



REVISTA BRASILEIRA DE ANESTESIOLOGIA

Publicação Oficial da Sociedade Brasileira de Anestesiologia
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CLINICAL INFORMATION

Intermittent left bundle branch block – reversal to normal conduction during general anesthesia



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Received 3 August 2016; accepted 23 November 2016

Available online 8 April 2017

KEYWORDS

Cardiac conduction defects;
Arrhythmia;
Complete left bundle branch block;
General anesthesia

Abstract

Background and objectives: Transient changes in intraoperative cardiac conduction are uncommon. Rare cases of the development or remission of complete left bundle branch block under general and locoregional anesthesia associated with myocardial ischemia, hypertension, tachycardia, and drugs have been reported. Complete left bundle branch block is an important clinical manifestation in some chronic hypertensive patients, which may also be a sign of coronary artery disease, aortic valve disease, or underlying cardiomyopathy. Although usually permanent, it can occur intermittently depending on heart rate (when heart rate exceeds a certain critical value). **Case report:** This is a case of complete left bundle branch block recorded in the preoperative period of urgent surgery that reverted to normal intraoperative conduction under general anesthesia after a decrease in heart rate. It resurfaced, intermittently and in a heart-rate-dependent manner, in the early postoperative period, eventually reverting to normal conduction in a sustained manner during semi-intensive unit monitoring. The test to identify markers of cardiac muscle necrosis was negative. Pain due to the emergency surgical condition and in the early postoperative period may have been the cause of the increase in heart rate up to the critical value, causing blockage.

Conclusions: Although the development or remission of this blockade under anesthesia is uncommon, the anesthesiologist should be alert to the possibility of its occurrence. It may be benign; however, the correct diagnosis is very important. The electrocardiographic manifestations may mask or be confused with myocardial ischemia, factors that are especially important in a patient under general anesthesia unable to report the characteristic symptoms of ischemia. © 2016 Sociedade Brasileira de Anestesiologia. Published by Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

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PALAVRAS-CHAVE

Defeitos da condução cardíaca;
Arritmia;
Bloqueio completo de ramo esquerdo;
Anestesia geral

Bloqueio intermitente de ramo esquerdo – reversão para condução normal durante anestesia geral**Resumo**

Justificativa e objetivos: Alterações transitórias da condução cardíaca no intraoperatório são pouco frequentes. Foram reportados raros casos de desenvolvimento ou remissão de bloqueio completo de ramo esquerdo sob anestesia (geral e locoregional), associados a isquemia do miocárdio, hipertensão, taquicardia e fármacos. O bloqueio completo de ramo esquerdo é uma manifestação clínica importante em alguns hipertensos crônicos, pode também significar doença arterial coronária, doença valvular aórtica ou cardiomiopatia subjacentes. Embora habitualmente permanente, pode ocorrer na forma intermitente dependente da frequência cardíaca (quando a frequência cardíaca excede determinado valor crítico).

Relato de caso: Este é um caso de bloqueio completo de ramo esquerdo registrado no pré-operatório de cirurgia urgente que reverteu para condução normal no intraoperatório sob anestesia geral após diminuição da frequência cardíaca. Ressurgiu, de forma intermitente e dependente da frequência cardíaca, no pós-operatório imediato, acabou por reverter novamente à condução normal de forma sustentada durante vigilância em unidade semi-intensiva. O estudo com marcadores de necrose muscular cardíacos foi negativo. A dor do quadro cirúrgico urgente e pós-operatório imediato pode ter estado na origem da subida da frequência cardíaca até ao valor crítico e causado bloqueio.

Conclusões: Embora o desenvolvimento ou a remissão desse bloqueio sob anestesia sejam incomuns, o anestesiológista deverá estar alertado para a possibilidade da sua ocorrência. Pode ter caráter benigno, contudo o diagnóstico correto é muito importante. As manifestações eletrocardiográficas podem ser confundidas com ou encobrir isquemia miocárdica, fatos de especial importância num paciente sob anestesia geral incapaz de referir sintomatologia característica de isquemia.

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Introduction

A complete left bundle-branch block (LBBB) development or remission in patients under anesthesia is uncommon.¹⁻⁴ The heart rate-dependent intermittent block may be benign^{5,6}; however, the correct diagnosis is very important. The electrocardiographic manifestations may be confused with or mask a myocardial ischemia,^{5,7} facts of particular importance in a patient under general anesthesia unable to describe the characteristic symptoms of myocardial ischemia.

We report a case of complete preoperative left bundle branch block that reverted to normal conduction after a decrease in heart rate during surgery under general anesthesia and which resurged intermittently and dependent on heart rate in the immediate postoperative period.

Clinical case

A 73-year-old female patient suspected of iatrogenic perforation of the sigmoid colon during colonoscopy with polypectomy was referred for urgent exploratory laparotomy. Pre-anesthetic evaluation revealed a medical history of bronchial asthma, hypertension, type 2 diabetes mellitus, gastritis, hiatal hernia, obesity, and depressive syndrome. Anesthetic history included general anesthesia for

hysterectomy and locoregional anesthesia for varicose vein surgery, with no known complications. Physical examination revealed only abdominal pain, with no signs of peritoneal irritation or significant dysfunction of other organs or systems. Laboratory tests showed leukocytosis ($21,100 \text{ mm}^{-3}$), with no other distinct changes in blood count, renal and hepatic functions, or ionogram. Arterial Blood gas analysis showed no changes. ECG showed sinus rhythm with 82 bpm and a pattern compatible with complete left bundle branch block (LBBB) (Fig. 1). The patient remained without chest pain and with blood pressure and heart rate (HR) values within normal range from hospital admission to arrival in the operating room.

Due to the urgent nature of the surgery and the hemodynamic stability, it was decided not to postpone the surgical procedure for further study of electrocardiographic alterations.

On admission to the operating room, the patient presented with blood pressure of 123/69 mmHg, HR 83 bpm, peripheral oxygen saturation 96%, and LBBB. Under the American Society of Anesthesiologists monitoring standards, induction of general anesthesia with propofol bolus ($2 \text{ mg}\cdot\text{kg}^{-1}$) and infusion of remifentanyl ($0.5 \mu\text{g}\cdot\text{kg}^{-1}$ for one minute, followed by $0.1 \mu\text{g}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$) and neuromuscular block with rocuronium ($0.6 \text{ mg}\cdot\text{kg}^{-1}$), after which the orotracheal intubation was performed with a cuffed endotracheal tube of 7.5 mm internal diameter, uneventfully. An episode

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