Exercise-induced coronary artery dissection treated with an anticoagulant and antiaggregants

Egzersiz sonrası gelişen koroner arter disseksiyonunun antikoagülan ve antiagreganlar ile tedavisi

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Introduction

Spontaneous coronary artery dissection is a rare entity, which pathogenesis is not clearly identified. Treatment strategies are not well defined and should be individualized for each patient. Although previous studies reported mortality rates as high as 70 %, recent experience showed survival rates of 78 % (1-2). The issue of combined use of anticoagulants and antiaggregants in medically treated patients is not clear yet. In this report, we describe an exercise-induced coronary artery dissection treated medically with an aggressive anticoagulant, antiaggregant and beta-blocker therapy.

Case report

A previously asymptomatic 37-year-old man developed typical anginal pain after a 40-minute soccer match. He was not previously exercising regularly, and had had no phenotype suggesting connective tissue disease. He neither used any drugs nor had family history of heart or connective tissue diseases. He had not had any chest trauma during the match. He applied to a small district hospital for his chest pain, lasting for 30 minutes. His electrocardiogram (ECG) was taken and diagnosis of acute inferoposterior myocardial infarction was established. His hemodynamic status was stable and he was given sublingual nitroglycerine, aspirin and was referred to our coronary care unit. On presentation he had no pain, Troponin T value was 0.294 ng/dl (normal < 0.1 ng/dl), and his ECG showed ST elevations of 0.5 mm in DII, 1 mm in DIII, aVF, 4 mm in V2-3 leads. Since patient had no pain, nor hemodynamic instability and had borderline ST elevations for thrombolysis, heparin, aspirin, IV nitroglycerine, beta-blocker were started and early coronary angiography was scheduled.

He did not have recurrent chest pain and his coronary angiography was performed next day. Coronary angiography revealed normal left coronary system, thrombus and dissection in distal RCA (Fig. 1).

Since dissection was not limiting blood flow no intervention was done. Left ventriculography showed normal wall motion and function. He was put on warfarin 5 mg/day, aspirin 325 mg/day, clopidogrel 75 mg/day, and metoprolol 50 mg/day. Coronary angiography four months later showed normal left and right coronary arteries. With intense anticoagulation, antiplatelet and beta-blocker therapy, dissection and thrombus in right coronary artery healed without any residual sequelae (Fig. 2). Patient is under close follow-up for international normalized ratio and bleeding complications.

Discussion

Coronary dissection is a rare entity observed mainly in young pre-menopausal women. Eighty percent of cases are female and onset is often in peripartum period or in association with the use of oral contraceptive pill (3-4). Individual case reports implicated cocaine abuse and intense physical exercise as precipitants of spontaneous coronary artery dissections (4-5). During intense physical exercise, blood pressure and coronary flow increase and risk of plaque rupture also increases. Patients with coronary artery dissection are treated with stenting, surgery or medically with differing results. In a review by Tsimikas, 39 % of patients were treated with coronary artery bypass grafting but some vessels were not grafted because of diffuse involvement by dissection flap (1). Stent placement with good result was reported previously but extension of dissection and loss of patency is possible with stenting (6). Thrombolysis was performed successfully in a few cases but extension of dissection and worsening of clinical condition was also reported (7). Jorgensen reported successful treatment of patients with conservative measures and spontaneous healing documented by angiography was also reported (8). In another study performed on a small number of spontaneous coronary dissection cases aspirin, clopidogrel and beta-blocker therapy resulted in complete healing of dissection (9). Previous animal data also showed that beta-blockers might retard plaque formation despite high cholesterol (10).

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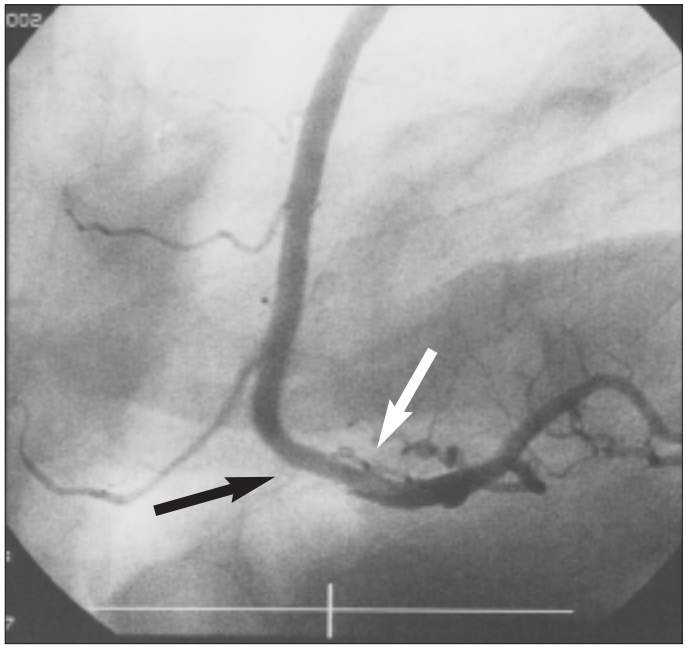

Figure 1. Coronary angiography view of thrombus and dissection in distal RCA. Black arrows mark coronary segment containing thrombus and dissection, white arrow indicates dissection flap

RCA - right coronary artery

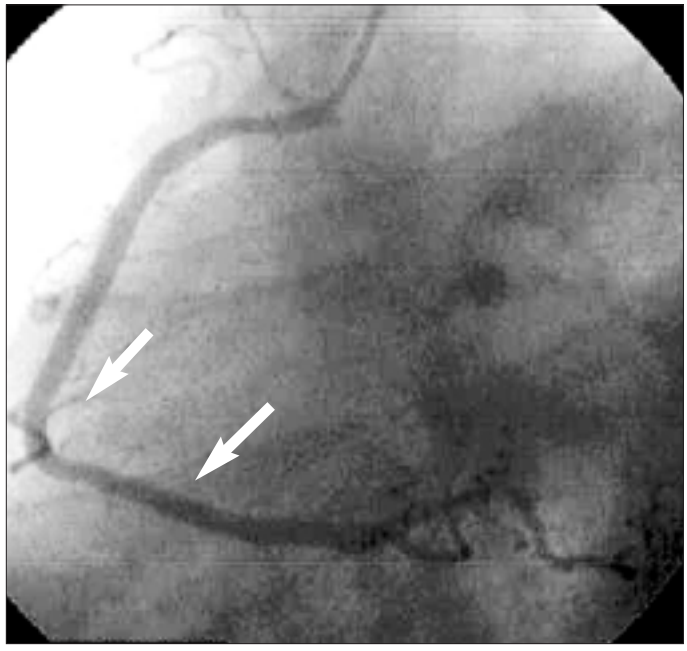

Figure 2. Follow-up coronary angiography view four months later showing complete healing of dissection and thrombus in RCA (segment between white arrows)

RCA - right coronary artery

Spontaneous coronary artery dissection is a very rare entity but it must be considered in patients with acute coronary syndromes. Although invasive cardiologists are reluctant to leave coronary artery dissections in their natural course without stenting these lesions may be followed without intervention under aggressive anticoagulation, antiaggregant and beta-blocker therapy.

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