TOP 10

Right sinus of Valsalva aneurysm rupture in a young patient presenting with acute heart failure

Luka Perčin[1]*, Goran Međimurec[1], Dubravka Šipuš[1], Petar Martinčić[2], Mislav Planinc[1,3], Irena Ivanac Vranešić[1], Maja Hrabak Paar[1,3], Darko Anić[1,3], Kristina Marić Bešić[1,3]

[1]University Hospital Centre Zagreb, Zagreb, Croatia
[2]General Hospital "Tomislav Bardek", Koprivnica, Croatia
[3]University of Zagreb, School of Medicine, Zagreb, Croatia

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***ADDRESS FOR CORRESPONDENCE**: Luka Perčin, Klinički bolnički centar Zagreb, Kišpatićeva 12, HR-10000 Zagreb, Croatia. / Phone: +385-91-791-7252 / E-mail: luka.percin555@gmail.com

ORCID: Luka Perčin, https://orcid.org/0000-0003-0497-6871 • Goran Međimurec, https://orcid.org/0000-0002-9602-7114
Dubravka Šipuš, https://orcid.org/0000-0002-5631-0353 • Petar Martinčić, https://orcid.org/0000-0001-8141-1749
Mislav Planinc, https://orcid.org/0000-0002-9833-832X • Irena Ivanac Vranešić, https://orcid.org/0000-0002-6910-9720
Maja Hrabak Paar, https://orcid.org/0000-0002-0390-8466 • Darko Anić, https://orcid.org/0000-0002-7378-944X
Kristina Marić Bešić, https://orcid.org/0000-0002-4004-7271

Introduction: Sinus of Valsalva aneurysm (SVA) is a rare cardiac anomaly with an incidence of approximately 0.09% in the general population[1]. Although it can develop secondary to events and conditions that weaken the aortic wall, such as trauma, connective tissue disease, bacterial endocarditis, syphilis, cystic medial necrosis, and atherosclerosis, it is most commonly a congenital disorder. Furthermore, about one-third of patients may have additional cardiac abnormalities such as a ventricular septal defect (VSD) or aortic regurgitation (AR)[2]. The most frequent complication is rupture of the aneurysm into the right ventricle, which has serious hemodynamic implications.

Case report: 30-year-old male patient with a medical history of restrictive VSD and mild AR was admitted to the hospital due to progressive shortness of breath. On physical examination, the patient was hemodynamically stable and mildly dyspneic at rest. Heart sounds were covered with a loud continuous murmur and bilateral fine basal crackles were noted on pulmonary auscultation. Jugular venous pressure was elevated, but there was no evidence of peripheral edema. 12-lead electrocardiogram showed mild sinus tachycardia while laboratory tests pointed on markedly elevated NT-proBNP levels. Chest radiography displayed enlargement of the cardiac silhouette with mild pleural effusion and cranial redistribution of the pulmonary vasculature. Transthoracic echocardiography (TTE) exam revealed a rupture of the right sinus of SVA into the right ventricle with significant left-to-right shunt (**Figure 1A**). The patient subsequently underwent cardiac surgery (**Figure 1B**). Excision of the aneurysm and patch repair of the right SVA were successfully performed followed by an uneventful postoperative period (**Figure 1C**). Control TTE examination verified completely repaired SVA, which correlated with the patient's good clinical recovery (**Figure 1D**). The patient was discharged from the hospital in a stable condition.

Conclusion: We present the rupture of SVA as a differential diagnosis of acute heart failure in young, otherwise healthy patients. In addition, we would like to encourage regular cardiac follow-up of patients with restrictive VSD, especially in the presence of concomitant aortic disease, to prevent this severe complication.

