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Ventricular Septal Perforation in the setting of Takotsubo Syndrome: Learning how to improve mortality rate through early recognition

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Abstract: Takotsubo syndrome (TS) is transient cardiomyopathy characterized by an acute onset of left ventricular dysfunction and an abnormality of wall motion after acute stress exposure. Ventricular septum perforation (VSP) could be a life-threatening complication.

Case: A 70-year-old Caucasian female with a medical history of coronary artery disease, ovarian cancer, and hypertension presented to the hospital with chest pain. At admission, she had an ECG with an elevation of ST-segment from V2 to V6, GRACE score of 149, and elevated cardiac enzyme (45.9 troponin, 1300 BNP). Her cardiac catheterization showed no significant stenoses. Her transthoracic echocardiogram (TTE) suggested TS with depressed ejection fraction (35%) and apical ballooning. Further investigation showed a post-infarct 0.75cm defect in the apical septum and left-to-right shunt at a 1:1.5 ratio. The patient refused VSP closure by surgery due to her high risk of bleeding.

Decision-making: Patients with TS can have severe complications, which could be predicted by assessing risk factors such as age, high left ventricular pressure, ST-segment elevation in V4-V6 and DIII leads, high biomarker level, and high GRACES score. The treatment of choice is VSP closure. Medical treatment only has a poor prognosis with 100% 30-days mortality.

Conclusion: VSP is a rare complication in patients with TS. A thoroughgoing TTE is required in high-risk