Advanced peripheral arterial disease in a 59-year-old man with suspected acute coronary syndrome and normal coronary angiogram

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Abstract

Atherosclerosis is a systemic process with variable expression in different vascular beds. Peripheral arterial disease (PAD) is thought to be found in 12% of the age-adjusted population. Reasons for differential anatomic expression of atherosclerosis may involve the interplay between inflammation, shear stresses, flow characteristics, and other local factors. It's well known that synchronous PAD and coronary artery disease is very common and is likely the result of the systemic impact of atherosclerotic risk factors. On the other hand, there are limited data concerning atherosclerotic process restricted to specific vascular areas in the human body.

Key words: atherosclerosis, peripheral, coronary heart disease.

Introduction

Atherosclerosis is a systemic process with variable expression in different vascular beds. Peripheral arterial disease (PAD) is thought to be found in 12% of the age-adjusted population. 16% of moderate risk outpatients have both PAD and cardiovascular disease [1, 2]. Reasons for differential anatomic expression of atherosclerosis may involve the interplay between inflammation, shear stresses, flow characteristics, and other local factors. It is well known that synchronous PAD and coronary artery disease (CAD) is very common and is likely the result of the systemic impact of atherosclerotic risk factors [3]. On the other hand, there are limited data concerning the atherosclerotic process restricted to specific vascular areas in the human body.

Case report

We report a 59-year-old man admitted to our department with severe, sustained 3-hour chest pain. The patient had hypertension, dyslipidemia and peripheral artery disease with claudication distance 100 m diagnosed for 3 years. His father and brother died young (< 50 years) due to myocardial infarction. But the patient himself had no prior symptoms or diagnosis of coronary artery disease. His chronic medications included an angiotensin convertase enzyme (ACE) inhibitor and calcium blocker. On physical examination, the blood pressure was 210/120 mm. Electrocardiography showed ST elevation in leads V1–V3. Echocardiography showed anterior and septal wall hypo-akinesia with preserved left ventricular ejection fraction (EF) 45%. The patient was diagnosed with ST-segment elevation myocardial infarction and was referred for urgent cardiac catheterization. The patient received 300 mg aspirin, 600 mg clopidogrel and an intravenous bolus of 5000 IU unfractionated heparin. After puncture of the right radial artery the JR4 diagnostic catheter was advanced. Due to ostial occlusion of the brachiocephalic artery there was no possibility to continue the examination using that access. After puncturing the left radial artery the occlusion of the left subclavian artery was visualized. The third access site used was the right femoral artery, which allowed visualization of the right common iliac artery occlusion. The last possibility to complete the coronary angiography was left femoral access – puncture of the artery revealed 70% stenosis of the left iliac common artery next to the origin of the external iliac artery. Surprisingly, coronary angiography revealed smooth coronary vessels without detectable atherosclerosis. The examination was finished with insertion of an AngioSeal occluder to the left femoral artery. Five hours later the patient reported pain of the left foot. The consulting

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vascular surgeon excluded urgent need for intervention and the symptoms normalized gradually after raising of blood pressure. Interestingly, biochemical tests revealed no elevation of troponin I or creatine kinase in serial measurements. Total cholesterol was 194 mg/dl, LDL cholesterol 126 mg/dl and triglycerides 117 mg/dl. The patient was discharged on the 5th day in good condition on antiplatelet, antihypertensive and lipid-lowering medication with consideration of subsequent, further surgical treatment of PAD (Figures 1–6).

Discussion

We present a unique case of a man with very diffuse peripheral atherosclerosis admitted to our department with presentation of acute coronary syndrome. Performing coronary angiography was very challenging and surprisingly the examination revealed smooth coronary vessels without detectable atherosclerosis. The prevalence of coronary artery disease in patients with peripheral arterial disease has been well defined as well as the prevalence of PAD in patients

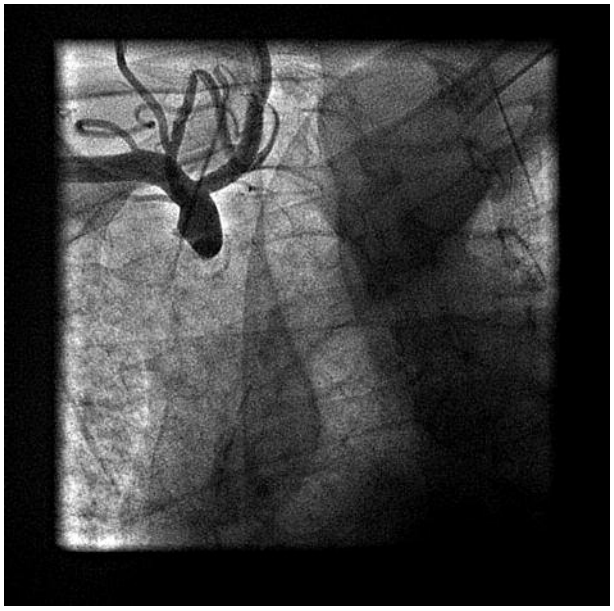

Fig. 1. Angiogram of right subclavian artery – occlusion of brachiocephalic artery

