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Modified Echocardiographic views for concordant atrio-ventricular connection with discordant ventriculo-arterial connection or double outlet right ventricle and sub-pulmonary ventricular septal defect

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With widespread use of arterial switch operations for these two entities, the delineation of coronary artery anatomy is one of the most important tasks for pediatric cardiologists. Standard views such as parasternal (short and long axis) and four chamber views (apical and subcostal) are well described and used widely in routine practice.[1,2] However, the delineation of coronary arteries arising from the right facing sinus may be difficult due to crowding of ribs in small neonates or altered positioning of sinuses for varied reasons leading to poor precardial windows.

In these cases, the use of a modified sub-costal coronal view, that is, anticlockwise rotation of probe from the standard coronal view, to bring the pointer at 1 or 2 o' clock position (more medial than usual para-coronal view) and tilting it anteriorly, is very helpful. Such a view opens up the aortic root longitudinally and the origin of the coronary artery can be seen and tracked from the right facing sinus (figures 1,2).

Furthermore, to see the relationship between the four valves in patients with concordant atrio-ventricular connection and discordant ventricular-arterial connection or double outlet right ventricle with sub pulmonary ventricular septal defect, the use of another modified sub-costal coronal view is very informative. Usually, the view is used for seeing *'en face'* the common atrio-ventricular valve in atrioventricular septal defects, that is, clockwise rotation 30-45 degrees from the standard coronal view, to bring the pointer to the four to five o'clock position. This view can be further modified by tilting probe anteriorly to open up both the outflows. This single view gives detailed anatomy of the region that is, pulmonary mitral continuity/discontinuity, presence or absence of a ventricular septal defect, the tricuspid valve, anomalous tricuspid/mitral chordal attachments, the subaortic infundibulum between the tricuspid valve and aortic valve, deviation of the infundibular septum and obstruction of either of outflows (figures 3,4).

Figure 1 Subcostal modified view in discordant ventriculo-arterial connection / ventricular septal defect: right coronary artery from right facing sinus of aorta.

