Non-constructive Supracardiac Total Anomalous Pulmonary Venous Connection With Giant Superior Vena Cava Aneurysm

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Abstract

Giant superior vena cava (SVC) aneurysm in obstructive supracardiac total anomalous venous connection (TAPVC) is rare, and there has not been a giant SVC aneurysm reported in non-obstructive TAPVC. Here we reported a 29-year-old female with non-obstructive TAPVC and a giant SVC aneurysm. Routine TAPVC correction and partial venoctomy were done, considering that such a giant aneurysm in a non-obstructive venous arch might have its histological etiology and higher risk of thrombosis and/or rupture.

Title page

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Manuscript

Abstract: Giant superior vena cava (SVC) aneurysm in obstructive supracardiac total anomalous venous connection (TAPVC) is rare, and there has not been a giant SVC aneurysm reported in non-obstructive TAPVC. Here we reported a 29-year-old female with non-obstructive TAPVC and a giant SVC aneurysm.

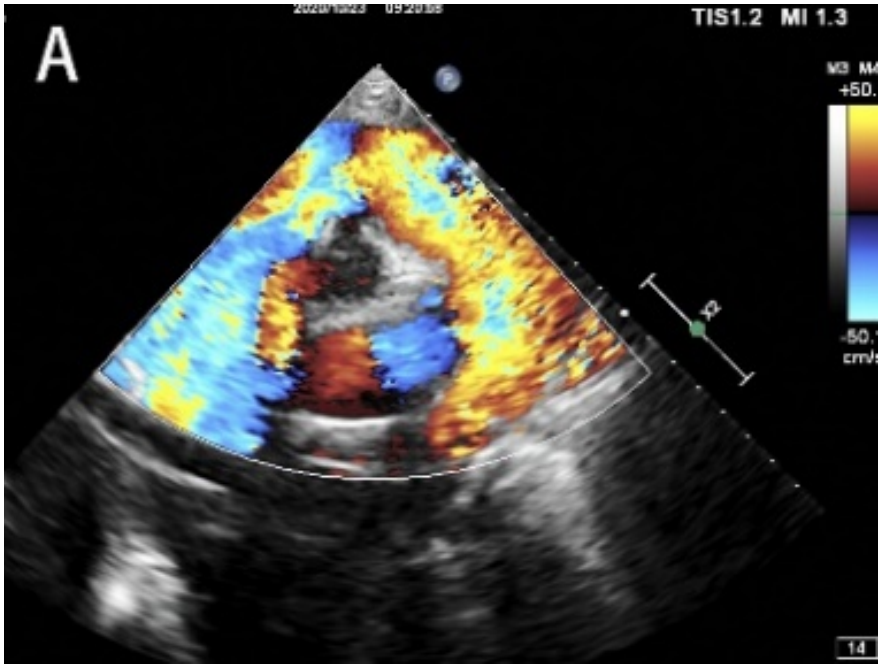
Routine TAPVC correction and partial venoctomy were done, considering that such a giant aneurysm in a non-obstructive venous arch might have its histological etiology and higher risk of thrombosis and/or rupture.

