Title: **Reverse Takotsubo cardiomyopathy following spinal anaesthesia during a C-section: a case report**

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Introduction : Takotsubo cardiomyopathy (TCM) is defined by a transient abnormality of myocardial contraction with impaired left ventricular ejection fraction. In the rarer reverse variant, kinetic disturbances affect the base of the left ventricle, making diagnosis more difficult. TCM is caused by physical or emotional stress, and can occur at the time of delivery or during pregnancy[1,2].

Case report: We present the case of a 34-year-old parturient, with no known past medical history, who underwent a caesarean section under spinal anaesthesia. Shortly after the onset of spinal anaesthesia, blood pressure suddenly decreased to 60/40 mmHg. The administration of several boluses of ephedrine (39 mg in total) followed by a continuous infusion of norepinephrine up to 0.9 $mg.h^{-1}$ restored blood pressure to 100/60 mmHg some 15 minutes after initiation. Subsequently, the patient developed an oxygen saturation of 85%, requiring high-concentration oxygen therapy (15 $L.min^{-1}$). It took 30 min to achieve an oxygen saturation >94%. The patient never complained of thoracic pain. Arterial blood gas test revealed hypoxemia with a PaO_2 at 70 mmHg and hypocapnia with a $PaCO_2$ at 31 mmHg. An electrocardiogram showed inverted T waves, and the troponimemia rose to 924 $ng.L^{-1}$(20 hours after C-section) which regressed to 684 $ng.L^{-1}$ 4 hours later. A transthoracic cardiac echocardiography revealed basal segment hypokinesia, with apical hyperkinesia, and an estimated left ventricular ejection fraction of 48%. The differential diagnoses of pulmonary embolism and myocardial infarct were invalidated by angioscan and cardiac MRI, respectively. After gradual weaning from vasopressors and oxygen therapy, the patient was referred to the cardiology department.

Discussion: The onset of TCM may follow a state of stress releasing endogenous catecholamines[3]. Another hypothesis is that catecholamines administered during a C-section, to prevent the occurrence of hypotension, may be responsible for the onset of TCM. These two hypotheses are put forward after ruling out the main differential diagnoses, such as an acute coronary syndrome, pulmonary or amniotic embolism, and postpartum cardiomyopathy. With regard to our clinical case, after weaning from vasopressors and oxygen therapy, the patient regained normal cardiac function, underlining the possibility of a correlation between norepinephrine and ephedrine infusion and TCM.

Conclusion: TCM is a rare complication that can occur during childbirth. The so-called inverted form is more difficult to detect, because of its atypical ultrasound appearance. TCM should not be confused with other pathologies presenting a similar clinical picture, given the implications for management. This case highlights the potential complications that may arise during obstetric anesthetic management, when vasoactive agents are used.

Conflict of interest: The authors declare that they have no conflicts of interest to disclose in relation to this work.

Consent: Written consent was obtained from the patient for the use of her data anonymously in this clinical case.

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