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Letter to the Editor

The significance of aortic overriding and pulmonary stenosis in tetralogy of Fallot

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Congratulations to Dr Anderson and his colleagues for their work in the pathway of clarifying the disagreements in the definition and diagnosis of tetralogy of Fallot.[1] The phenotypic feature of tetralogy of Fallot is malalignment of the outlet septum in combination with abnormal septo-parietal trabeculations such that there is subpulmonary muscular obstruction.[1] When obstruction within the right ventricular outflow tract is minimal, it can be hard to distinguish tetralogy from the variant of ventricular septal defect with aortic overriding, known as the Eisenmenger defect.[2] In addition, partially restrictive or non-restrictive ventricular septal defects can be associated with moderate or severe infundibular pulmonary stenosis protecting the pulmonary vascular bed against increased blood flow, high pulmonary pressure, and the development of pulmonary vascular disease.[3] In order to make the accurate diagnosis in tetralogy of Fallot and differentiate between tetralogy of Fallot and ventricular septal defect with pulmonary infundibular stenosis, echocardiography may not be adequate. Dynamic MRI and CT investigations would be more beneficial in order to reveal the anatomical details of the malformed heart. This issue is crucial because the definitive treatment of tetralogy of Fallot is surgery including the closure of the ventricular septal defect and transannular patch plasty, whereas pulmonary infundibular stenosis developing secondary to ventricular septal defect could regress after closure of the ventricular septal defect either by surgery or percutaneously. Percutaneous closure could be performed if there is no aortic overriding. If there is some degree of aortic overriding – doubly committed biventricular connection – the closure device may settle on aortic leaflets due to lack of the superior rim. In that case, the closure device may not be applied. If there are infundibular stenosis secondary to ventricular septal defect and overriding aorta, surgical ventricular septal defect closure may be performed earlier so that an additional pulmonary transannular patch plasty is avoided. If there is infundibular stenosis secondary to ventricular septal defect without overriding aorta – subaortic ventricular septal defect – early percutanous closure may be performed in order to prevent further progression of infundibular stenosis. In summary, detailed investigation of ventricular septal defect plus pulmonary stenosis should be carried out. Confirming the diagnosis as tetralogy of Fallot requires double-checking the patient's images and even adding the tomographic or magnetic resonance evaluation. This "sceptical" approach would prevent unnecessary pulmonary transannular patch plasty that itself may stick a life-long disorder to be followed-up.[4]

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