

A case of Ventricular Septal Defect Partially closed with an Aneurysm of the Anterior Leaflet of the Tricuspid Valve

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Abstract

14-years old asymptomatic boy with holosystolic murmur heard over the lower left sternal border. Zoomed apical 5 chamber view revealed a perimembranous ventricular septal defect (VSD) which was closed by an aneurysmal leaflet of the tricuspid valve (TV) (Figure A) .Color Doppler across the defect showed left to right shunt (Figure B) Short axis view at the level of the aortic valve showed that VSD was extending from 10 to 11 o'clock . (Figure C). Injection of bubbles showed negative contrast inside the right ventricle indicating incomplete defect closure. (Figure D) 3D Transesophageal Echocardiography (TOE) with zoomed mode showed the entry point from the left ventricular side and exit point from the right ventricular side.(Figure E) En-face viewing of the TV from the right ventricular perspective showed an aneurysm-like pouch formed by the anterior leaflet (Figure F) The left atrial and ventricular size was normal and the shunt ratio was 1.3 so he was treated conservatively. Ventricular septal defect is the most common congenital anomaly.The incidence of spontaneous closure is still undetermined .Different mechanisms for anatomical closure have been proposed such as the adherence of the septal leaflet and/or the anterior leaflet of the tricuspid valve to the margins of the defect forming an aneurysm-like pouch that maybe mistaken for an aneurysm of the membranous septum. Echocardiography is the gold standard for evaluation of the site , size and type of VSD and its relation to the tricuspid valve. Recently, transcatheter closure is feasible and efficacious in properly selected patients.

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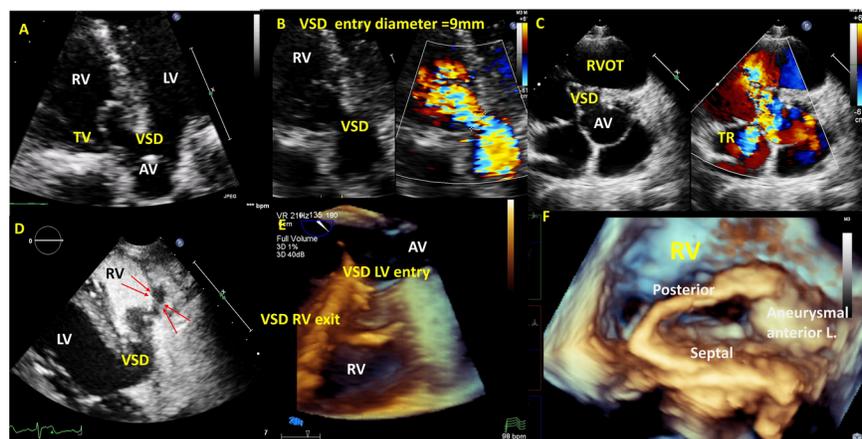
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Case report:

14-years old asymptomatic boy with holosystolic murmur heard over the lower left sternal border. Zoomed apical 5 chamber view revealed a perimembranous ventricular septal defect (VSD) which was closed by an aneurysmal leaflet of the tricuspid valve (TV) (Figure A) .Color Doppler across the defect showed left to right shunt (Figure B) Short axis view at the level of the aortic valve showed that VSD was extending from 10 to 11 o'clock . (Figure C). Injection of bubbles showed negative contrast inside the right ventricle indicating incomplete defect closure. (Figure D) 3D Transesophageal Echocardiography (TOE) with zoomed mode showed the entry point from the left ventricular side and exit point from the right ventricular side.(Figure E) En-face viewing of the TV from the right ventricular perspective showed an aneurysm-like pouch formed by the anterior leaflet (Figure F) The left atrial and ventricular size was normal and the shunt ratio was 1.3 so he was treated conservatively.

Ventricular septal defect is the most common congenital anomaly.The incidence of spontaneous closure is still undetermined .Different mechanisms for anatomical closure have been proposed such as the adherence of the septal leaflet and/or the anterior leaflet of the tricuspid valve to the margins of the defect forming an aneurysm-like pouch that maybe mistaken for an aneurysm of the membranous septum. Echocardiography is the gold standard for evaluation of the site , size and type of VSD and its relation to the tricuspid valve. Recently, transcatheter closure is feasible and efficacious in properly selected patients.



Figure(A):Zoomed apical-5 chamber view shows an over-riding aorta with a perimembranous VSD that is closed by an aneurysmal tricuspid valve leaflet. Figure(B): Color Doppler flow shows left to right shunt across the defect (VSD entry diameter is 9mm) Figure(C): Aortic short axis view shows 2 systolic jets ; one is seen across the defect and the one is seen along regurgitant tricuspid valve. Figure(D): TTE bubble study shows negative contrast inside the right ventricular cavity indicating communicating VSD with the right ventricle (Red arrows). Figure (E): Zoomed mode of the aortic-LVOT junction reveals clear the entry point from the left ventricle and exit point at the right ventricle. Figure (F):En-face viewing of the tricuspid valve from the RV perspective shows an aneurysm of the anterior leaflet closing the VSD

