Letters to Editor

Faulty permanent pacemaker in a patient posted for elective urinary bladder surgery: Safety or liability?

Sir,

A 69-year-old male patient weighing 55 kg with a diagnosis of muscle-invasive urinary bladder carcinoma was scheduled for radical cystectomy with ileal conduit under general anaesthesia. In past medical history, there were four cycles of chemotherapy and also a history suggestive of heart block (details of the type of heart block or the specific indication were not available) for which a permanent pacemaker (PPI- VVIR- ST JUDE) was implanted 9 years ago. He was a chronic smoker. Transurethral bladder surgery had been done two times in the past uneventfully under spinal anaesthesia. The last surgery was done as an emergency 6 months back during which there was a history of temporary pacemaker insertion peri-operatively. Effort tolerance and routine investigations were normal. Specialist cardiology consultation was done. A 12 lead electrocardiography (ECG) had normal sinus rhythm with no paced beats (rate of 85/min). A 2D echocardiography revealed an ejection fraction of 60%. The pacemaker had a battery life of 1.25 to 9 years; capture: 6.0 v at 0.8 msec; impedance: 597-ohm and percentage of ventricular pacing: 1.1% (signifying negligible patient dependence on the pacemaker). The pacemaker was scheduled to be reprogrammed to asynchronous VOO mode before the surgery. Chest X-ray confirmed the position of the pacemaker with the impulse generator [Figure 1].

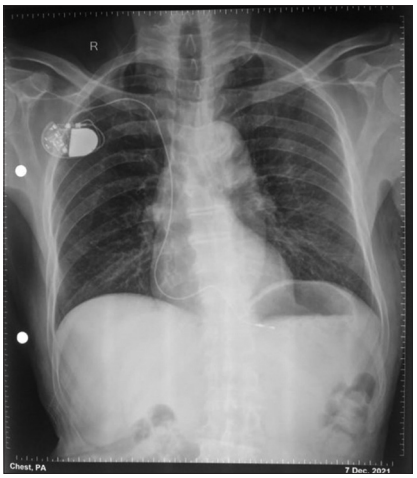

Figure 1: Pacemaker device visible on chest radiogram

On the day of the surgery, pacemaker interrogation was done by the company representative. However, on a trial asynchronous mode (VOO), pacing malfunction was suspected with intermittent failure to capture. The voltage adjustment could not correct it, creating doubt about its efficacy, possibly due to a fault in the pacing leads.[1] On further probing, relatives gave a history of a similar issue during previous surgery, and they were advised pacemaker repair/replacement by the company representatives, which was not done. Thus, we had two major issues; one was due to an unclear primary pathology and the patient's non-dependence on the pacemaker (inherent heart rate 85–90/min), whether to use asynchronous mode or not as it would be required to use a pacemaker rate in excess of 95 to 100.[2,3] Secondly, if we decided to proceed with the routine mode with all precautions of electromagnetic interference, there was doubt about its basic efficacy in case the patient did require pacemaker support intra-operatively.

As the surgery could not be delayed for definitive pacemaker management, it was decided to continue with the backup of a temporary pacemaker, which was inserted in the cardiac interventional laboratory. Following this, the patient was taken up for surgery. The demand rate was set to 55 beats/min, the threshold to 0.8 mV and the output at 5 mV. Intra-arterial blood pressure and pulse oximetry monitoring were done for the confirmation of mechanical transmission of electrical impulses.[3,4] Defibrillator backup was kept, and all electro-magnetic precautions were taken including the use of a harmonic surgical instrument.[5,6] The intraoperative period was uneventful with no pacemaker requirement. The surgery lasted for 6 h with stable haemodynamics. The temporary pacemaker was removed the next day, and the patient was advised regarding definitive management of the permanent pacemaker, either to repair or to remove if not repairable in case the pacemaker was no longer indicated.

The main factor in the present case was a faulty pacemaker *in situ*, which became more of a liability, even though the patient most probably would not have required it during surgery. Thus, the backup of a temporary device was the safest option. To conclude, in the event of a suspected pacemaker malfunction perioperatively, temporary pacing may be considered.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Mridul Dhar, Sonia Dorathy, Nidhi Gupta

Department of Anaesthesiology and Critical Care, AIIMS, Rishikesh, Uttarakhand, India

Address for correspondence:
Dr. Sonia Dorathy,
Department of Anaesthesiology and Critical Care, AIIMS, Rishikesh - 249 203, Uttarakhand, India.
E-mail: soniadorathy@gmail.com

Submitted: 31-Jan-2022
Revised: 31-Mar-2022
Accepted: 28-May-2022
Published: 21-Jun-2022

REFERENCES

1. Chan T, Brady W, Harrigan R. Diagnosis: Pacemaker failure to capture. Emerg Med News 2007;29:415-8.
2. Stone ME, Salter B, Fischer A. Perioperative management of patients with cardiac implantable electronic devices. Br J Anaesth 2011;107:i16-26.
3. Crossley GH, Poole JE, Rozner MA, Asirvatham SJ, Cheng A, Chung MK, *et al*. The Heart Rhythm Society (HRS)/American Society of Anesthesiologists (ASA) expert consensus statement on the perioperative management of patients with implantable defibrillators, pacemakers and arrhythmia monitors: Facilities and patient management. Heart Rhythm 2011;8:1114-54.
4. Choudhary G, Syal R, Kumar R, Kamal M. Anaesthetic management of pacemaker implantation in a child with dilated cardiomyopathy and acquired complete atrioventricular heart block. Indian J Anaesth 2019;63:938-40.
5. Özeren M. Use of an ultrasonic scalpel in the open-heart reoperation of a patient with pacemaker. Eur J CardiothoracSurg 2002;21:761-2.
6. Kuttarmare S, Bhalerao P, Chavan V, Kadam B. A case of post-COVID-19 mucormycosis with permanent pacemaker posted for functional endoscopic sinus surgery: Anaesthetic challenges. Indian J Anaesth 2021;65:703-4.

Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/ija.ija_110_22

How to cite this article: Dhar M, Dorathy S, Gupta N. Faulty permanent pacemaker in a patient posted for elective urinary bladder surgery: Safety or liability? Indian J Anaesth 2022;66:464-5.