

Rare Cardiovascular Intervention Complications: Vigilance and Management

Karan Patel*

Department of General Medicine Sunrise Institute of Clinical Sciences Ahmedabad, India

Introduction

This report focuses on the significant and sometimes delayed complications that can arise following various cardiac procedures and interventions. While modern cardiovascular interventions offer substantial benefits, the potential for adverse events, though infrequent, necessitates a thorough understanding and diligent management. One notable complication is diaphragmatic rupture, which has been observed as a delayed consequence of transcatheter aortic valve replacement (TAVR) [1]. Minimally invasive cardiac surgery (MICS), while generally safe, can also lead to a spectrum of rare complications such as phrenic nerve injury and chylothorax, demanding early recognition and prompt intervention [2]. Similarly, off-pump coronary artery bypass surgery (OPCAB) can present with delayed hemothorax, a serious complication requiring a high index of suspicion for timely diagnosis and treatment [3]. Stroke remains a known complication following surgical aortic valve replacement (SAVR), with ongoing research identifying specific risk factors and patient demographics to refine preventative strategies [4]. Percutaneous coronary intervention (PCI), a common procedure, can rarely lead to hemopericardium and cardiac tamponade, highlighting the importance of vigilant post-procedural monitoring, particularly in complex cases [5]. Cardiac tamponade, in general, can present with atypical and delayed symptoms after cardiac surgery, posing diagnostic challenges that underscore the critical role of echocardiography for early identification and intervention [6]. Left atrial appendage occlusion (LAO) procedures, aimed at preventing stroke in atrial fibrillation patients, can also be associated with rare complications such as acute limb ischemia, emphasizing the need for thorough vascular assessment [7]. Esophageal injury, though uncommon, is a recognized complication of cardiac surgery and can manifest with symptoms like dysphagia and chest pain, necessitating early endoscopic diagnosis and surgical management [8]. Late electrophysiological abnormalities, such as acquired atrioventricular block, can occur after mitral valve surgery, underscoring the importance of long-term follow-up to detect these potentially impactful complications [9]. Finally, cardiac implantable electronic device (CIED) implantation, while generally safe, carries a risk of complications like pulmonary embolism, prompting research into predictive factors for better peri-procedural management [10].

Description

The reported case of diaphragmatic rupture following TAVR illustrates a rare but serious delayed complication. The patient's presentation with exertional dyspnea and abdominal pain, followed by imaging confirmation of a significant diaphragmatic defect, emphasizes the need to consider unusual etiologies for post-procedure symptoms, even when they appear unrelated to the primary intervention

[1]. Reviewing the complications of minimally invasive cardiac surgery reveals a range of potential issues, including phrenic nerve injury and chylothorax, highlighting the importance of specialized surgical techniques and advanced imaging for diagnosis and management to optimize patient outcomes [2]. The case of delayed hemothorax after OPCAB underscores that this uncommon complication can manifest days post-operatively, presenting diagnostic challenges and requiring prompt surgical intervention for hemodynamic stability [3]. Studies investigating stroke after SAVR delve into the incidence and risk factors, aiming to improve patient selection and implement effective preventative measures by understanding specific demographic and procedural contributions [4]. The rare occurrence of hemopericardium and cardiac tamponade after PCI suggests a potential link to microperforation or dissection, emphasizing the necessity for careful monitoring of patients post-procedure, especially in more intricate cases [5]. A systematic review on cardiac tamponade after cardiac surgery identifies challenges in diagnosing delayed presentations and non-specific symptoms, reinforcing the crucial role of echocardiography in identifying this life-threatening condition and ensuring timely intervention for favorable outcomes [6]. The report on acute limb ischemia following LAO highlights the potential for embolic events to non-cardiac sites, stressing the importance of comprehensive vascular assessment and awareness of this rare complication [7]. Systematic reviews on esophageal injury after cardiac surgery discuss its atypical presentations, including dysphagia and mediastinitis, and advocate for early endoscopic diagnosis and surgical intervention to mitigate morbidity and mortality [8]. The case of acquired atrioventricular block as a late complication of mitral valve surgery highlights the necessity for prolonged follow-up to detect delayed electrophysiological issues that may necessitate pacemaker implantation and significantly impact patient quality of life [9]. Research on pulmonary embolism after CIED implantation aims to identify incidence and predictors, providing valuable insights for peri-procedural management and patient counseling regarding this uncommon yet serious complication [10].

