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Minimally invasive technique of placing a dual chamber permanent pacemaker in children

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Background & Purpose: Dual chamber permanent pacing in pediatric population can be challenging with consideration of issues such as body growth, patient's size, lifestyle, presence of coexisting congenital heart disease and intracardiac shunts. There are different approaches in the literature for permanent pacemaker implantation which includes thoracotomy, sternotomy or VATS guided placement, we present another technique for dual chamber pacemaker implantation via the xiphisternal approach.

Materials & Methods: The patient is placed in supine position. A 4-6 centimeter vertical midline incision over the xiphoid process is made to gain entry into the pericardial cavity. A pericardial well is created. The right atrium is held with soft clamps and delivered into the wound. Atrial pacing leads are attached to the body of the right atrium with 5/0 polypropylene. Ventricular pacing leads are implanted on the diaphragmatic surface of the right ventricle using 5/0 polypropylene sutures. For placement of pacemaker generator a pocket is created beneath the rectus abdominis muscle via an incision in the left lumbar region. The pacing leads are connected to the generator using a subcutaneous tunnel. After maintaining a satisfactory pacing threshold by an electro-physiologist the anterior rectus sheath, subcutaneous tissue and skin are closed. The pericardium is left open and the xiphoid incision is closed in three layers. Mediastinal drains were not required.

Results: We have used this technique successfully in 15 patients with various indications and had no reported morbidity. Successful atrioventricular synchrony was established along with excellent pacing and sensing thresholds. Compared with thoracotomy and sternotomy this technique is associated with minimal surgical trauma, pain and next day discharge.

Conclusion: This minimally invasive technique of implanting a dual chamber pacemaker is easily reproducible and associated with minimal morbidity.

Biography

Muneer Amanullah has done his FRCS in the field of General Surgery at Edinburgh (UK). He was a Fellow Researcher in the Department of Congenital and Pediatric Cardiac Surgery in UK London. Currently, he is an Interim Associate Dean and also an Associate Professor for Congenital and Pediatric Cardiothoracic Surgery at Aga Khan University, Pakistan.

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