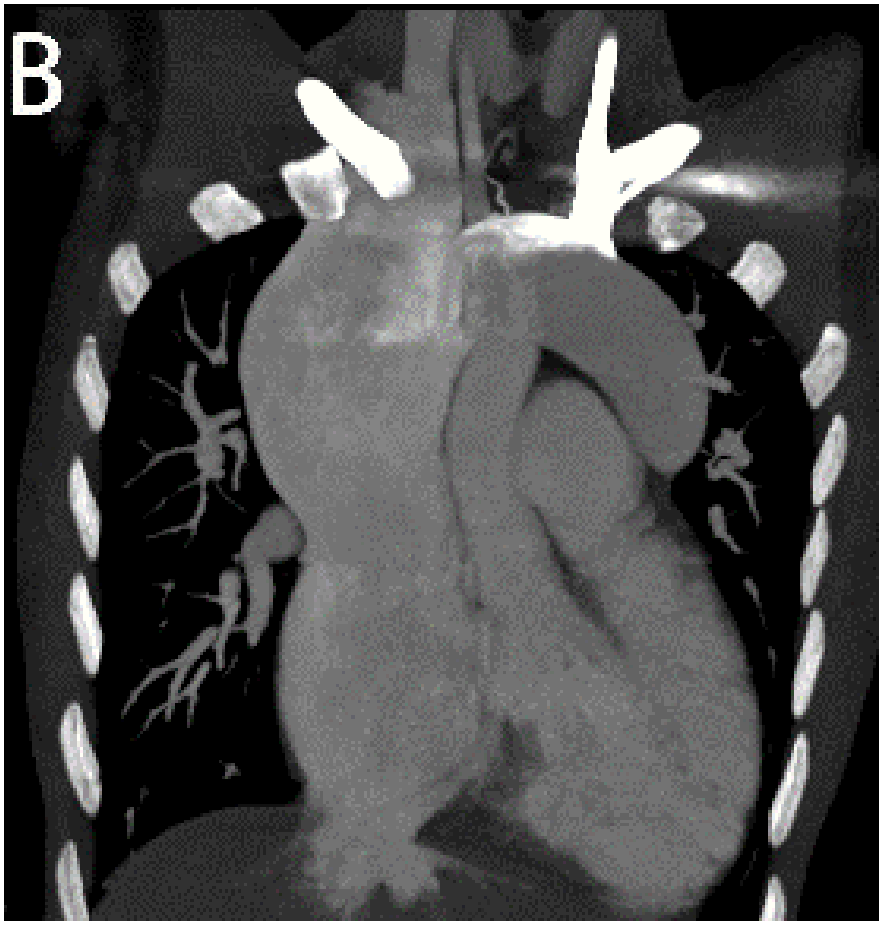
Key words: total anomalous pulmonary venous connection, superior vena cava, aneurysm

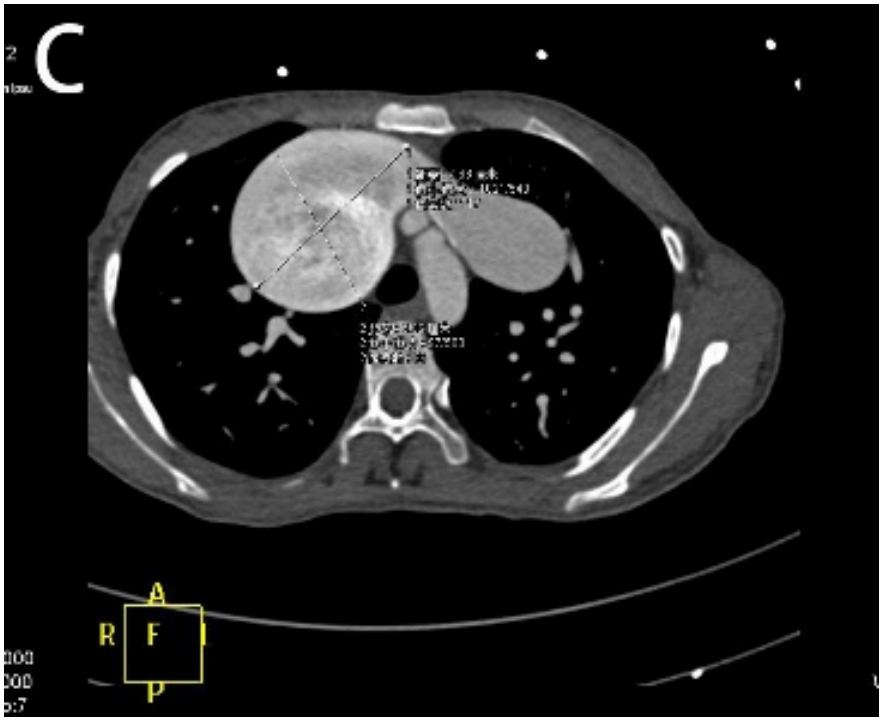
Giant superior vena cava (SVC) aneurysm in obstructive supracardiac total anomalous venous connection (TAPVC) is rare[1-3], and there has not been a giant SVC aneurysm reported in non-obstructive TAPVC. Here we reported a 29-year-old female with non-obstructive TAPVC and a giant SVC aneurysm.

