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CLINICAL INFORMATION

Anesthesia for Cesarean section in a patient with isolated unilateral absence of a pulmonary artery

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KEYWORDS
Anesthesia;
Cesarean section;
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Abstract
Background and objectives: Congenital unilateral absence of a pulmonary artery (UAPA) is a rare anomaly. Although there are several reports regarding pregnancy in patients with unilateral absence of a pulmonary artery, there are no case reports describing anesthesia for Cesarean section in a patient with unilateral absence of a pulmonary artery.
Case report: We present a patient with unilateral absence of a pulmonary artery who underwent Cesarean sections twice at the ages of 24 and 26 years under spinal anesthesia for surgery and epidural analgesia for postoperative pain relief. Both times, spinal anesthesia and epidural analgesia enabled successful anesthesia management without the development of either pulmonary hypertension or right heart failure.
Conclusion: Spinal anesthesia combined with epidural analgesia is a useful anesthetic method for a Cesarean section in patients with unilateral absence of a pulmonary artery.

PALAVRAS-CHAVE
Anestesia;
Cesariana;
Gravidez;
Ausência unilateral de uma artéria pulmonar

Anestesia para cesariana em paciente com ausência unilateral isolada de artéria pulmonar

Resumo
Justificativa e objetivos: A ausência congênita unilateral de uma artéria pulmonar (ACAP) é uma anomalia rara. Embora existam vários relatos sobre pacientes grávidas com ACAP, não há relatos de casos descrevendo anestesia para cesariana em pacientes com ACAP.
Relato de caso: Apresentamos uma paciente com ACAP que foi submetida a duas cesarianas, nas idades de 24 e 26 anos, sob raquianestesia para a cirurgia e analgesia epidural para a dor no pós-operatório. Nas duas cesarianas, a raquianestesia e analgesia epidural possibilitaram

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o manejo bem-sucedido da anestesia, sem a ocorrência de qualquer hipertensão pulmonar ou insuficiência cardíaca direita.
Conclusão: Raquianestesia combinada com analgesia epidural é um método anestésico útil para cesarianas em pacientes com ACAP.

Introduction

Congenital unilateral absence of a pulmonary artery (UAPA) is a rare anomaly with an estimated prevalence of approximately 1 in 200,000 young adults.[1] Patients who have no cardiac anomalies other than UAPA can remain asymptomatic even into late adulthood. The most common symptoms are recurrent pulmonary infections, decreased exercise tolerance or mild dyspnea on exertion.[2] The symptoms of isolated UAPA can be provoked by predisposing factors, such as pregnancy[3–8] or high altitude.[2] Pregnancy is known to increase cardiac output. Furthermore, unilateral lung perfusion with the entire cardiac output is a risk factor for the development of pulmonary arterial hypertension. The prognosis of isolated UAPA depends on the presence or absence of pulmonary arterial hypertension.[2] Although there are several reports regarding pregnancy in patients with UAPA,[3–9] there are no case reports describing anesthesia for a Cesarean section in a patient with UAPA. Thus, the best approach to anesthesia for Cesarean section in these patients remains unclear. We present a patient who underwent Cesarean sections under spinal anesthesia for surgery and epidural analgesia for postoperative pain relief twice at the ages of 24 and 26 years.

Case report

First Cesarean section

A 24-year-old woman, pregnant patient, with UAPA was admitted to our hospital at 35 weeks' gestation for delivery and perinatal care. She was diagnosed with UAPA at the age of 15 years when she incurred right-sided pneumonia. A chest X-ray revealed the absence of the right pulmonary artery trunk. Computed tomography revealed the absence of the right pulmonary artery and the presence of three collateral vessels from the ascending aorta to the right lung. An echocardiogram did not image any additional cardiac anomalies. Right cardiac catheterization revealed normal pulmonary arterial pressure (PAP). At the time of diagnosis, she was asymptomatic for UAPA and surgical correction was not indicated. She had no past medical history other than UAPA and the right-sided pneumonia.

On admission, the patient was asymptomatic. She had no pregnancy-related complications. Her height was 154 cm and her weight was 63 kg. A chest X-ray showed the absence of the right pulmonary artery trunk, mediastinal shift to the right and an expanded left pulmonary artery trunk

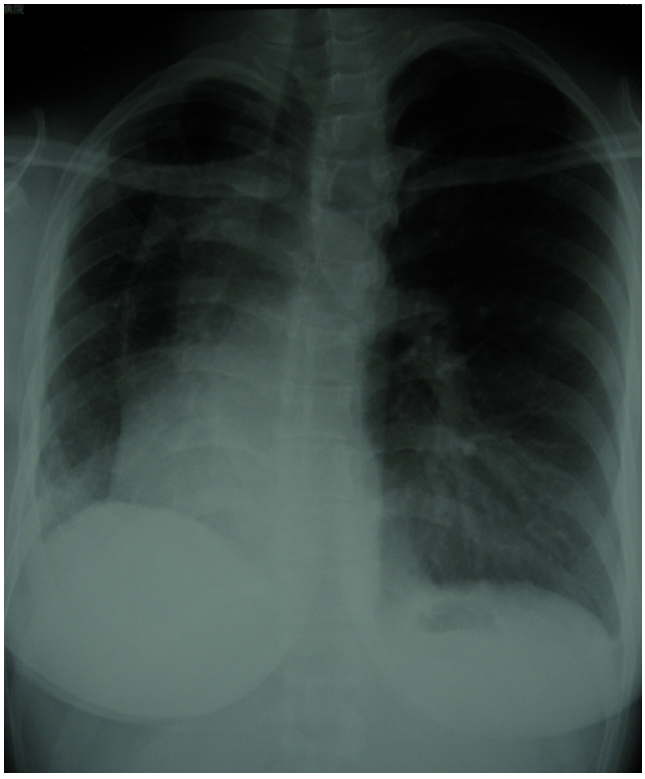

Figure 1 Chest roentgenography showing absence of the right pulmonary artery trunk, decreased pulmonary vasculature in the right lung, shift of the mediastinal structures to the right and an expanded left pulmonary artery trunk.

(Fig. 1). Chest magnetic resonance imaging revealed that blood flow in the left pulmonary artery was approximately twice the normal volume. Her PAP was normal. Arterial blood gas analysis revealed a pH of 7.48, oxygen pressure of 83.8 mmHg and carbon dioxide pressure of 34.7 mmHg when breathing air. Although she was initially scheduled to undergo a vaginal delivery under epidural analgesia with systemic and PAP monitoring, labor had not begun by 38 weeks and 4 days' gestation; therefore, a Cesarean section with stringent systemic and PAP monitoring was planned. A pulmonary artery flotation catheter was inserted on the day before surgery. On arrival to the operating room (OR), systemic arterial pressure (SAP) was 106/68 mmHg, PAP was 5/1 mmHg, heart rate (HR) was 95 beats/min and oxygen saturation (SpO2) was 98%. An arterial catheter was inserted in the OR. After administering oxygen at 5 L/min

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