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Case Report

A novel use of EP catheter in extraction of trapped intracardiac devices: Two case reports



Dilip Kumar^{a,*}, Sunip Banerjee^b, Jaynarayan Naik^c, Kinnari Gupta^d,
Rana Rathor Roy^e, Arvind Kumar^e

^a Consultant Interventional Cardiologist and Electrophysiologist, Medica Superspecialty Hospital, Kolkata, India

^b Director, Medica Institute of Cardiac Sciences, Medica Superspecialty Hospital, Kolkata, India

^c Senior Consultant Interventional Cardiologist, Medica Superspecialty Hospital, Kolkata, India

^d Registrar, Medica Institute of Cardiac Sciences, Medica Superspecialty Hospital, Kolkata, India

^e Consultant Interventional Cardiologist, Medica Superspecialty Hospital, Kolkata, India

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ABSTRACT

The decision to retrieve chronically implanted abandoned leads and trapped intracardiac devices percutaneously has been difficult and highly controversial. We present two case reports in which electrophysiological ablation catheter was used to retrieve infected abandoned pacemaker lead and trapped permacatheter (permacath) in right ventricle. We could avert major cardiovascular surgeries in both the patients by simply modifying the traditionally used techniques for extraction of intracardiac devices.

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1. Introduction

There was emergence of vascular and intracardiac interventions in the past decade.^{1–3} As implant rate of Cardiovascular Implantable Electronic Devices (CIED) continues to rise in most countries, observed complications have increased in parallel.⁴ The occurrence of more frequent device system revisions for complications,⁴ system upgrades,⁵ and/or lead malfunction⁶ and longer patient life expectancies have mandated a paradigm shift toward premeditated lead management strategies from

implant to removal or replacement.⁷ There has also been increase in incidence of left-out broken catheters or leads of previous CIED. Consequently, clinicians increasingly are faced with the challenging choice of extraction or abandonment of sterile, superfluous leads. Traditionally, forceps, snares, baskets, locking stylets or lead-transection devices and laser sheaths are used to extract leads and fragments. We present first two case reports of use of EP Catheter in retrieval of trapped intracardiac devices (abandoned permanent pacemaker lead and fragment of permacatheter) along with traditional methods.

* Corresponding author.

E-mail address: dilipcardio@gmail.com (D. Kumar).

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2. Case report 1

A 55-year-old, normal-built male patient, with permanent pacemaker, presented to the outpatient department with complaints of intermittent fever for the past six months. He had past medical history of type 2 diabetes mellitus and the pacemaker was implanted 8 years back. Pulse generator was removed and permanent pacemaker reimplantation was done with new leads 8 months back. Patient developed infected wound at PPI site with sinus cavity, which was operated after one month of pacemaker reimplantation. Patient was asymptomatic for one month, but later, he developed high-grade fever, and was treated by various physicians. Recent transeophageal echocardiography revealed multiple small vegetations attached to PPI leads, and two months back, blood culture grew *Staphylococcus aureus*, and the patient was advised open cardiotomy for chronically implanted leads removal. Patient was asymptomatic and his blood culture was sterile when he presented to us. Patient was admitted in cardiothoracic surgery department for cardiotomy. After discussion with cardiothoracic surgery department, endovascular approach was successfully tried and permanent device was safely reimplanted in the same sitting. As seen in Fig. 1, there was one pacemaker lead and another abandoned lead (two ventricular leads); we took out the lead connected with pulse generator (functional lead) using standard procedure of retrieval. After local dissection over the pacemaker, the lead was unscrewed and stylet was passed and lead could be brought out easily with gentle traction. The other old lead with implant duration of 84 months had one end into right ventricle (RV) and other end lying around superior vena cava (SVC) and subclavian junction. The 7-French (7F) EP ablation catheter was used as shown in Fig. 2 to hook the lead and pull into the Inferior vena cava (IVC), which was in turn caught with snare and taken out through right femoral vein. There was only TPI

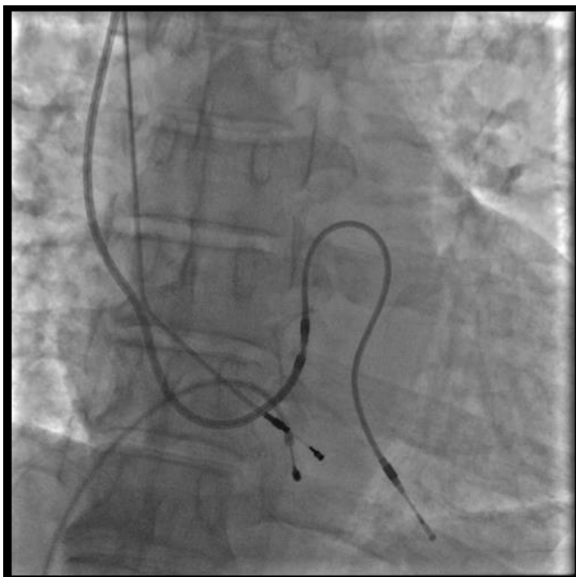


Fig. 1 – Two old ventricular leads with temporary pacemaker lead in place.



Fig. 2 – EP catheter hooking the old ventricular lead.

lead seen in Fig. 3. The extraction time for this lead was 10 min and fluorotime was 25 min. There was no periprocedural complication.

3. Case report 2

A 25-year-old female patient who was on regular hemodialysis, with permacath implanted three months back, presented with complaints of fever that was lasting for the past two weeks. Patient was a known case of systemic lupus erythematosus and membranoproliferative glomerulonephritis, and

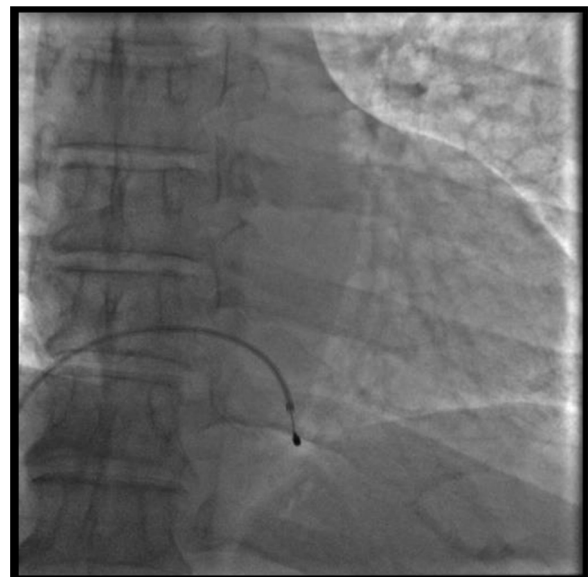


Fig. 3 – Old pacemaker leads removed and temporary pacemaker lead in place.

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