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Case Report

Birth Defect of the Right Coronary Artery: About a Case Report

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Summary

The anomaly of the origin of the right coronary artery is an extremely rare anomaly. If the discovery is most often made during coronary angiography, the per operative discovery has been described and exposes the risk of lesion of this artery. We report the case of a per operative discovery of a birth defect of the right coronary artery in a young patient operated for infective endocarditis complicated with aortic insufficiency.

Keywords: Coronary artery anomaly, right coronary artery, initial aorta

Introduction

The birth defect of the Right Coronary Artery (RCA) is a rare congenital anomaly that was first described in 1948 by White and Edwards [1]. It has a prevalence in autopsy and coronary angiography series of 0.026% and 0.25% respectively [1]. Localization in the initial aorta, above the left coronary sinus, is extremely rare, with an occurrence of about 0.04% to 0.15% of all coronary artery anomalies [2].

We report the case of a birth defect of the RCA, located in the initial aorta, above the left coronary sinus discovered incidentally during the administration of cardioplegia solution intraoperatively.

Presentation of the Case

This is a 29-year-old patient admitted to the cardiovascular surgery department "A" of Ibn Sina Hospital in Rabat for management of severe aortic insufficiency on infective endocarditis.

His clinical history included dental exacerbation, chest pain and dyspnea stage II and then III of the New York Heart Association (NYHA) in an active smoking environment. The clinical context led to the diagnosis of aortic insufficiency due to infectious endocardi tis with positive blood cultures. The identified germ was a coagulase negative staphylococcus. Given his age, coronary angiography was not indicated.

Based on this diagnosis the patient was admitted to the operating room, and after anesthetic induction, realization of a median, vertical sternotomy and pericardiotomy, an extracorporeal circulation was installed between an aortic cannula and a double-stage venous cannula. The aorta was approached by low, horizontal autotomy. Administration of cardioplegia solution was done through the coronary ostia. The left coronary sinus was easily identified and perfused, but the right coronary sinus was not found in its usual location. A careful search found it at the level of the initial aorta above the left coronary sinus. An inspection of the entire RCA was performed and found a normal course [Figures 1,2].

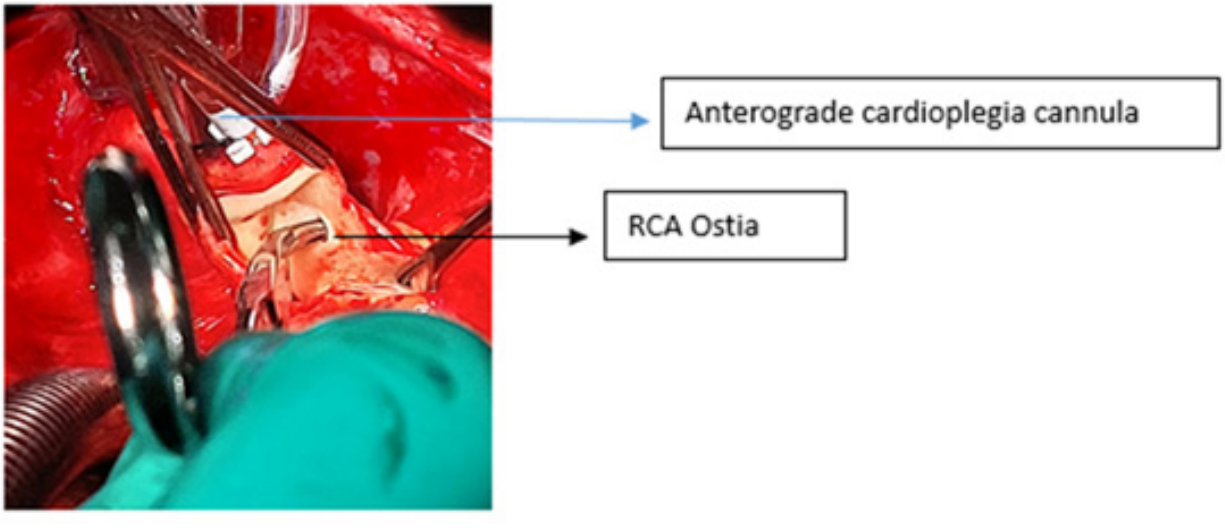

Figure 1: RCA ostia at the level of the initial aorta on the left side, just below the anterograde cardioplegia cannula.

