Case report: perioperative Kounis syndrome in an adolescent with congenital glaucoma

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INTRODUCTION

Kounis syndrome (KS) is defined as the manifestation of an acute coronary syndrome accompanied by mast cell activation and platelet aggregation involving interrelated and interacting inflammatory cells in the setting of allergic, hypersensitivity, anaphylactic or anaphylactoid insults. We describe one of the first pediatric cases of KS associated to anesthetic drugs.

CASE DESCRIPTION

A 12-year-old male was admitted to Meyer Children's University Hospital for the surgical revision of his ocular Baerveldt implant. 30 minutes after the induction phase of the anesthesia with iv midazolam bolus, followed by inhaled sevoflurane, the patient experienced an episode of bradycardia associated with hypotension, apparently without reporting any clinical signs and symptoms. His heart rate decreased from 90 to 40 bpm; however, this clinical manifestation seemed to respond to the administration of a bolus of atropine that further induced a transient episode of sinus tachycardia. At the same time, his blood pressure dropped to 80/45 mmHg. An ECG showed sinus rhythm with ventricular repolarization abnormalities in the inferior lateral wall (**Figure 1**). Moreover, the echocardiographic study demonstrated global LV hypokinesia and dilatation with preserved right ventricular function (**Figure 1**). Laboratory work-up documented an increase of CK-MB and troponin. Furthermore, NTproBNP was increased as well, consistent with LV dysfunction. Further blood investigations did not show any inflammatory markers increase, eosinophilia, electrolytic imbalance, and liver, or kidney dysfunction. A cardiac CE-MRI demonstrated a significant improvement of LV function without any regional wall abnormality. Oedema was noticed on the anterior ventricular wall (**Figure 2**), possibly consistent with reversible myocardial injury potentially related to myocardial ischemia, while no signs of fibrosis were demonstrated after gadolinium enhancement. A coronary CT, excluded any lumen obstruction, dissection or other anatomical variants of the aorta and coronary arteries. However, it was clearly observed myocardial bridge of a tract of the left anterior descending (LAD) coronary artery (**Figure 2**). A daily cardiac evaluation revealed a complete normalization of ECG and a complete recovery in the cardiac function 72 hours from the beginning of the clinical manifestations. The patient underwent skin prick testing with midazolam (5 mg/ml) and sevoflurane (100%) with negative results.

FIGURES

Figure 1.

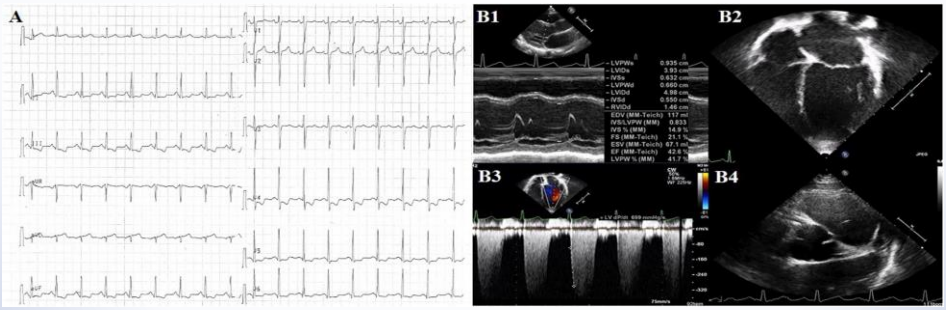
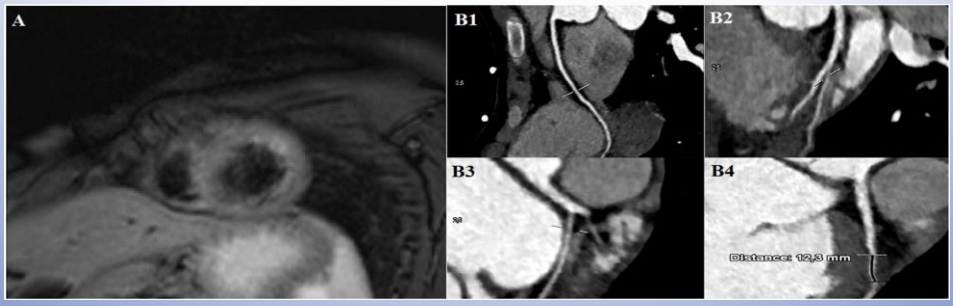


Figure 2.



CONCLUSIONS

In this case we highlighted the importance of recognition of KS in pediatric patients, differentiating this condition from other ones associated with acute ventricular systolic disfunction. Firstly, a hypersensitivity reaction should be taken into consideration as a potential cause of an acute coronary syndrome; secondly, we pointed out the critical role of observing closely the patient, as the situation could evolve unpredictably to a cardiopulmonary emergency. Moreover, when a myocarditis or another cause are suspected, they benefit from a specific management. In the context of diagnostic investigations, in addition to ECG and echocardiography, cardiac MRI and coronary CT scan were performed, which were fundamental to assess our patient. In addition, his blood investigations did not show inflammatory markers increase.

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