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Intraoperative occurrence of bradyarrhythmia in a patient with asymptomatic bifascicular block

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To the editor: Recent reports do not recommend routine prophylactic temporary pacemaker placement in patients with asymptomatic complete right bundle branch block with left axis deviation (bifascicular block) during noncardiac surgery because of the low rate of occurrence of block progression and the lack of cost-effectiveness [1,2]. We would like to report a case of the intraoperative occurrence of bradyarrhythmia in an anesthetized patient with asymptomatic bifascicular block. This bradyarrhythmia was successfully treated with a pulmonary artery catheter (PAC) with electrodes for pacing.

A 71-year-old man with gastric cancer was referred to our institution for total gastrectomy. Asymptomatic bifascicular block without prolonged PR interval, and hypertrophic cardiomyopathy (HCM) with an ejection fraction of 74% were noted on preoperative cardiovascular assessment. His preoperative blood pressure (BP) and heart rate (HR) were 128/68 mmHg and 71 beats per min (bpm), respectively. After the thoracic epidural catheter (T10/11) was inserted, general anesthesia was induced with intravenous (IV) administration of fentanyl and thiopental. Vecuronium was used to facilitate tracheal intubation. Anesthesia was maintained with sevoflurane and 50% nitrous oxide in oxygen and supplemental intravenous fentanyl, and lidocaine for epidural blockade. Subsequently a PAC, with electrodes for pacing (Edwards Lifesciences, Irvine, CA, USA), was placed via the internal jugular vein. Twenty minutes after the start of the surgery, and the epidural administration of 4 ml of 1.5% lidocaine, both BP and HR suddenly decreased without a preceding hypotensive episode. At that time, hemodynamic values were as follows; BP, 54/30 mmHg; HR, 44 bpm; pulmonary artery pressure, 26/14 mmHg; and central venous pressure, 8 mmHg. Complete heart block or atrioventricular dissociation with ventricular escaped beats was seen on the electrocardiogram (ECG) monitor (Fig. 1). Administrations of ephedrine were not effective. The PAC with electrodes for pacing was pulled out by approximately 1 cm, and ventricular pacing (settings: VVI mode, frequency, 50 bpm; current output, 20 mA; sensitivity, 1 mV) was immediately initiated; this resulted in restoration of the patient's hemodynamic values. After the completion of surgery his trachea was extubated in the operating room, and he was transferred to a postsurgical ward. The patient's cardiac rhythm eventually depended on temporary pacing for 3 h until normal sinus rhythm resumed.

It has been recognized that bifascicular block has the possibility to progress to complete heart block in the perioperative period [1–3]. Complete heart block or atrioventricular dissociation should be included in the differential diagnosis of bradyarrythmia in patients with asymptomatic bifascicular block. We could not establish the differential diagnosis of this bradyarrythmia because of the unclear P wave on the ECG monitor, and the short-term ECG recording. An increase in vagal tone due to the development of a mesenteric traction syndrome, as well as sympathetic block of the epidural blockade may have caused the bradyarrhythmia [4]. Uncontrolled changes in cardiac rhythm induced by the IV administration of drugs such as atropine, dopamine, epinephrine, and isoproterenol have a risk of narrowing the left ventricular outflow tract in patients with HCM. In our patient, who did not have a drug-induced hyperdynamic state, PAC with electrodes for pacing effectively paced the heart.

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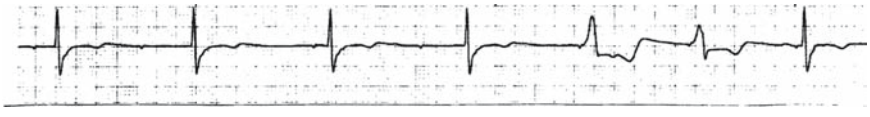

Fig. 1. ECG (lead II) showing bradyarrhythmia in a patient with asymptomatic bifascicular block