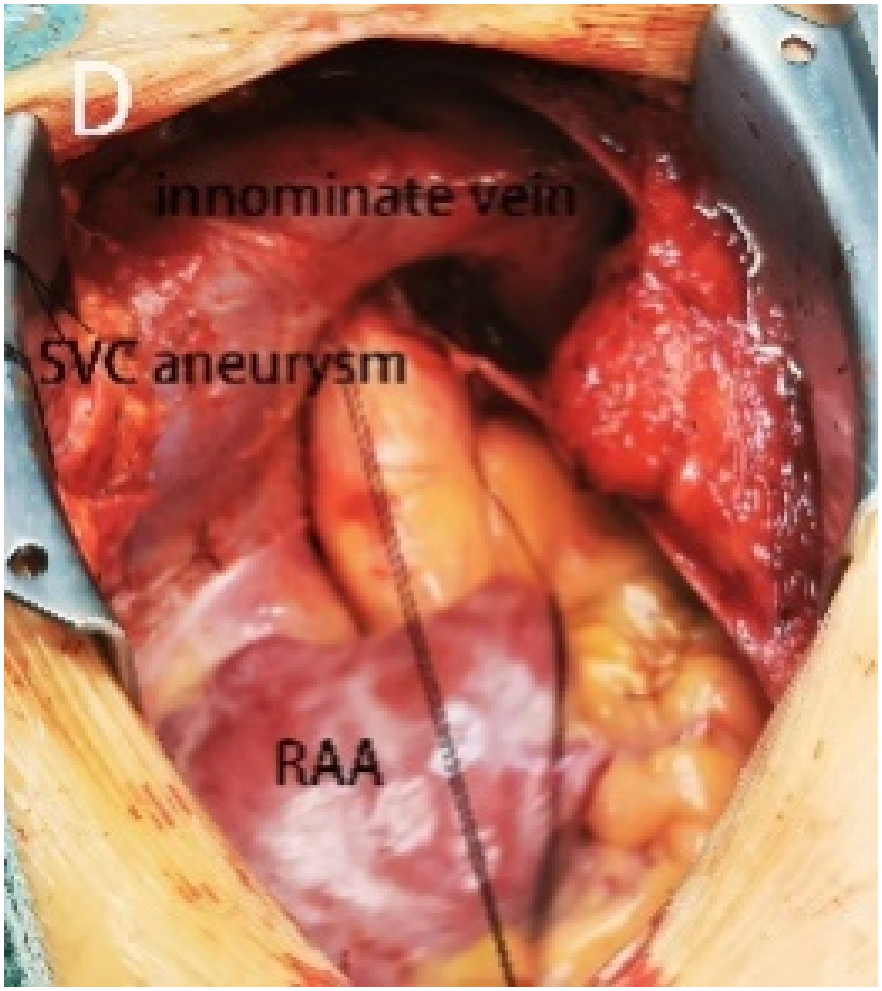
The patient was seen in the clinic due to her dyspnea and impaired exercise tolerance. Preoperative echocardiography and computed tomography (CT) confirmed the diagnosis of supracardiac TAPVC with a giant venous arch complicated with a 22 mm atrial septal defect (ASD) (Figure 1A-1B;supplementary material online, video 1). The maximum diameter of the SVC was measured 7.68×6.32 cm (Figure 1C). Neither the echocardiography nor the CT found any obstruction throughout the venous pathway. Angiography was conducted which showed a mean pulmonary artery pressure of 22 mmHg and low pulmonary resistance. Intraoperative findings were consistent with all preoperative diagnosis (Figure 1D). While establishing the cardiopulmonary bypass, along with the routine IVC cannulation, two separate venous catheters were placed into the right brachiocephalic vein and the innominate vein respectively. Routine TAPVC correction was done by anastomosing the posterior wall of left atrium with the pulmonary venous confluence, ligating the vertical vein and repairing the ASD.

