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Pseudo Aneurysm of Ascending Aorta in Children Post Cardiac Surgery: A Case Report

Cardiology

KEYWORDS : -

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ABSTRACT

Pseudo aneurysm of ascending aorta after cardiac surgery is rare in children. Previous cardiac surgery is the most frequent cause of ascending aortic pseudo aneurysm irrespective of age. The mortality rate ranges from 29% to 46%, most frequently because of fatal hemorrhage resulting from rupture of the pseudo aneurysm during sternal re-entry or surgical maneuvers for its repair

Case report

A 16- yrs. old boy presented with significant precordial bulging, breathlessness at rest, palpitation and atypical chest pain for last 3 months. He was operated one year back for sub aortic ventricular septal defect(VSD) & severe aortic regurgitation, by surgical closure of VSD& Aortic valve replacement (AVR). On physical examination, there was significant protrusion of sternum, raised jugular venous pressure (JVP), short systolic murmur at left parasternal border. He had features of right heart failure. 2D Echocardiograph showed a large pseudo aneurysm (PsA) behind the sternum compressing the right ventricle. CECT shows a large pseudo-aneurysm (10.5 x 5.9 x11.2 cm) arising from the antero-lateral of wall of the ascending aorta with a proximity to the right coronary artery & compressing it. Patient was operated by midline sternotomy approach with right femoro-femoral bypass. The aneurysm sac was opened & clots were removed. The neck was located on the anterior wall of aorta. The defect was closed by double layer pledgeted sutures.

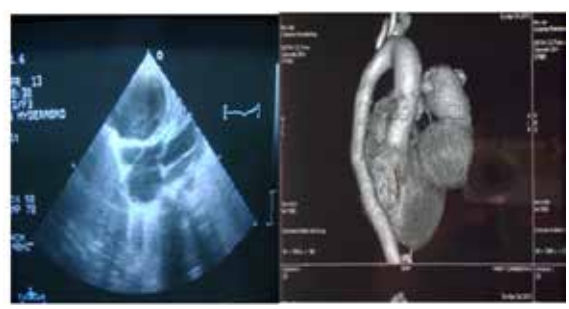


Fig.I. 2-D echocardiograph showing a large pseudo aneurysm(PsA) located behind the sternum compressing the right ventricle; Computed tomography shows a large pseudo-aneurysm (10.5 x 5.9 x11.2 cm) arising from the antero-lateral of wall of the ascending aorta with proximity to the right coronary artery & compressing it.



Fig. II. Patient was operated by midline sternotomy approach with right femoro-femoral bypass & the aneurysm sac was opened & clots were evacuated; the neck of the sac was located on the anterior wall of aorta; the defect was closed by double layer pledgeted sutures.

Discussion

The predisposing entities for pseudo aneurysm of ascending aorta are suture lines, aortic cannulation sites, needle puncture sites for pressure recording, cross-clamp sites and bypass graft sites. Perioperative infection, poor intraoperative suture technique, and pre-existing aortic wall disease, alone or in combination with surgical trauma to cause an ascending aortic pseudo aneurysm. In most pseudo aneurysm of the ascending aorta, the site of aortic wall disruption leading to aneurysm formation is anteriorly located, giving rise to pseudo aneurysm that bulge anteriorly. The higher mortality and complication associated with redo sternotomy are main disadvantages of surgical exclusion. Factors that favor surgery against device exclusion of false aneurysm of ascending aorta in post cardiac surgery state are larger size of false aneurysm neck, active vegetation, distance between coronary artery root and neck.

CONCLUSION

The rapid innovation of catheter based intervention has paved the way to choose a safer alternative. Literature review till today shows both the exclusion techniques (Surgical / Catheter based) are just like two side of a coin, leaving the option open to the merit of the case concerned.