

Thrombi in the Main Pulmonary Artery Stump After a Fontan Operation

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Received: 6 October 2007 / Accepted: 8 December 2007 / Published online: 6 February 2008
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At the time of a Fontan operation, complete pulmonary stump obliteration should be performed rather than pulmonary artery ligation to prevent thrombus formation in the main pulmonary artery stump, currently a rare finding [1]. We present a case in which thrombi were noted in the completely oversawn main pulmonary artery stump. The images provided illustrate an uncommon but potentially serious and easily preventable complication among Fontan patients.

Case Report

A 7-year-old boy was born with a corrected transposition of the great arteries and right ventricle hypoplasia. He underwent pulmonary artery banding at 4 months of age. The extracardiac Fontan operation was performed when he was 5 years old.

During the Fontan operation, the large main pulmonary artery was divided, and the pulmonary valve leaflets were completely closed edge-to-edge using prolene 6-0 continuous sutures. The cardiac end of the main pulmonary artery (MPA) was directly closed.

After the Fontan operation, routine echocardiography was performed three times over 2 years, with no abnormal findings. However, a recent routine surveillance echocardiogram showed three pedunculated mobile thrombi in the main pulmonary artery stump as well as to and fro blood flow through the pulmonary valve (Fig. 1). The patient was in good general health, with no evidence of systemic embolization or neurologic disturbance.

Brain computed tomography was not performed. Despite administration of heparin for 10 days, the size of the thrombi decreased only slightly and remained in place. Therefore, we performed surgical removal of the thrombi, excision of the valves, and obliteration using bovine pericardium. The operative findings showed three pedunculated thrombi located in each pulmonary valve sinus, and the leaflets were completely closed. However, several tiny fenestrations located near the edge of the leaflet (Fig. 2) were newly noted. The patient recovered uneventfully after surgery.

Reference

1. Balling G, Vogt M, Kaemmerer H et al (2000) Intracardiac thrombus formation after the Fontan operation. *J Thorac Cardiovasc Surg* 119:754–752

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Fig. 1 Echocardiographic view (A and B) showing pedunculated mobile thrombi in the main pulmonary artery stump after the Fontan operation (arrow)

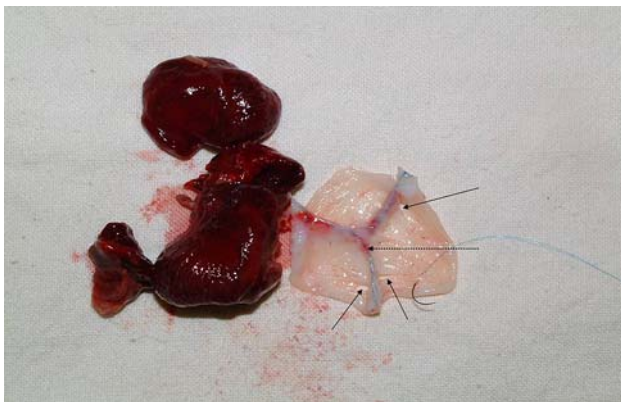
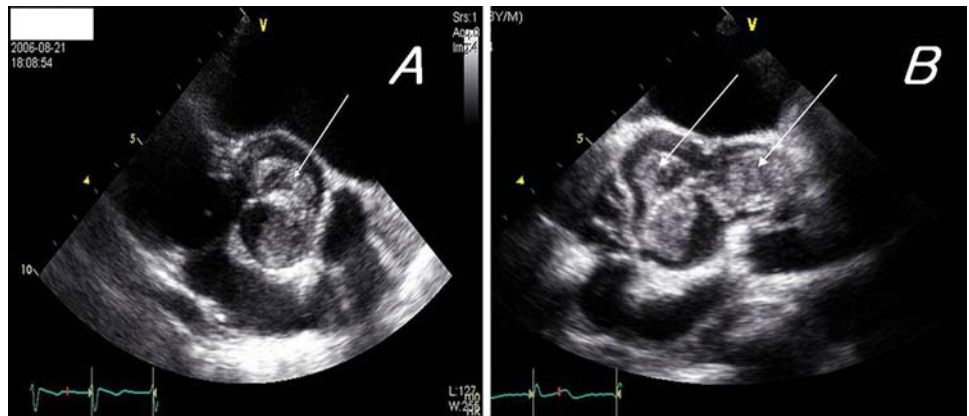


Fig. 2 Postoperative specimen. This view demonstrates three pedunculated thrombi located in each pulmonary valve sinus. Note the leaflets that are completely closed (*dashed arrow*) but with several fenestrations near the edge of the leaflets (*arrows*)