

How to save a patient with conduit rupture?

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A conduit rupture is a serious life-threatening complication of balloon conduit dilatation. We report a patient with this type of complication which was urgently managed in the cath lab.

Key words: balloon angioplasty, pulmonary conduit rupture, surgery.

Jak zachránit pacienta s rupturou konduitu?

Ruptura konduitu je závažná, život ohrožující komplikace balónkové dilatace zúženého konduitu. V kazuistice uvádíme pacientku s komplikací tohoto typu, která byla urgentně řešena v katetrizační laboratoři.

Klíčová slova: balonková angioplastika, ruptura plicnicového konduitu, operace.

Case report

A 7-year-old girl diagnosed with aortic stenosis with bicuspid aortic valve was admitted to hospital due to increased echo gradient (70 mm Hg) measured on pulmonary conduit. Elective conduit angioplasty was planned. The patient had undergone the Ross-Konno procedure because of recurrence of subaortic stenosis. She had no signs of cardiopulmonary compromise on admission. Originally, a pulmonary homograft with a diameter of 19 mm was implanted. The patient underwent classic right-sided diagnostic catheterisation before intervention. Angiography revealed a moderate stenosis of the pulmonary homograft. The stenosis was 7 mm in diameter. A 20-mm balloon was used for dilatation (Fig. 1). Immediately after dilatation, systemic pressures decreased. Follow-up angiography revealed a rupture of the conduit at the bifurcation of the pulmonary artery with leakage of the contrast agent into the left pleural cavity (Fig. 2). A balloon was inflated urgently at the rupture site, which resulted in a gradual stabilization of the patient (Fig. 3). Subsequently, the patient underwent surgical conduit repla-

Fig. 1. a) angio in lateral view; the arrow indicates the presence of severe pulmonary conduit stenosis; b) balloon angioplasty

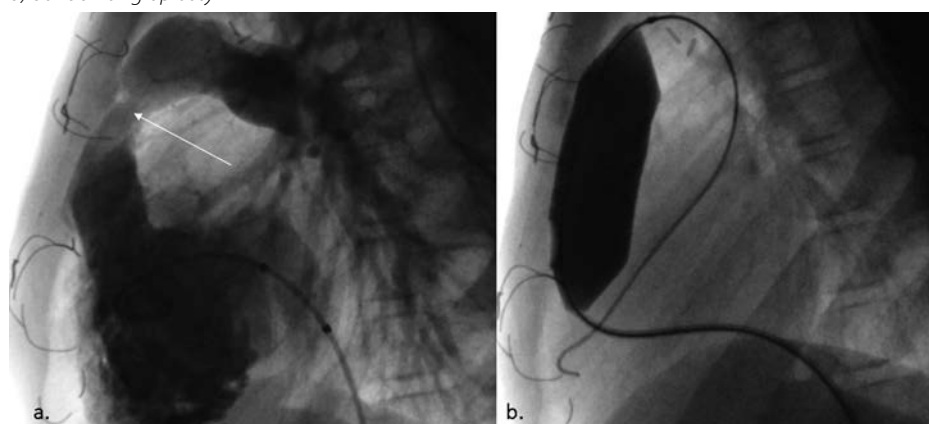
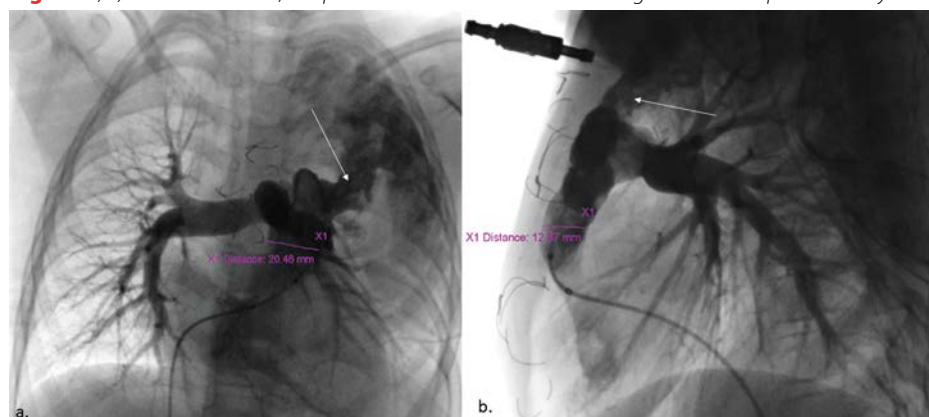


