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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.

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## Initial experience with interventional cardiology and definitive solutions for structural heart diseases in a resource-challenged setting

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The first case of open-heart surgery in the University College Hospital, Ibadan took place on December 19, 1978. Since then, various attempts have been made to provide definitive solutions for patients with structural cardiac diseases, but up till now, no permanent regular service exists. We present our initial experience with interventional cardiology and open-heart surgery in a resource-challenged setting. The challenges encountered are discussed and the solutions we have proffered with each situation are presented as we forge ahead towards achieving a more regular service for interventional cardiology and open-heart surgery in our center. In January 2016, eight children underwent diagnostic cardiac catheterization with a view to perform possible corrective intervention. Two subsequently had device closure of patent ductus arteriosus, the first in the history of the hospital. Four patients (one with a large atrial septal defect, one severe pulmonary stenosis, and two with Fallot's tetralogy) were deemed to be more suitable for open-heart surgery. One with muscular ventricular septal defect was thought to be too small to need intervention. The last patient, initially thought to have a coarctation of the aorta, was found to have normal cardiac anatomy. The patient with large ASD and VSD, and one of the two with Fallot's tetralogy, subsequently underwent successful total repair of their lesions in our facility. The successful outcome in the four patients has encouraged us to be optimistic that despite various resource challenges, it will soon be possible to establish a regular service for interventional cardiology and open-heart surgery in our center.

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