

Images in Congenital Cardiac Disease

Successful emergency cardiac pacing and permanent pacemaker insertion in a preterm 29-week gestation hydropic baby with congenital complete heart block

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Abstract A preterm 29-week gestation baby was delivered because of gross foetal hydrops secondary to congenital complete heart block. Despite a poor prognosis, she survived stabilisation and received emergency epicardial pacing followed by permanent pacemaker insertion on day 13, weighing 1.2 kg.

Keywords: Congenital complete heart block; foetal hydrops; epicardial pacing; preterm delivery

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A WOMAN WAS REFERRED AS AN EMERGENCY TO THE Regional Fetal Medicine Centre at 29+2 weeks gestation in her first pregnancy, with an ultrasound diagnosis of hydrops and bradycardia, following presentation at her local unit with abdominal pain and reduced foetal movements. Complete congenital heart block with a ventricular rate of 39 beats per minute (bpm) and gross foetal hydrops were diagnosed. The heart was structurally normal. After consultation with the on-call paediatric cardiologist and neonatologist, the couple were counselled regarding the high risk for foetal demise in utero, as well as the poor prognosis post-natally in a preterm hydropic baby. It was felt that the best option was delivery.

A female infant weighing 1825 g was delivered by emergency caesarean section that day. Following delivery, the baby was ventilated and started on isoprenaline and dobutamine infusions (Fig 1). The heart rate remained 40–50 bpm and the baby was urgently transferred to the tertiary cardiac centre for emergency epicardial pacing. Echocardiography revealed a structurally normal heart. Initial stabilisation was performed by drainage of ascites and pleural effusions and

insertion of temporary epicardial pacing wires (Fig 2). On day 13, a St. Jude Microny 2525T™ single-chamber epicardial pacemaker was inserted

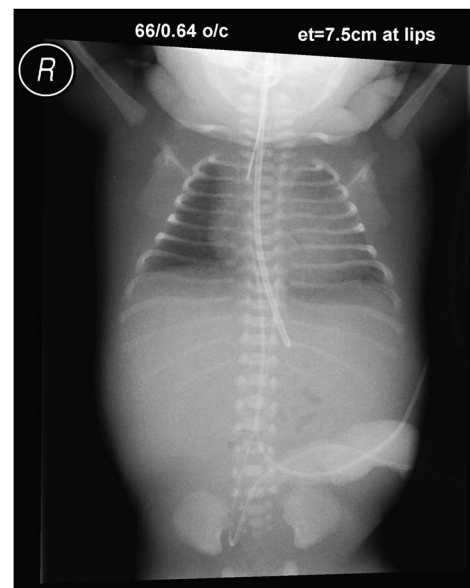


Figure 1. Initial X-ray showing evidence of severe hydrops: ascites, skin oedema, an enlarged heart, and small pleural effusions.

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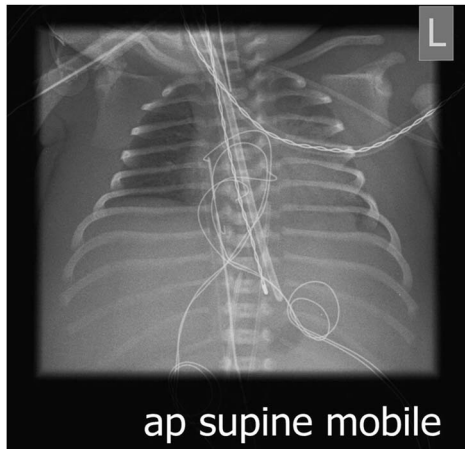


Figure 2.
Chest X-ray post-emergency temporary epicardial leads inserted.

with a Medtronic CAPSURE® EPI 4968–25 cm ventricular lead (Fig 3). The initial lead capture threshold was 1.2 V at 0.5 ms with lead impedance 940 ohms, R wave amplitude sensing 26.9 mV. The pacing mode was VVI at 130 bpm. The baby was extubated on day 16, weighing just 1.2 kg with her hydrops completely resolved. The mother was found to be positive for anti-Ro, SSA, antibodies, despite being asymptomatic from rheumatological disease. At 8 months of age, the post-implant threshold remains low at 0.9 V at 0.58 ms with lead impedance of 400 ohms. The child is asymptomatic, thriving, and developing appropriately (Figs 1, 2 and 3).

Premature hydropic babies with complete congenital heart block have a very poor prognosis with a high mortality.¹ The most common cause of complete congenital heart block is cardiac structural anomalies followed by maternal autoimmune disease, often undiagnosed, which was the case here.¹ There are only a few reported cases in the literature with good outcomes of infants with severe hydrops of this gestation and weight surviving and having successful pacemaker insertion. This case highlights the success

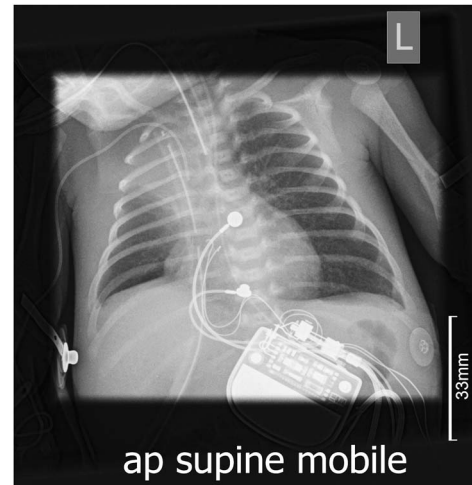


Figure 3.
Post-operative X-ray showing the pacemaker extending from behind the rectus muscle in the abdomen with the epicardial leads in situ.

of initial medical stabilisation in a tertiary neonatal unit with a close link to tertiary cardiac care.

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Conflicts of Interest

None.

Reference

1. Shepard CW, Kochilas L, Vinocur JM, et al. Surgical Placement of Permanent Epicardial Pacing Systems in Very Low-Birth Weight Premature Neonates: A Review of Data From the Pediatric Cardiac Care Consortium (PCCC). *World J Pediatr Congenit Heart Surg* 2012; 3: 454–458.