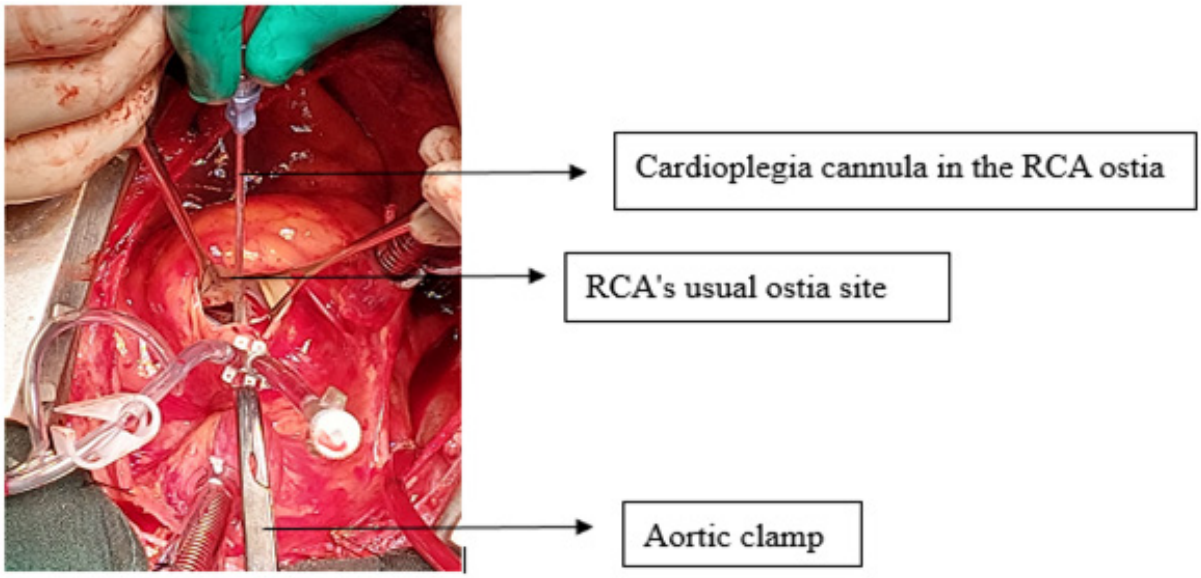

Figure 2: Administration of cardioplegia in RCA.

Discussion

The abnormality of the origin of the RCA is most often asymptomatic but can be responsible for syncope, dyspnea, ischemic heart disease, and even sudden death [3].

Our patient was presented with chest pain and dyspnea but that can be related to his aortic insufficiency especially since he had no electrical signs and/or elevated troponin. *Mahajan D, et al*., reported the case of a 30-year-old patient with normal ECG but positive troponin angina pectoris in whom coronary angiography showed an abnormality of the origin of the RCA responsible for his symptomatology. In contrast, Ramirez Damera R, et al., did not link their patient's symptomatology to the presence of an abnormality in the origin of the RCA located in the initial aorta demonstrated during a coronary angiography for cardiomyopathy.

The discovery of this RCA anomaly is rare, mainly during coronary angiography or postmortem, with a prevalence of 0.25% and 0.026% respectively [1]. Intraoperative discovery is exceptional and exposes the patient to a high risk of accidental injury of the RCA, especially if it is in the initial aorta. This is the case of our patient, in whom the discovery of the birth defect of the RCA was made intraoperatively. *Deng X, et al*., made the intraoperative diagnosis of RCA birth defect in a 9-year-old child [4]. *Tarhan A, et al*., also reported a case of per-operative discovery but with accidental section of the RCA during aortotomie [5]. Our patient narrowly escaped this accident, the autotomy having passed next to the RCA exposing it. *Kalantar Motamedi MH, et al*., were confronted with

the same situation by the accidental discovery of an anomaly of the origin of the RCA located 5cm above the Sino-tubal junction, after autotomy [6]. Accidental lesion of the coronary arteries in relation to a birth defect is one of the major complications that can unfortunately occur in case of intraoperative discovery.

Conclusion

The intraoperative discovery of an anomaly of the origin of the RCA located in the initial aorta constitutes a real challenge in cardiac surgery in view of the risk of injury during autotomy. Especially in young patients, without any indication of coronary angiography to possibly detect the anomaly.

Author Contributions

Idrissa Abdel Malick and Hicham Wazaren wrote the initial manuscript and all authors read it and approved the final version.

Chakib Benlafqih has approved the manuscript and he is the surgeon who operated on the patient.

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Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgement

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