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Case Report

Post Blalock–Taussig shunt mediastinal mass – a single shadow with two different destinies

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ABSTRACT

The modified Blalock–Taussig shunt is a synthetic shunt between the subclavian and pulmonary artery, used in the treatment of congenital cyanotic heart diseases with pulmonary hypoperfusion. Delayed complications include progressive failure of the shunt, serous fluid leak, and pseudoaneurysm formation. We report two different and rare mediastinal vascular complications following modified BT shunt surgery in this case report. The first one is a seroma, due to serous fluid leakage through the shunt graft, which is a relatively benign complication. The second one is a pseudoaneurysm, arising from the shunt, a frequently fatal complication. Generally, X-ray chest is used for screening in these patients. CT angiography plays a vital role in the diagnosis of both these conditions. Management in pseudoaneurysm should be aggressive, as timely intervention may be life saving, while in seroma the management is most often conservative occasionally requiring surgical intervention.

1. Case 1

A 2-year-old male child, weighing 10 kg, presented with history of cyanotic spells since infancy, central cyanosis and failure to thrive. Echocardiography and cardiac catheterization study revealed Tetralogy of Fallot (TOF). The sizes of right pulmonary artery (PA), left PA and descending thoracic aorta (DTA) were 6.5 mm, 7 mm and 11 mm respectively. McGoon ratio was 1.23 Due to recurrent cyanotic spells he underwent emergency modified BT shunt (left side) using Gore-Tex graft (shunt size 4.5 mm). There were no periprocedural complications and the patient was discharged. Three years after the surgery, during routine evaluation for intracardiac repair, he was found to have an added opacity in the left upper mediastinum on chest X-ray (Fig. 1). CT angiography revealed a small hypodense collection of fluid attenuation surrounding the Gore-Tex graft (Fig. 2). No calcification, enhancement,

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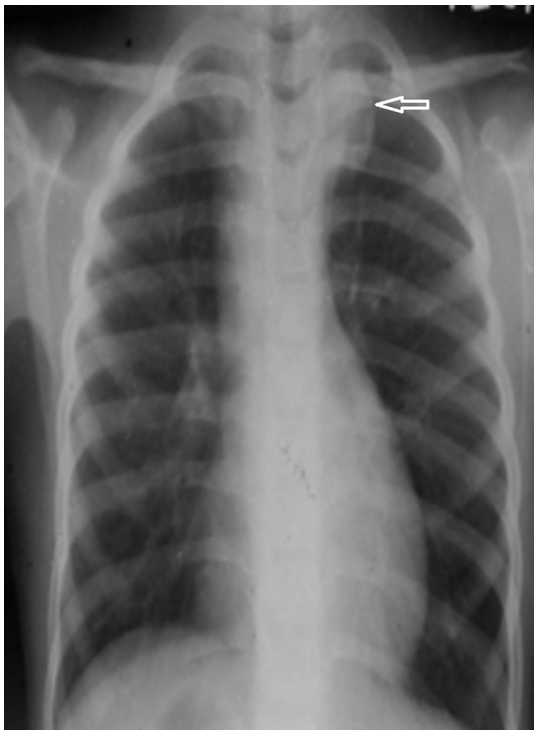

Fig. 1 – Frontal chest radiograph shows a well defined opacity in the upper mediastinum on the left side with well circumscribed lateral margins.

Fig. 2 – Axial contrast chest CT obtained in a helical mode. The sagittal oblique maximal intensity projection image shows a small hypodense lesion of fluid attenuation seen adjacent to the BT shunt. No calcification, enhancement, septae, air foci or solid component was seen. Features are consistent with a post operative seroma. Thin long arrow points BT shunt. Broader, short arrow points seroma

septae, air foci or solid component was seen. Features were consistent with that of a postoperative seroma and the patient was conservatively managed for the same.

2. Case 2

A 2-year-old female child, weighing 12 kg, presented with history of central cyanosis since infancy and growth failure. Echocardiography and cardiac catheterization revealed double outlet right ventricle (DORV) with sub-aortic ventricular septal defect (VSD) and pulmonic stenosis (PS). The sizes of right PA, left PA and DTA were 7.5 mm, 7 mm and 13 mm respectively. Mc Goon ratio was 1.11. Patient underwent left sided modified BT shunt (size: 5 mm) and was discharged following an uneventful post operative course. Follow up echocardiography demonstrated a good left sided shunt function. Cyanosis had reduced and her growth had also improved. Five months after surgery the patient presented with history of hemoptysis. Chest X-ray revealed mediastinal opacification the left side which was confirmed by CT angiography to be a pseudoaneurysm arising from the subclavian end of the shunt (Figs. 3–5). Patient was scheduled for emergency aneurysmal repair, but she developed sudden massive hemoptysis which proved to be fatal.

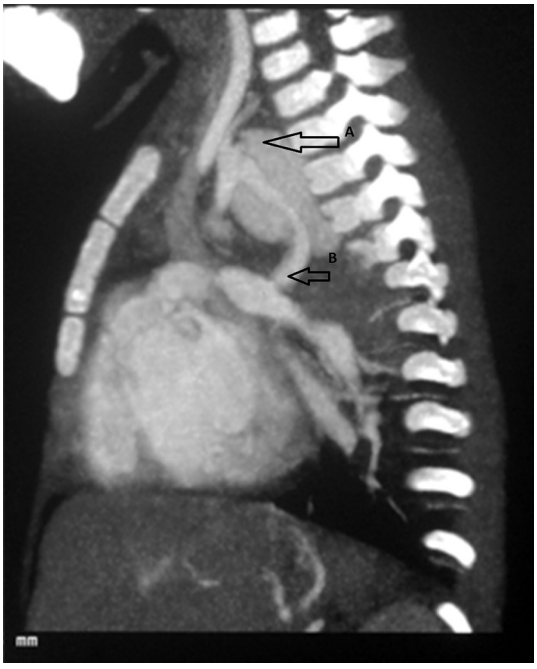

Fig. 3 – Axial chest CT. The sagittal oblique maximal intensity projection image shows a focal contrast outpouching in relation to the BT shunt. White arrow points PA.

3. Discussion

An expanded polytetrafluorethylene (PTFE) graft is used in modified Blalock–Taussig shunt which can be associated with