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Transvenous pacemaker in a child less than 6 kg

T Krasemann,[1] A Rukosujew,[2] and HH Scheld[2]

[1]University Childrens Hospital Muenster, Dept. Of Pediatric Cardiology.

[2]University Hospital Muenster, Dept. Of Thoracic and Cardiovascular Surgery. Albert-Schweitzer-str. 33, D-48149 Muenster, Germany.

Contact information: Thomas Krasemann, University Childrens Hospital Muenster, Dept. Of Pediatric Cardiology, Albert-Schweitzer-str. 33, D-48149 Muenster, Germany e-mail: kraseman@uni-muenster.de

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The insertion of transvenous pacemakers in chidren is limitated by the calibre of the upper chest veins and for this reason, many children receive epimyocardial leads.[1] We report a small patient who developed complete atrioventricular block after an arterial switch operation for transposition of the great arteries. He had a resting ventricular rate of less than 50 bpm. Initially he received an epimyocardial pacemaker with frequencies of 100 bpm. The child was clinnically well and gained weight. Six weeks after implantation the mother noted bradycardia, which was caused by high threshold followed by an exit block due to scarring. The child's weight had reached 5.9 kg. Intraoperatively, no reliable lead position could be found due to scarring with high electrical resistance and for this reason, endomyocardial leads (Medtronic 5076) were implanted through a transvenous approach. The leads were positioned through the left subclavian vein. A subpectoral pocket was created for the pulse generator (Medtronic Kappa KSR 901). The pacemaker functions well since one year and on ultasonography, the innominate and upper caval veins reveal discrete flow acceleration.

Comment: When scarring only permits the use of epimyocardial pacemaker leads, a transvenous approach can be used with good results even in small children.[2] In our institution this child weighing less than 6 kg is the smallest one treated with this technique.

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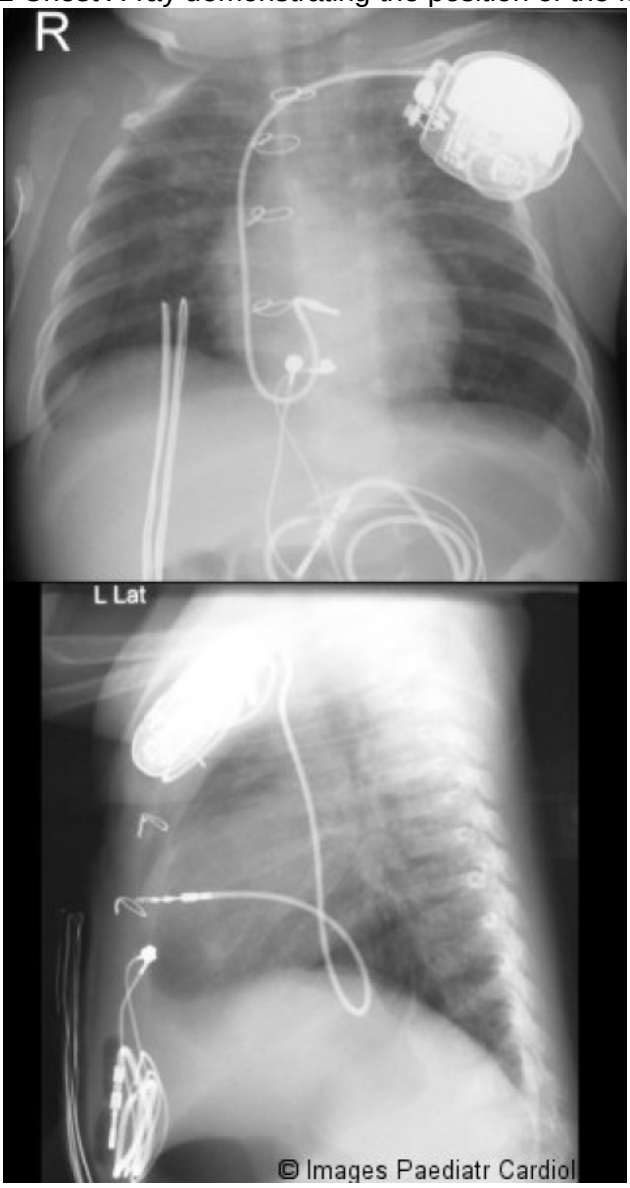
Fig. 1 Clinical aspect of the subpectoral pulse generator

Fig. 2 Chest X-ray demonstrating the position of the leads



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References

1. Sachweh JS, Vasquez-Jiminez JF, Schondube FA, Daebritz SH, Dorge H, Muhler EG, Messmer BJ. Twenty years experience with pediatric pacing: epimyocardial and transvenous stimulation. Eur J Cardiothorac Surg. 2000;17:455–461.[PubMed: 10773570]
2. Molina JE, Dunnigan AC, Crosson JE. Implantation of transvenous pacemakers in infants and small children. Ann Thorac Surg. 1995;59:689–694.[PubMed: 7887713]