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Images in Congenital Heart Disease

Fulminant staphyloccal infection of atrial septostomy

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A BABY BOY WEIGHING 3.3 KG PRESENTED ON THE first day of life with severe cyanosis. He was resuscitated with fluids and intravenous prostaglandin at the referring hospital and transferred to us for cardiac assessment. Echocardiography confirmed transposed great arteries (concordant atrioventricular and discordant ventriculo-arterial connections) and a balloon atrial septostomy was performed via the umbilical vein with standard cefotaxime antibiotic cover, having removed the previously sited umbilical venous catheter under aseptic conditions. The procedure was swift and uncomplicated, and the baby was maintained thereafter on low dose prostaglandin via a peripheral line, as is our standard practice.

Six days later, and the day before a scheduled arterial switch procedure, the baby rapidly became extremely unwell, mottled and hypotensive, with a high fever. Sepsis was suspected, intravenous vancomycin and gentamicin were given, and the baby was intubated and ventilated. An apical four chamber echocardiographic view (Fig. 1) showed vegetations on both sides of the interatrial septum and extending through the atrial septostomy. Parasternal long axis cuts (Fig. 2) showed further vegetations filling the left ventricular outflow tract and coating the pulmonary valve. Cranially angled short axis views (Fig. 3) revealed additional vegetations on the leaflets of the mitral and tricuspid valves, and within the right ventricular outflow tract. The baby rapidly deteriorated, dying 12 h later despite full supportive measures. Staphyloccus aureus, fully sensitive, was grown from all blood cultures. The coroner declined a post-mortem examination.

This case illustrates unusually florid and devastating staphyloccal endocarditis in a newborn infant

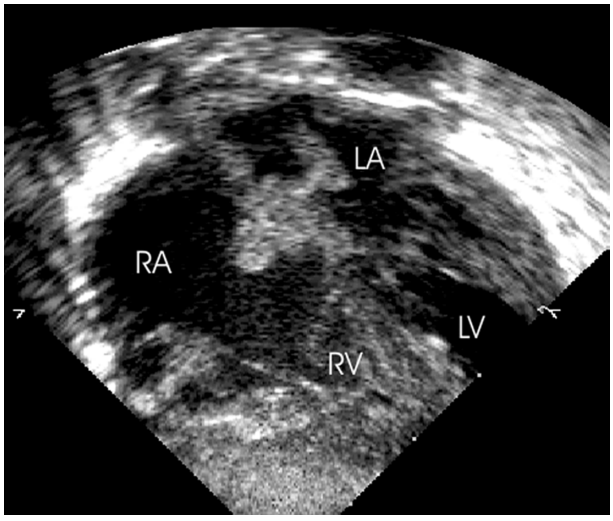

Figure 1.
LA: left atrium; RA: right atrium; LV: left ventricle; RV: right ventricle.

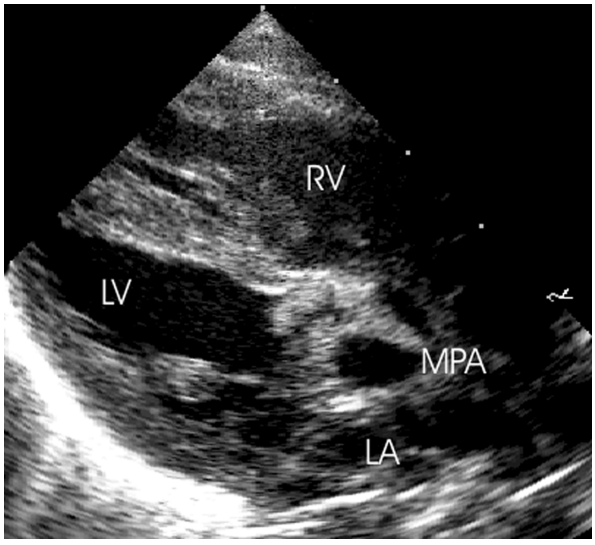

Figure 2.
LA: left atrium; LV: left ventricle; RV: right ventricle; MPA: pulmonary trunk.

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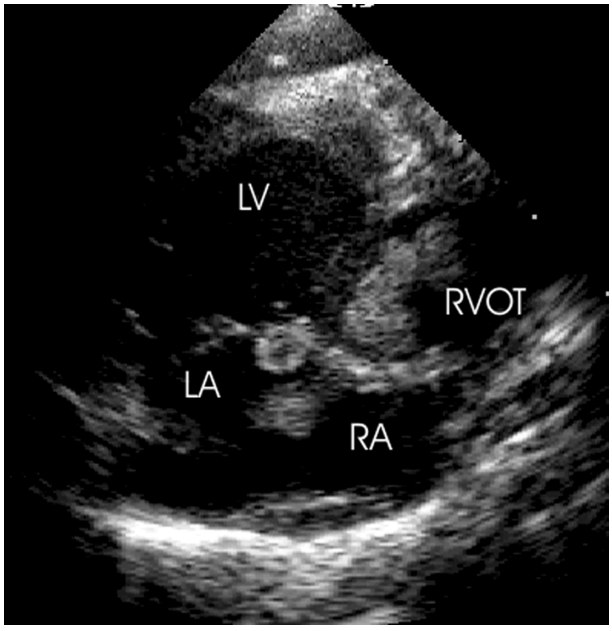

Figure 3.
LA: left atrium; RA: right atrium; LV: left ventricle; RVOT: right ventricular outflow track.

subsequent to atrial septostomy. It is possible that the portal of entry of the infection was the umbilical vein at the time of removal of the previous line, but the delay of almost a week before septic deterioration occurred, and the virulence of the infecting organism, makes this unlikely. A peripheral intravenous cannula was used for delivering prostaglandin, and the baby was tolerating full oral feeds. Neonatal immune incompetence, or an immune defect, may have been contributory.

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