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Case Report

A case of a young, healthy woman with spontaneous coronary artery dissection associated with oral contraceptive use: Long-term residual dissection of the coronary artery

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ABSTRACT

Spontaneous coronary artery dissection (SCAD) is a rare cause of acute coronary syndrome, typically affecting young, healthy women, particularly during the peripartum period. Oral contraceptive use is also recognized as a risk factor for SCAD. In the present report, we describe a case of a young woman with an anterior wall myocardial infarction caused by SCAD of the left anterior descending artery (LAD). The event was probably associated with the patient's oral contraceptive use. The patient underwent percutaneous coronary intervention, and she did not experience any recurrent chest pain or other cardiac symptoms. Although the coronary angiography revealed good LAD flow and no symptoms after 6 months, cardiac computed tomography and intravascular ultrasound revealed that LAD dissection was still present. We continued to closely follow-up the patient without initiating any additional intervention, and the patient has had no cardiac event for up to 4 years of follow-up.

<**Learning objective:** We aimed to present a case of spontaneous coronary artery dissection, with a long-term residual dissection. Coronary computed tomography aided the diagnosis of the residual dissection, which was not detected by coronary angiography.>

Introduction

Spontaneous coronary artery dissection (SCAD) is a rare cause of acute coronary syndrome and results in fatality, with diagnosis only at autopsy in most early cases of SCAD [1]. The condition typically affects young, healthy women during the peripartum period [2]. Oral contraceptive use is also known as a risk factor for SCAD [2–4]. Several authors have reported cases with acute-stage SCAD but only a few cases in the chronic stage have been reported. We report a case of a young woman taking oral contraceptives who experienced SCAD-induced anterior wall myocardial infarction, and underwent follow-up examinations with various imaging modalities at the chronic stage.

Case report

The patient, a 36-year-old woman, had no significant medical history or history of smoking, but was taking oral contraceptives. Moreover, she did not have any family history of cardiovascular disease. She was admitted to the emergency department with a complaint of acute-onset chest pain during rest. An electrocardiogram revealed ST elevation in leads V2 through V4, with reciprocal ST depression in leads II, III, and aVF. Her blood pressure was 123/68 mmHg, and her pulse rate was 76 beats/min. Cardiac examination did not show any murmurs, rubs, or gallops, and the lungs appeared clear on auscultation. Echocardiography indicated hypokinesis of the apex.

After treatment with 200-mg aspirin and sublingual nitroglycerin, the patient was immediately transferred to the cardiac catheterization laboratory. Coronary angiography (CAG) revealed that the flow in the distal segment of the left anterior descending artery (LAD) was completely obstructed (Fig. 1A), but we could not identify the coronary artery dissection at that time. Therefore, we decided to perform a primary routine coronary intervention. After guidewire crossing, transcatheter thrombectomy was performed, which slightly improved the LAD flow. Intravascular ultrasound

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(IVUS) did not reveal any atherosclerotic changes, but showed coronary artery dissection from the proximal to the distal segment of the LAD. An intracoronary bare-metal stent (BMS) was successfully implanted in the distal lesion of the LAD. Although the dissection of the proximal to mid-LAD remained, the LAD flow did not worsen after a few minutes of observation. The final angiography demonstrated normal blood flow of the LAD (Fig. 1B). The patient's creatinine kinase level reached a peak of 1220 IU/L. She was treated with oral medications, including aspirin, clopidogrel, carvedilol, pravastatin, and enalapril. In addition, the oral contraceptive treatment was discontinued. The patient had no signs of vasculitis, Marfan syndrome, or coagulation abnormalities. She had no dyslipidemia or impaired glucose tolerance. Therefore, a diagnosis of SCAD was made. Her hospital course was uneventful, and she was discharged home on day 11.

Following discharge, the patient had no recurrent chest pain or other cardiac symptoms. A cardiac computed tomographic (CT) scan after 6 months showed an abnormal lesion from the ostium of the LAD to the proximal edge of the stent (Figs. 2B and 3B). CAG revealed good LAD flow (Fig. 2A). The IVUS confirmed that the

