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Case report

A practical solution for coil migration and coronary artery dissection in the same patient with coronary artery fistula



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ABSTRACT

Coronary artery fistulas (CAF) are defined as a direct communication between a coronary artery and any cardiac chamber or vessel. They are generally congenital and the majority occurs in the right coronary artery (RCA) almost always draining to the right cavities and exact incidence of CAF is unknown. The treatment options for CAF are surgery or catheter closure. Catheter closure of the CAF is now considered to be an effective and safe method alternative to surgery. We report the first case with coil migration and coronary dissection to occur simultaneously in the same patient and successful treatment of these two complications with stent implantation. © 2016 The Society of Cardiovascular Academy. Production and hosting by Elsevier B.V. All rights reserved. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

A 68-year-old man was admitted to our department with complaints of exertional dyspnea and chest pain. Coronary angiography did not show significant lesions in the epicardial coronary arteries and a fistula was observed from the proximal portion of RCA draining into the pulmonary artery (Fig. 1). For embolisation a 0.014i and 300 cm hydrophilic guidewire was moved up to the distal segment of the fistula and a microcatheter was then loaded over this and a 2 × 25 mm coil (Balt, Montmorency, France) was placed. For total occlusion achievement a second 2 × 50 mm coil (Balt, Montmorency, France) was placed (Fig. 2). Unfortunately soon after the insertion of the second coil, during contrast injection this coil detached and migrated to proximal portion of RCA. At the same time coronary dissection was observed in the ostial part of RCA (Fig. 3). Therefore, 4.0 × 9 mm bare metal stent (Simchrome CoCr, Simeks, Turkey) was successfully implanted at 14 atm to cover the dissected segment and migrated coil was jailed to side branch to prevent any embolization to the distal portion of RCA or aorta immediately (Fig. 4). Electrocardiogram and Troponin levels were normal and patient was discharged after a 72-hour follow-up without any complication.

The clinical symptoms of CAF depend on the severity of the left–right shunt and the coronary steal. Closure is indicated for symptomatic

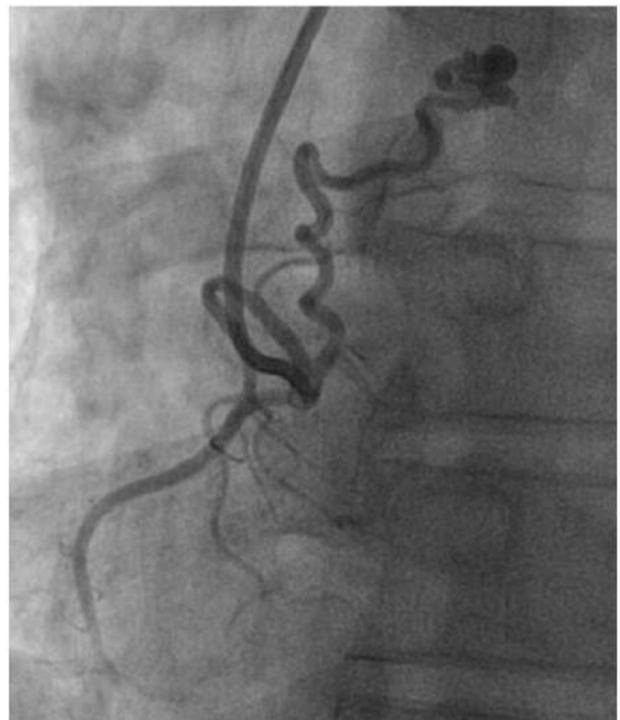


Fig. 1. A fistula originating from the proximal portion of RCA draining into the pulmonary artery.

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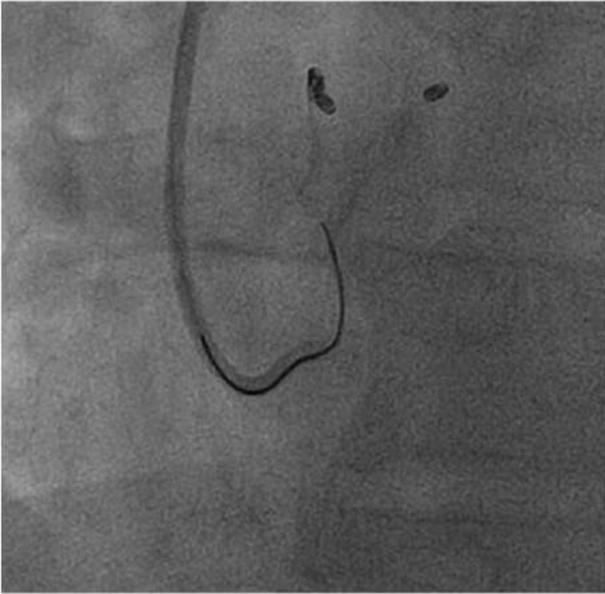


Fig. 2. Second coil placement.

patients and fistulas with a high flow rate. Percutaneous closure is the preferred technique, in particular in the absence of multiple fistulas and large fistula branches, and in cases where the fistula can be easily accessed.^{1,2} With catheter closure techniques, complete occlusion of the fistula may be achieved in >95% of the patients. The main complications include either premature deflation of a detachable balloon, inadvertent coil embolisation, transient T-wave changes, transient bundle branch block and myocardial infarction. All the complications are rare, except for inadvertent coil migration, which may occur as a result of high flow in the large fistulas or with undersized coils.^{3,4} In our patient migration of the coil was due to fast contrast medium injection. Even if the coils do migrate, they can be pulled back with snares. In our

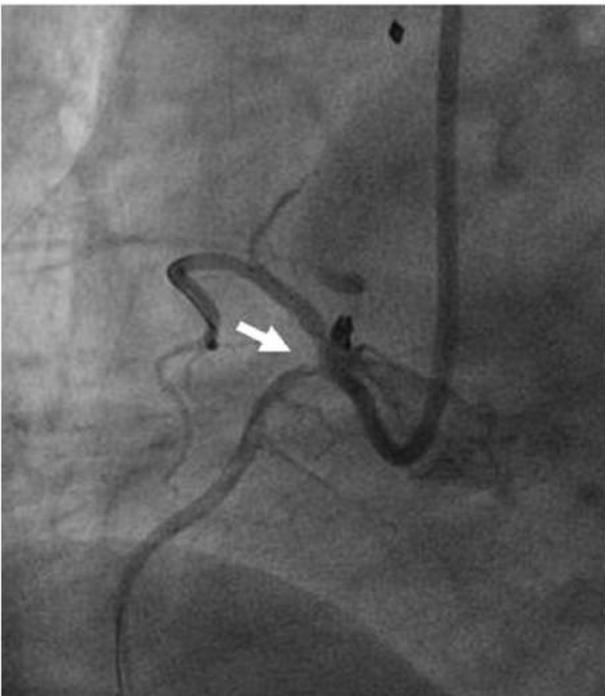


Fig. 3. Coil migration and coronary dissection in the ostial part of right coronary artery (arrow).



Fig. 4. Bare metal stent implantation to cover the dissected segment and to jail migrated coil (arrow).

knowledge this is the first case with coil migration and coronary dissection to occur simultaneously in the same patient.

This case shows the unusual complication of percutaneous closure of coronary artery fistulas and successful management of this complication using stent implantation.

Conflict of interest

None.

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