

CASE IMAGE

Migration of a pericardial drainage catheter into the right main pulmonary artery

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An 86-year-old woman, who underwent hemiarch replacement owing to Stanford type A acute aortic dissection 2 weeks previously, developed progressive dyspnea. Echocardiography showed a considerable amount of pericardial effusion, and she was diagnosed with postoperative cardiac tamponade. Under ultrasound and fluoroscopic guidance, pericardial drain placement was performed using an 8-French pigtail catheter via the apical approach. However, her clinical symptoms worsened, rather than improved. Thick hemorrhagic fluid was evacuated from the pericardial catheter. Another echocardiogram showed the pericardial catheter inside the right ventricle. Computed tomography imaging revealed that the tip of the drainage catheter had migrated into the right main pulmonary artery

through the right ventricle (arrows, [Figure 1](#) and [Video S1](#)). The patient underwent surgery and the incorrectly positioned catheter was removed without complications. She recovered well and returned home without sequela.

Pericardial drain placement is a critical intervention for cardiac tamponade, but it can be fraught with severe complications, such as cardiac puncture and pneumothorax.¹⁻³ Ultrasound-guided pericardial drain placement has greatly reduced the complication rate compared with that in blind manipulations.¹ However, major complications can still occur in approximately 1% of cases after ultrasound-guided pericardial drain placement.^{1,2} Postsurgical cases may even have an increased risk of inadvertent injury due to intrapericardial adhesions.⁴ The administration of agitated saline

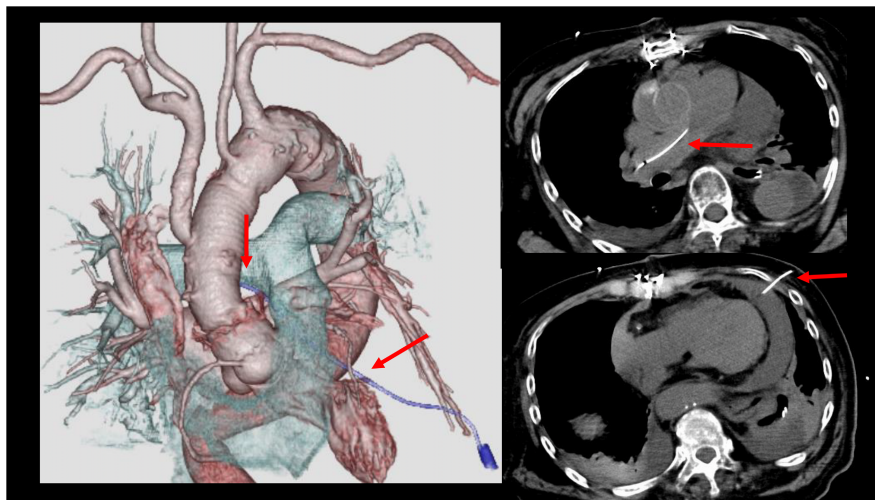


FIGURE 1 Migration of a pericardial drainage catheter into the right main pulmonary artery. If clinical symptoms of cardiac tamponade are unresolved and dense hemorrhagic fluid is evacuated after pericardial drain placement, this rare but lethal complication is a possibility.

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after needle insertion into the pericardial space may be useful to avoid cardiac puncture, but this was not attempted in our case. Confirming saline bubbles in the pericardial space, but not in the right and left ventricular cavities, on echocardiography suggests correct positioning of the needle tip.⁵

Among the reported complications of pericardial catheter placement, catheter migration into the main pulmonary artery is rare.^{1,3} If clinical symptoms of cardiac tamponade are unresolved and dense hemorrhagic fluid is evacuated after pericardial drain placement, this rare but lethal complication is a possibility. This case image emphasizes caution to healthcare professionals who may perform this procedure.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

Approval of the research protocol: N/A.

Informed consent: Written informed consent was obtained from the patient for the publication of this case report and accompanying images.

Registry and registration no. of the study/trial: N/A.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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