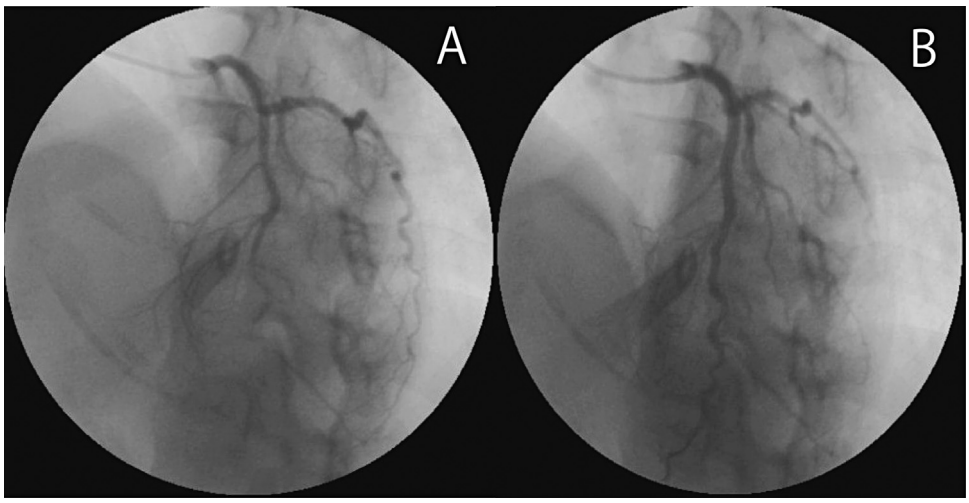

Fig. 1. (A) Coronary angiographic image showing the obstructed distal left anterior descending artery (LAD). (B) The final angiographic image after stent placement at the distal LAD showing normal blood flow of the LAD.

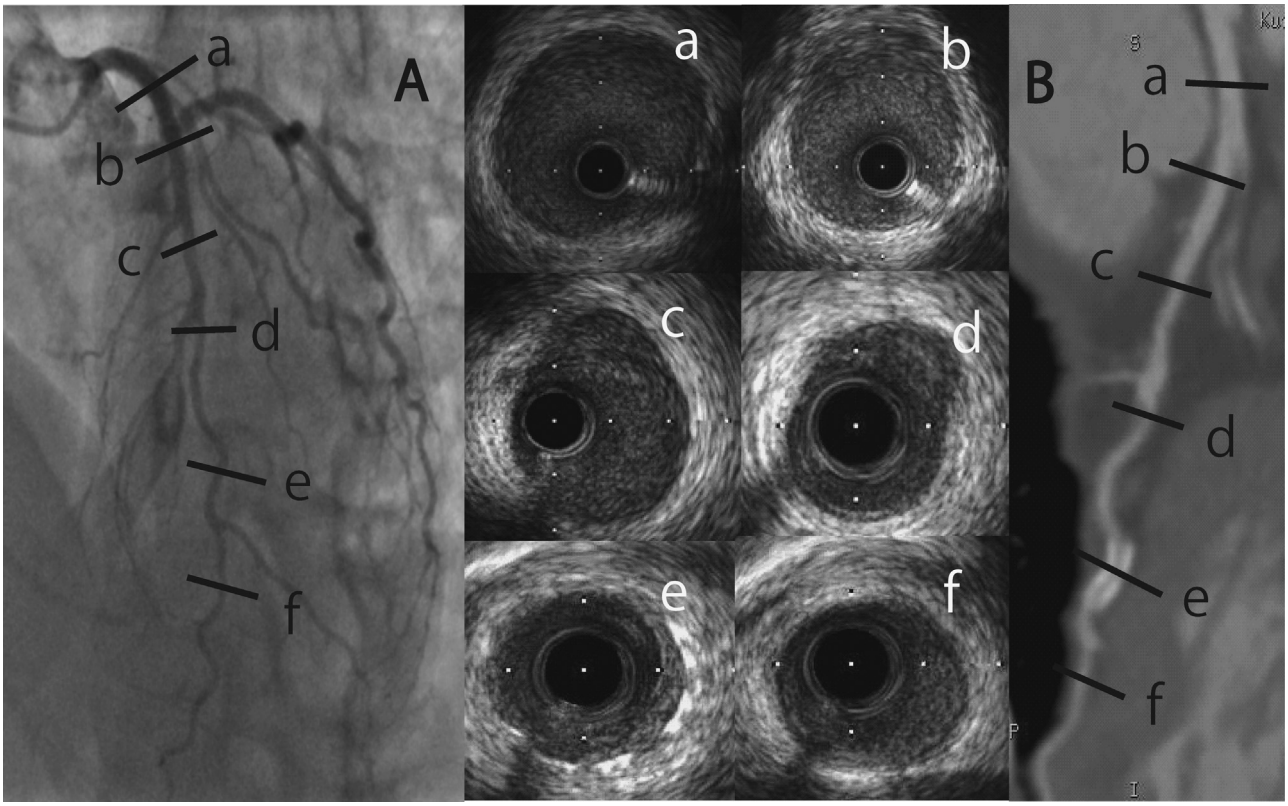

Fig. 2. (A) Coronary angiography did not show any evidence of the coronary dissection. (B) Cardiac computed tomographic (CT) scan of the left anterior descending artery (LAD) performed 6 months after the initial event. (a–f) Intravascular ultrasonography showing the residual dissection from the ostium of the LAD to the proximal edge of the stent in accordance with the previous dissection: a, left main coronary artery; b, the ostium of the LAD; c, the proximal LAD; d, the mid LAD; e, in stent; and f, the distal lesion of the stent.