Fig. 2. a, b) AP + lateral view; a ruptured conduit with contrast leakage into the left pleural cavity



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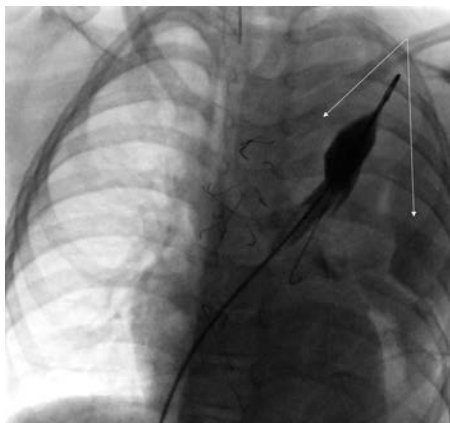
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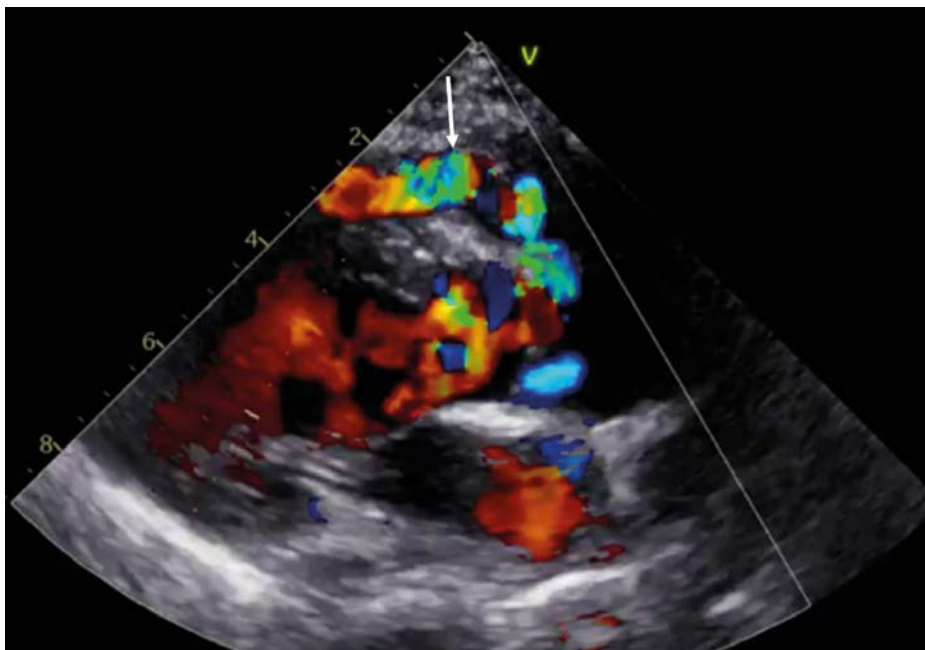
Fig. 3. Inflated balloon in place of the ruptured conduit; the arrows show a shadowing in the left lung



cement (Conduit Medtronic Freestyle 23 mm). Echocardiography confirmed a good result of the operation without residual pulmonary stenosis and regurgitation (Fig. 4). She was released home a week later.

Conduit rupture is a serious life-threatening complication, which may necessitate converting to open surgery. However, utilization of covered stents either prophylactically (when available) or as a bailout strategy may be an effective way to avoid surgery in this situation. In situations where a conduit rupture occurs too distally, as in our case, and is caused by the distal end of the balloon catheter, covered stents may not be helpful as further

Fig. 4. Echo after surgical replacement of the pulmonary conduit (arrow)



stenting may propagate the tear. The authors believe their approach to be the only effective one to save a patient (1, 2).

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