

Rupture of an isolated septal artery during diagnostic angiography in a patient with myocardial noncompaction

Myocardial noncompaction is characterized by prominent trabeculations, deep intertrabecular recesses, and a thick non-compacted endocardial myocardium. Its prevalence in the general population is still unclear, but echocardiography series report a prevalence rate of 0.05% (1). The coexistence of coronary anomaly and myocardial noncompaction is extremely rare (2). To the best of our knowledge, intramyocardial rupture of an isolated septal coronary artery was first defined in a patient with myocardial noncompaction and concurrent coronary anomalies.

In our case, coronary angiography was indicated because of effort dyspnea and regional wall motion abnormality on echocardiography. The right coronary artery (RCA) was normal (Video 1). On left coronary angiography, distal LAD was not observed in a usual route (Video 2). Beyond the RCA, two separate ostia were cannulated: a distal LAD (Video 3) and an isolated septal artery (Video 4). These conventional coronary angiography findings were also compatible with the findings of cardiac magnetic resonance imaging and computed tomography. Myocardial noncompaction was also confirmed by these imaging modalities (Fig. 1). Another LAD originating from a separate ostium in the right sinus and completing the missing part of distal LAD in the left coronary vasculature (Video 3) has been reported in a case (3). After cannulation of the RCA at left anterior oblique projection, the diagnostic catheter could be unintentionally engaged independently into the isolated septal artery. A relatively forceful injection, exceeding the capacity of the isolated septal artery (assumed to take a right anterior oblique image of the RCA), resulted in multiple intramyocardial ruptures that were treated conservatively and allowed to heal spontaneously (Video 5). Consequently, operators need to be careful if there is more than one ostium in the same sinus because the catheter tip might divert another ostium

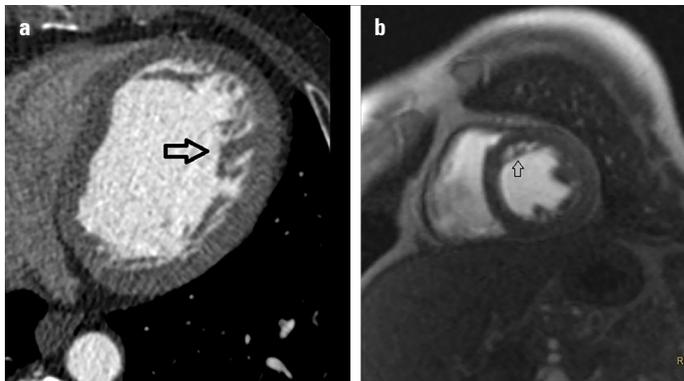


Figure 1. Multidetector computed tomography and cardiac magnetic resonance imaging confirmed the diagnosis of myocardial noncompaction (arrows)

independently and lead to coronary rupture owing to an unintentional forceful injection more than the capacity of the cannulated artery. Checking the catheter tip pressure prior to every injection could prevent such a complication during coronary angiography.

In conclusion, this is the first report to describe an iatrogenic rupture of an isolated septal artery by hand injection in a patient with coincidental myocardial and coronary anomalies.

Informed consent: Informed consent was obtained from the patient.

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Video 1. Right coronary artery

Video 2. Left coronary system missing distal LAD

Video 3. Distal LAD originates from the right sinus

Video 4. Isolated septal artery originates from the right sinus

Video 5. Rupture of the isolated septal artery by hand injection during diagnostic coronary angiography

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Left atrial appendage: The uncommon origin of focal atrial tachycardia in a pregnant woman

A 28-year-old pregnant woman at 37 gestational weeks was admitted to the hospital for childbirth. She experienced palpita-

tions since her 5th gestational month, and her ECG revealed atrial tachycardia with a rate of 134 bpm (Fig. 1a). Negative P wave in lead D1 and positive P wave in lead V₁ suggested a left atrial origin. She showed no clinical signs of heart failure. Her trans-



Figure 1. (a) Focal atrial tachycardia (AT). This 12-lead ECG demonstrating atrial tachycardia at a rate of 134 bpm. Negative P wave in lead D1 and positive P waves in inferior leads suggest a left atrial origin. (b) Electroanatomic activation map of the left atrium appendage (LAA). The color bar shows the progression of activation times during AT (from red through green, blue, and purple). The earliest endocardial activation was located at the base of LAA 36 ms ahead of P wave onset. Red dots indicate ablation sites

LA - left atrium

thoracic echocardiogram revealed global left ventricular systolic dysfunction with an ejection fraction of 45%. She was hemodynamically stable. However, we could manage the arrhythmia neither with medical therapy nor with electrical cardioversion. Our obstetricians decided to perform vaginal delivery, and the baby was in well condition.

One week after the childbirth, the patient underwent a transeptal puncture and a left atrial mapping using MicroPort Columbus™ 3D Navigation System. The earliest endocardial activation was located within the base of the left atrial appendage (LAA) 36 ms ahead of P wave onset (Fig.1b). Ablation using an irrigated catheter (25 w) was applied, and sinus rhythm was restored. Before discharge, an ACE inhibitor and a beta-blocker were added to the treatment.

After 1 year of follow-up, routine echocardiograms revealed complete improvement in LV systolic function, and the patient was still in sinus rhythm.

In this case, we illustrated the focal AT from an uncommon origin in pregnancy. Catheter ablation led to the restoration of sinus rhythm and made a crucial contribution to the improvement of LV systolic function.

Informed consent: The author/s confirm that written consent for submission and publication of this case report including image(s) and associated text has been obtained from the patient.

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