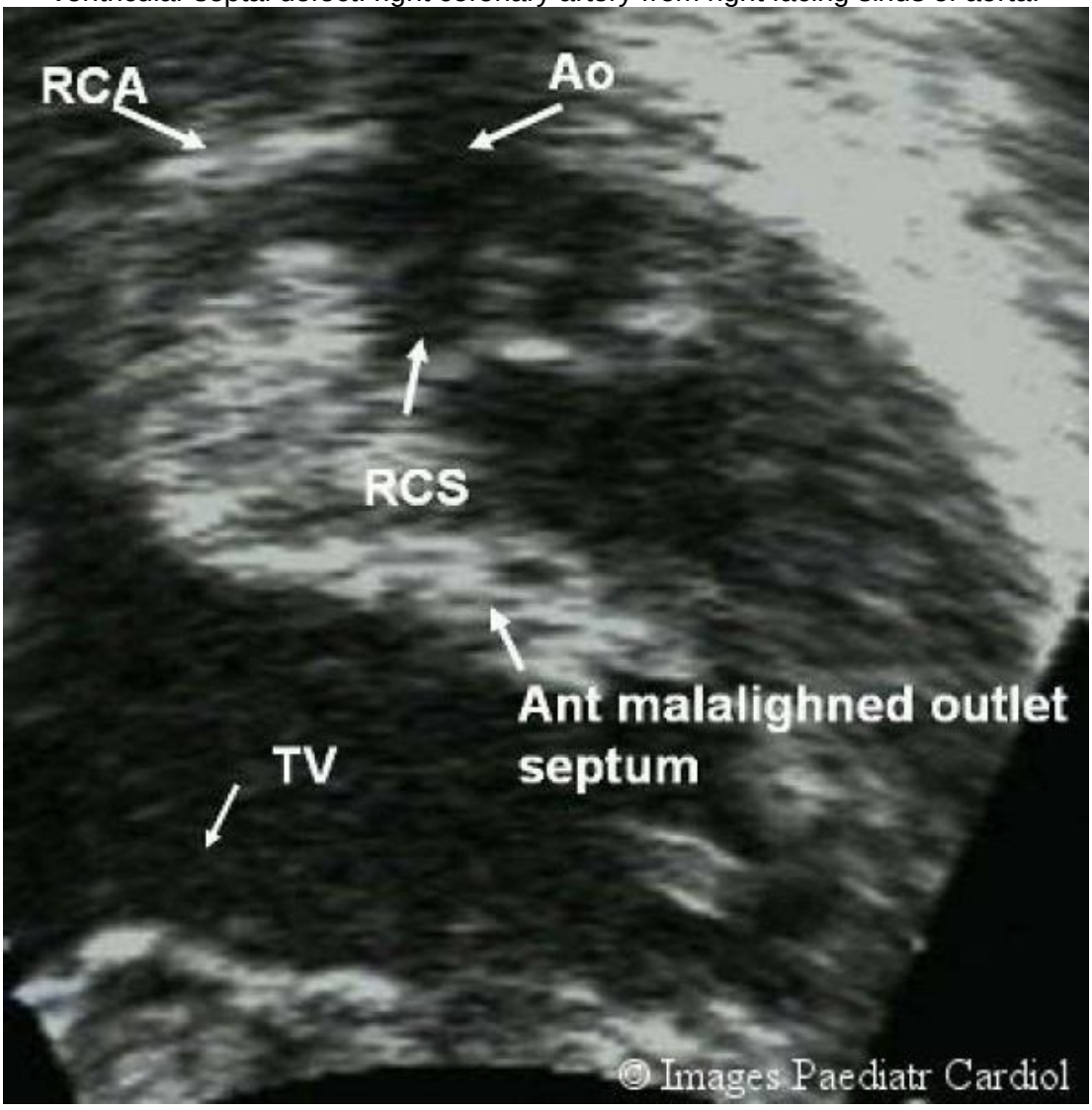


Figure 2 Animation as figure 1

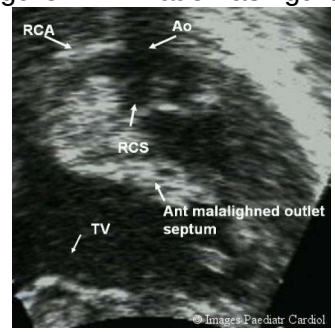


Figure 3 Subcostal modified coronal view (PA: pulmonary artery. Inf. Septum: Infundibular septum. IVS: interventricular septum RV: right ventricle. TV: Tricuspid valve. VSD: Ventricular Septal Defect).

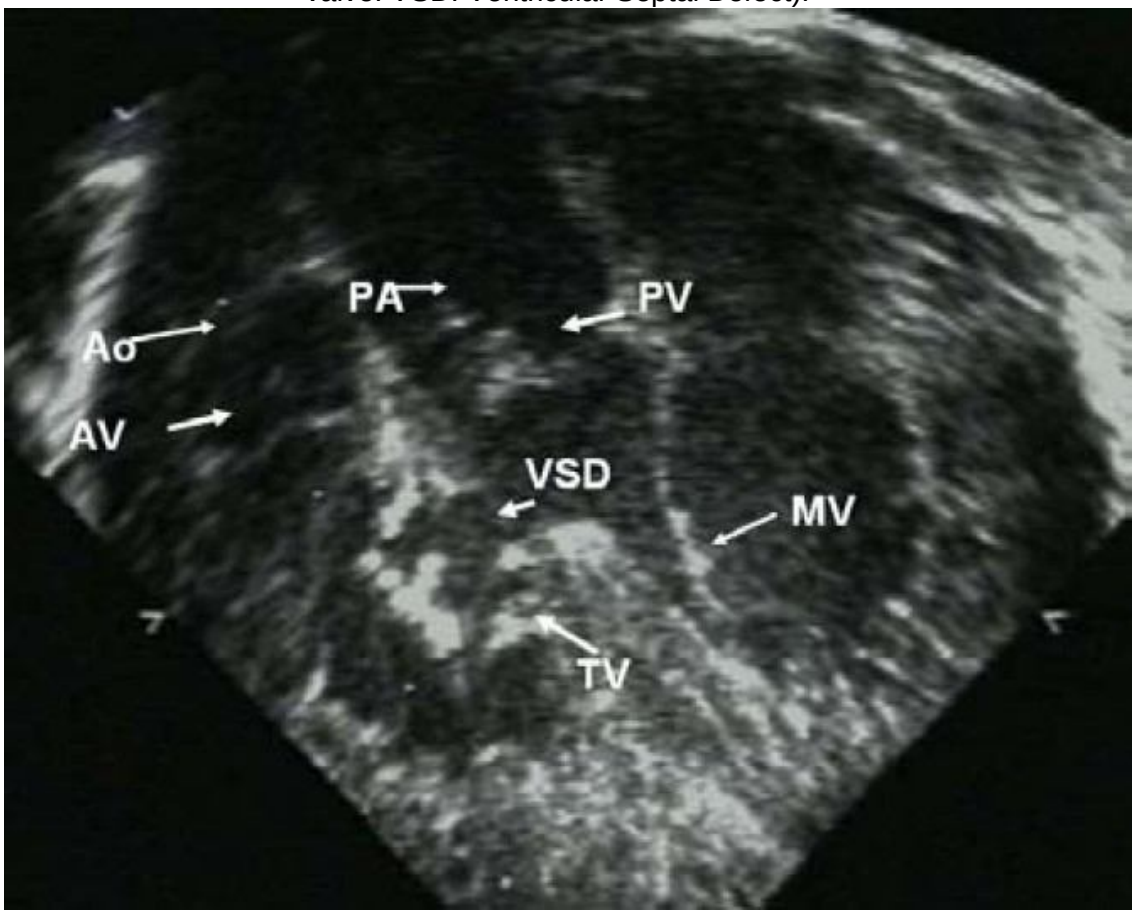
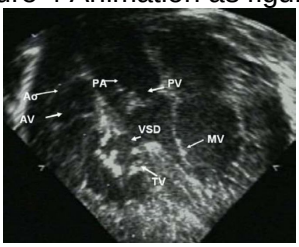


Figure 4 Animation as figure 3



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