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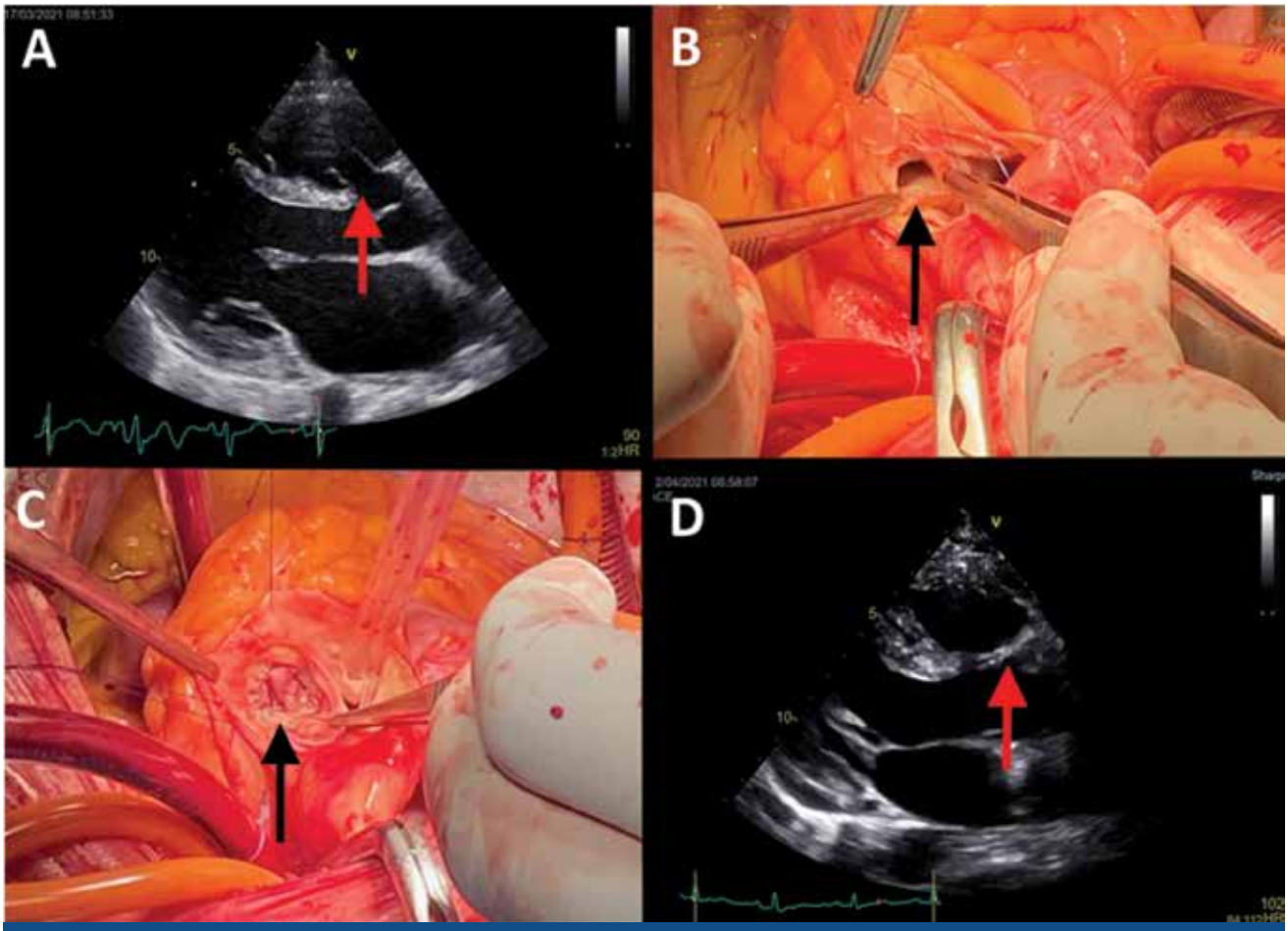

FIGURE 1. A Preoperative transthoracic echocardiography (TTE) long-axis parasternal view. The red arrow points on the ruptured right sinus of Valsalva aneurysm (SVA). B Intraoperative view before the repair. The black arrow points to ruptured SVA. C Intraoperative view after the excision of the aneurysm and repair of the right SVA with BioIntegral porcine. D Postoperative TTE long-axis parasternal view. The red arrow points on the repaired site.

LITERATURE

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