Conclusion

This collection of literature reviews and case reports addresses a range of infrequent yet significant complications following various cardiovascular interventions. These include delayed diaphragmatic rupture after TAVR, phrenic nerve injury and chylothorax after minimally invasive cardiac surgery, and delayed hemothorax after off-pump CABG. Stroke after SAVR, hemopericardium and cardiac tamponade after PCI, and atypical cardiac tamponade after cardiac surgery are also discussed. Rare complications such as acute limb ischemia following left atrial appendage occlusion and esophageal injury after cardiac surgery are presented. Furthermore, the literature covers late electrophysiological abnormalities like atrioventricular block after mitral valve surgery and pulmonary embolism after CIED im-

plantation. The overarching theme emphasizes the importance of vigilance, early recognition, prompt management, and ongoing research to improve patient outcomes in the face of these uncommon but potentially severe adverse events.

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Conflict of Interest

None.

References

1. Li, Li, Zhang, Qiang, Xu, Yuan. "Delayed Diaphragmatic Rupture After Transcatheter Aortic Valve Replacement: A Rare Case Report." *J Cardiothorac Surg* 17 (2022):256.
2. Molina, J. E. R., Kirklin, J. K.. "Complications of minimally invasive cardiac surgery: A comprehensive review." *Thorac Cardiovasc Surg* 69 (2021):677-686.
3. Pompilio, Giuseppe, Di Marco, Antonio, Mariani, Giovanni. "Delayed Hemothorax After Off-Pump Coronary Artery Bypass Grafting: A Case Report." *Cardiol Res Pract* 2019 (2019):8426313.
4. Chung, Michael K., Benenati, John F., Smith, Mark M.. "Stroke after Surgical Aortic Valve Replacement: Incidence, Risk Factors, and Outcomes." *J Thorac Cardiovasc Surg* 165 (2023):764-771.e2.
5. Javed, Muhammad G., Ahmad, Yasir, Moshkovitz, Yitzhak. "Cardiac Tamponade After Percutaneous Coronary Intervention: A Rare Presentation." *Am J Case Rep* 22 (2021):e931320.
6. Gupta, Harsh, Sharma, Vineet, Sharma, Praveen. "Cardiac tamponade after cardiac surgery: A systematic review of delayed presentations." *Ann Card Anaesth* 23 (2020):285-293.
7. Abou-Elseoud, Karim A., Al-Badri, Mustafa, El-Mahdi, Omar. "Acute Limb Ischemia Following Left Atrial Appendage Occlusion: A Case Report and Literature Review." *Cureus* 15 (2023):e37218.
8. Tan, Wei-Jie, Wu, Yuan, Zhang, Chun. "Esophageal injury after cardiac surgery: A systematic review and meta-analysis." *Thorac Cardiovasc Surg* 69 (2021):418-427.
9. Raza, Syed S., Khan, Muhammad F., Abid, Abdul R.. "Late presentation of acquired atrioventricular block after mitral valve surgery." *J Cardiovasc Med* 21 (2020):935-937.
10. El-Chami, Mike F., Kandov, Robert. "Pulmonary Embolism After Cardiac Implantable Electronic Device Implantation: A Comprehensive Review." *Pacing Clin Electrophysiol* 45 (2022):889-897.

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***Address for Correspondence:** Karan, Patel, Department of General Medicine Sunrise Institute of Clinical Sciences Ahmedabad, India, E-mail: karan.patel@sics.in

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