Conservative Treatment of Iatrogenic Ascending Aortic Hematoma Post-Rotablator Coronary Procedure

Maxime Doutriaux1  Benjamin Pariente1  Jad Zahnan1  Xavier Marchand1

1 Department of Cardiology, CHI Poissy-Saint-Germain-en-Laye Site Hospitalier de Poissy, Poissy, France

Address for correspondence Maxime Doutriaux, MD, Department of Cardiology, CHI Poissy-Saint-Germain-en-Laye Site Hospitalier de Poissy, 10 rue du Champs Gaillard, Poissy, 78300, France (e-mail: maximedoutriaux@gmail.com).

Abstract

Background  Aortic intramural hematoma due to coronary artery dissection is a rare and serious complication during percutaneous coronary intervention.

Case Presentation  A 78-year-old female patient was admitted for diagnostic coronarography in the context of stable angina. The coronarography showed an asymmetric and signifcant calcification in the ostium of the right coronary requiring Rotablator (Boston Scientific) procedure complicated by iatrogenic ascending aortic hematoma.

Background

Aortic intramural hematoma (IMH) due to coronary artery dissection is a very rare but serious complication during percutaneous coronary intervention. In the literature, the incidence of this complication is around 0.06%. Most of the previously reported cases showed this specific complication during angioplasty of the right ostium coronary.

To our knowledge, there are no ofcial recommendations regarding the management of this iatrogenic complication. Two strategies are suggested by vascular surgeons: surgery or conservative therapy with repeated computed tomography (CT) of the aorta to follow the aortic IMH evolution. In case of hematoma extension during CT scan follow-up or clinical instability, a surgical intervention is preferable.

After bibliographic research, none of the previously reported cases occurred after using a coronary Rotablator (Boston Scientific) device in the right ostium coronary.

This case reports an acute and iatrogenic ascending aortic hematoma secondary to an ostial right coronary Rotablator procedure. After clinical and scannographic evaluations, a conservative strategy was initially chosen to manage our patient.

Case Presentation

A 78-year-old Middle Eastern female patient was admitted to our hospital in early 2020 for diagnostic coronarography in the context of stable angina for several weeks.

Her medical history showed type 2 diabetes (insulin-dependent), hypertension, hyperlipidemia, paroxystic atrial fibrillation (anticoagulated by a direct factor Xa inhibitors: rivaroxaban 20 mg/day), moderated overweight with a body mass index at 28 kg/m², and an ischemic cardiopathy (with three revascularization procedures since 2008 on the left coronary artery).

The last oral administration of rivaroxaban was in the evening, the day before intervention. Preinterventional hematostatic assessment on the morning of intervention (8 hours before intervention) was normal (activated cephalin time ratio = 1.11; prothrombin time = 111%; blood platelet = 327 G/L).

Electrocardiogram showed a normal sinus rhythm without any repolarization disorder. The transthoracic echocardiogram (TTE) showed inferior hypokinetic trouble with moderate alteration of left ventricular ejection fraction (45%).

The diagnostic coronarography showed an asymmetric and signifcant coronary calcification of the ostium and the
initial part of the right coronary (Fig. 1). After predilatation failed with compliant and then noncompliant balloons, we stopped the procedure and discussed the case during a multidisciplinary meeting. A rotational atherectomy using Rotablator was decided.

One week later, we used a Rotablator device with burr sizes of 1.25 mm in the ostial and initial part of the right coronary. After two runs, and without any clinical symptoms, the injection control revealed an extravasation of the iodinated contrast to the ascending aorta (Fig. 2), which was related to ostial right coronary dissection. Thinking that the aortic hematoma was driven by the ostial right coronary dissection with retrograde extension to the aortic wall, we immediately decided to implant a drug-delivery stent (ORSIRO 3 × 13 mm, Biotronik) in the ostium and the proximal segment of the right artery to seal the artery dissection (Fig. 3) and stabilize the aortic IMH.

A CT scan of the ascendant aorta was performed directly after the procedure (Fig. 4) and found no aortic dissection (AD) but an aortic IMH, going from the ostial right coronary (with contrast product extravasation) to the arch of the aorta (5 mm thick). The TTE did not show any valvular aortic regurgitation. After surgical advice, a conservative approach was decided and the patient was transferred to the cardio logic intensive care unit for medical monitoring.

We decided to stop the anticoagulation (by direct factor Xa inhibitors) until hematoma resorption (checked by iterative CT scan on day 2 and day 7) and a blood pressure monitoring for maximal systolic pressure of less than 140 mm Hg. Follow-up consisted of repeated CT scan on day 2 and 1 week.

The first CT scan control on day 2 showed a stable hematoma collection (5 mm thick), without any hematoma resorption or dilatation of the ascending aorta.
larger ostium of the left main coronary artery may decrease the incidence of catheter-induced trauma. We also know that extensive coronary disease and vessel calcification, like in our case, increase the risk of complications such as coronary dissection. These procedures sometimes require aggressive manipulation of catheters or use of specific devices, such as Rotablator, which are more aggressive than in classical angioplasty procedure.

Nevertheless, no previous case reports described ascending aorta hematoma related to the ostial right coronary post-Rotablator procedure. The fact that Rotablator devices are not currently used in daily practice but reserved for few specific indications may explain the lack of similar cases.

**Conclusion**

In case of iatrogenic aortic hematoma due to coronary dissection, a multidisciplinary management with surgical advice is recommended to choose optimal therapeutic strategy. When patients are clinically and hemodynamically stable, without any chest pain or aortic valvular regurgitation on the TTE, a conservative strategy may be proposed.

In case of a conservative strategy, as used here, follow-up with repeated CT-scan and TTE (to eliminate aortic valvular regurgitation) resulted in aortic recovery and allowed discharge of the patient after total resorption of hematoma.

In conclusion, our case confirmed that a conservative approach in ascending aorta hematoma due to coronary artery dissection seems to be a viable alternative to an invasive surgery in a stable patient, even after a Rotablator procedure.

Conflict of Interest

None.

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