Right ventricular dissection after arterial switch operation

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Herein we present the right ventricular (RV) dissection and describe its successful management after arterial switch operation (ASO).

A full-term, 3.8kg, male neonate, with transposition of the great arteries and intact ventricular septum, was scheduled for elective ASO at the age of 10 days after the Rashkind procedure. Intraoperative coronary anatomy was two coronary ostia and posterior looping course which corresponds to Leiden 1 LAD; 2 RCA, Cx or to Yacoub type D.

After releasing the aortic cross-clamp and spontaneous sinus rhythm regain, the development of hematoma on the anterior RV surface was noticed. After uncomplicated weaning from cardiopulmonary bypass, the RV hematoma progressed to subepicardial bleeding and RV dissection contained within the epicardium, covering the area from LAD to the right atrium (Video).

Two hours after the ASO, owing to severe diastolic RV dysfunction caused by further progression of the dissecting hematoma compressing the RV cavity (Video) and the need for a significant increase in inotropic support, we placed the patient on veno-arterial extracorporeal membrane oxygenation (ECMO). On the 7th postoperative day, following the incision of the epicardium and surgical evacuation of the RV hematoma, the patient was successfully weaned from ECMO support. On the 30th postoperative day, the patient was discharged from hospital.

A large dissecting intramyocardial hematoma as a nightmare complication following ASO has not been reported so far. The majority of described intramyocardial dissecting hematomas were associated with myocardial infarction in adult patients. There are no evidence-based recommendations for the management of this rare complication. This complication in our patient was probably iatrogenic, due to the compression of the RV by the sternal retractor during atrial septum closure. ECMO support with delayed surgical evacuation of the dissecting hematoma was a good therapeutic approach for our patient, resulting in complete recovery and finally, discharge from hospital.

Link to video: https://1drv.ms/v/s!AjMtsz2CBmOnkid6UYrRybLoeUS?e=nAqosY
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