Although some publications concluded that, comparing with a saccular shape, a fusiform SVC aneurysm will usually have a benign prognosis[4-7]. However, considering that such a giant SVC aneurysm presented in a non-obstructive environment, we thought it might have its histological etiology and would take a higher risk of thrombosis and/or rupture. Therefore, a partial venoctomy was reasonable. By controlling the distal veins, the wall of the aneurysm was partially resected, and the diameter of SVC was reduced to a normal size (Figure 1E). Pathology of the SVC revealed desmoplasia with hyaline degeneration and calcification in the vascular wall and mucoid degeneration in the focal area. The patient had an uncomplicated postoperative course and was discharged on the seventh postoperative day.









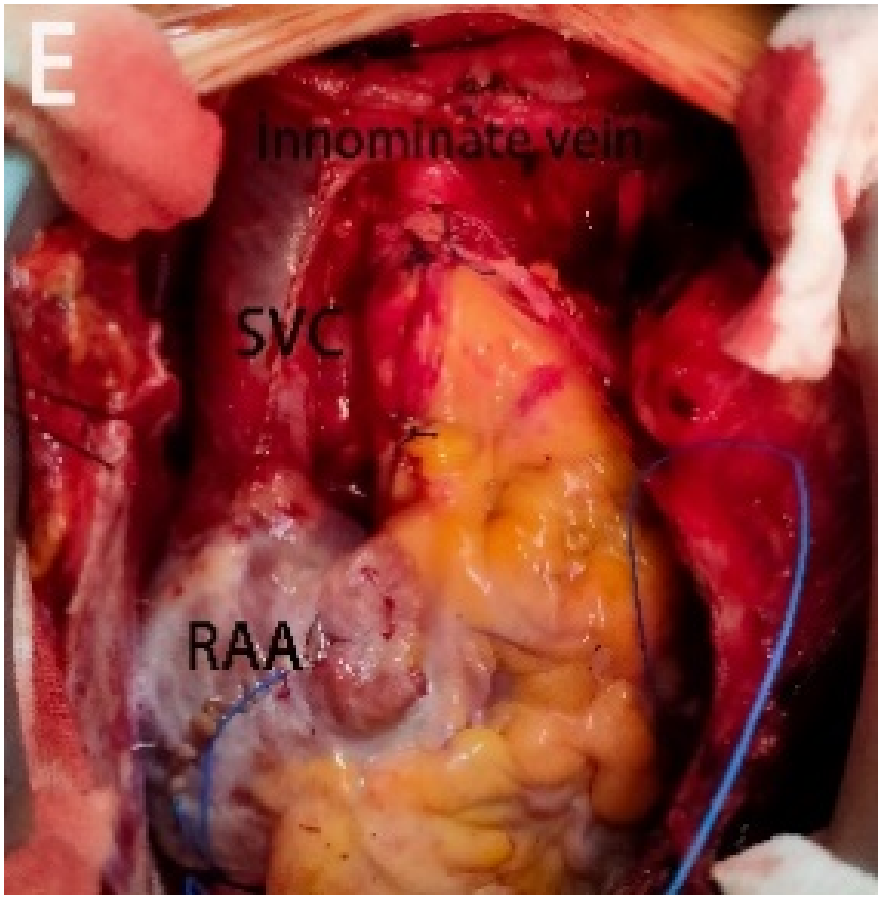


FIGURE 1:1A-B Preoperative transthoracic echocardiography and CT showed supracardiac TAPVC with a giant venous arch. C CT showed the maximum diameter of the SVC. D-E Pre and postoperative view of SVC. CT, computed tomography; TAPVC, total anomalous

pulmonary venous connection; SVC, superior vena cava; RAA, right atrial appendage.

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