

ACUTE DEGREE AORTO/MITRAL ANGLE IS A PREDICTOR OF LEFT VENTRICLE PERFORATION IN TRANSCATHETER AORTIC VALVE REPLACEMENT

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BACKGROUND

The arousal of TAVI allowed the high risk patients to be rescued. However, it is still accompanied by intra- and postoperative complications which must be thoroughly studied and interpreted. Left ventricular perforation is one of these rare but serious complications which may require rapid emergency sternotomy.

OBJECTIVES

To assess the pathophysiology of this complication and its relation to the patient's anatomy.

METHODS

Out of 963 TAVI cases done in our hospital, we faced this complication among 11 of them (1.14%). 3 males and 8 females, with a mean age of 79 years. All of them were operated upon through a transfemoral approach. The 11 patients were complicated with left ventricular perforation during introduction of the wire in the left ventricle requiring emergency sternotomy and repairing the injury of the left ventricle. One patient died during the procedure and the others were rescued.

RESULTS

Focus on the preoperative factors and intraoperative steps were established in favor to find possible predictors. Left ventricular cavity size was found to be less than 4.2 cm in 10 patients where the normal dimensions range from 4.2 to 5.9 cm. Only one patient had a dilated cardiomyopathic left ventricle with a cavity size of 6.1cm. A hyper contractile state was common in the whole cohort group except for the same patient with end diastolic dimension of 6.1cm, who had an EF10%. These former 2 factors were previously studied but with no focus on the ventricular morphology which was our clue. Perforation was located in all patients at the anterior free wall and our surgeons suggested from intraoperative observations that these patients may have acute narrow aorto-mitral angle. This intraoperative observation was confirmed in computer tomography measurements which revealed acute degrees aorto-mitral angle in all patients which obliged the wire to direct itself towards the anterior free wall of the left ventricle and induce its injury.

CONCLUSIONS

Small left ventricular cavity, hyper contractile state, thin muscular wall and acute aorto-mitral angle might be considered potential predictors of the occurrence of left ventricular perforation during TAVI.