lack of capillary formation.<sup>[3]</sup> In our case, cardiac catheterizations revealed a left-to-right shunt. Pulmonary to systemic flow ratio (Qp/Qs) was 1.54. Although we did not investigate the coronary steal phenomenon, shunt and coronary steal that decreased myocardial oxygen supply might explain the arrhythmia in our patient. Current treatment options include careful