



NEWER PACEMAKER TECHNOLOGY

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Newer Technology in Permanent Pacemaker Implantation for Brady arrhythmias –Conduction System Pacing [HIS Bundle Pacing]

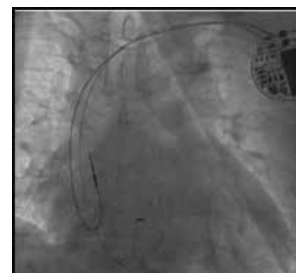
Introduction:

Traditional Pacemaker restores normal heartbeats in millions of people, but the widely using technique is placing the ventricular lead at lower Right Ventricle which increases risk of atrial fibrillation, heart failure and mortality.

A newer procedure called "HIS Bundle pacing" is an alternative approach to RV Pacing. This new pacing technique i.e. HIS Bundle pacing engages the normal electrical conduction system of the heart; thereby it prevents pacing-induced deterioration in cardiac function. HIS bundle is an attractive site for physiological pacing and actual lead placement can be technically challenging due to its anatomic location and surrounding cardiac structures.

Presentation and Evaluation:

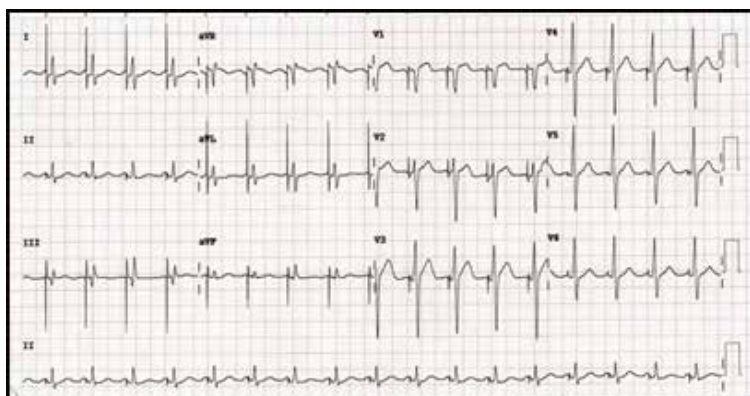
58-year- old diabetic gentleman presented with repeated episodes of syncope since last few weeks. ECG showed complete heart block with narrow QRS complex escape rhythm and ECHO showed normal LV function. Coronary Angiogram was normal. He was recommended to undergo permanent pacemaker implantation with new technology HIS bundle pacing to avoid long term deleterious effect RV apical Pacing



Procedure

Under local anaesthesia and through left subclavian vein access, special screw-in lead was fixed in the His bundle region and HIS bundle capture was confirmed by using an electrophysiology recording system and 12 lead electrocardiogram [to analyze pacing morphologies]. Selective HIS capture was obtained at lower output [up to 0.5V @ 1.0ms] with narrow QRS morphology similar to native QRS.

Dual Chamber Pacemaker - HIS Bundle Pacing



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CURATIVE TREATMENT FOR PAROXYSMAL SUPRAVENTRICULAR ARRHYTHMIAS

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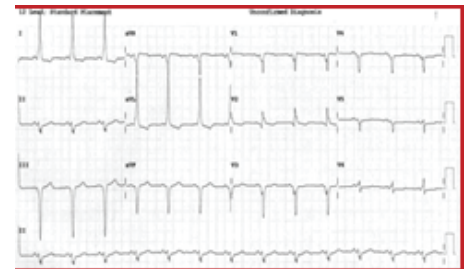
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Curative treatment for Paroxysmal Supraventricular Arrhythmias

Presentation:

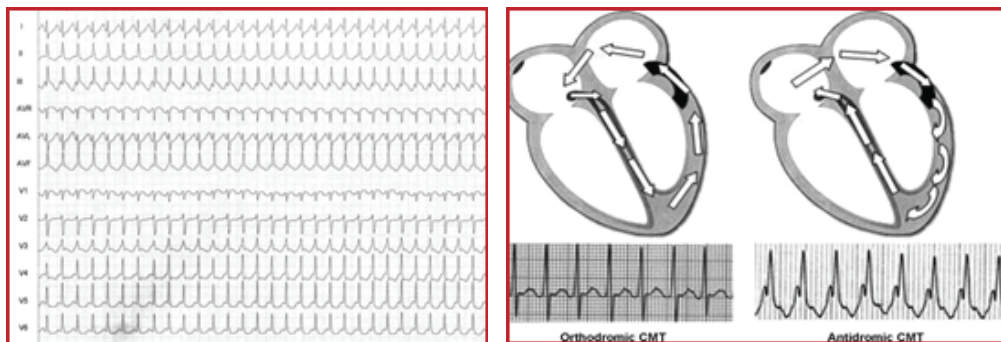
A 12year-old- female child was referred for the evaluation of repeated episodes of palpitation and loss of consciousness. On evaluation, ECG showed pre-excitation pattern [i.e. short PR interval, slurring in the upstroke of QRS [delta wave]. Echocardiogram showed structurally normal heart. 24hours Holter monitoring was normal.



Procedure

The child was taken up for Electrophysiology [EP] study under IV sedation as the history and clinical background was suggestive of tachyarrhythmia could be the cause for the palpitation as well syncope. EP study revealed Paroxysmal Supraventricular tachycardia [PSVT] at 210/min and activation pattern showed Atrio-ventricular Re-entrant tachycardia [AVRT].

ECG during Tachycardia



The child underwent successful RF ablation procedure to cure this tachyarrhythmia by eliminating the accessory pathway which was located in the posterior tricuspid annular region. The child was discharged on following day without any antiarrhythmic medication and remains symptom free during the follow-up.

RF ablation is the curative treatment for accessory pathway mediated tachyarrhythmia's. The success rate of the procedure is more than 98% and recurrence and complication rates are less than 1%.

Accessory pathway connection present 1 in 1000 people for birth and manifest in the ECG as pre excitation pattern. Re-entry arrhythmias can happen at any time in their life and manifest as PSVT. Rarely it can be fatal due to atrial fibrillation with fast ventricular rate via an accessory pathway leads to ventricular fibrillation and sudden death.

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