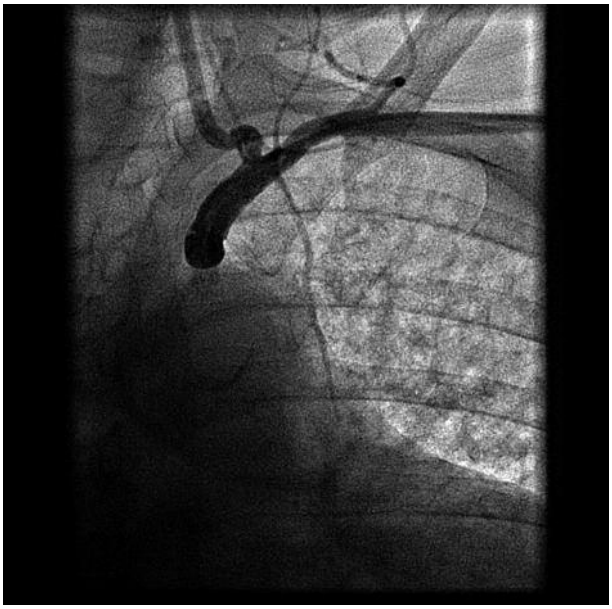

Fig. 2. Angiogram of left subclavian artery – occlusion of left subclavian artery above aortal outlet

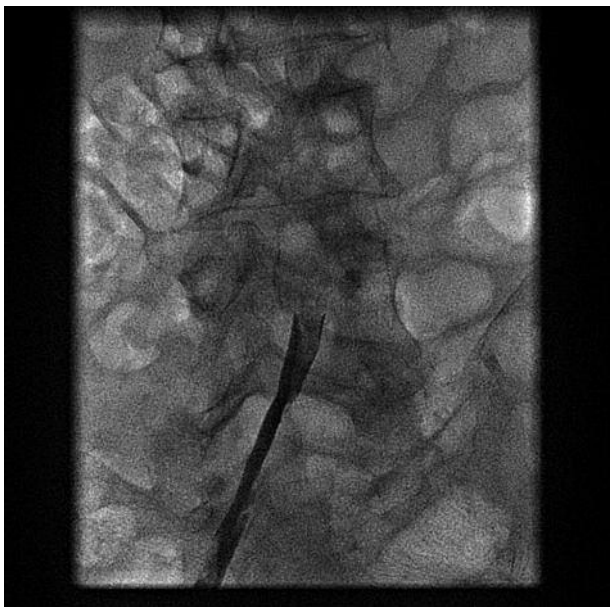

Fig. 3. Angiogram of right iliac artery – high occlusion of iliac common artery

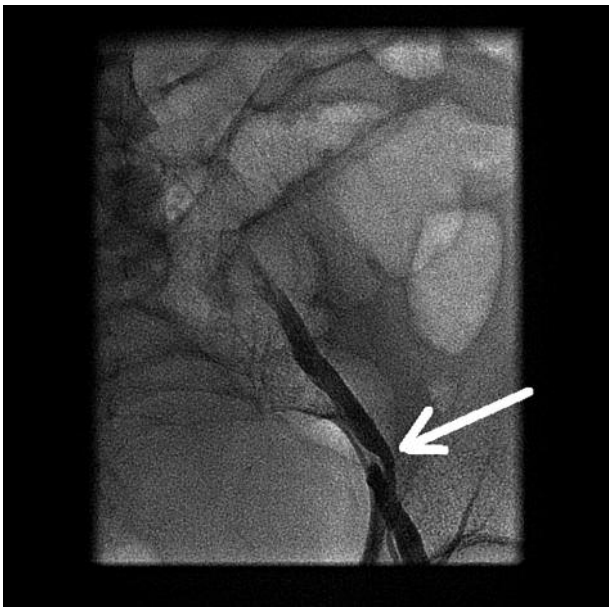

Fig. 4. Angiogram of left iliac artery – 70% stenosis of iliac common artery near outlet of external iliac artery

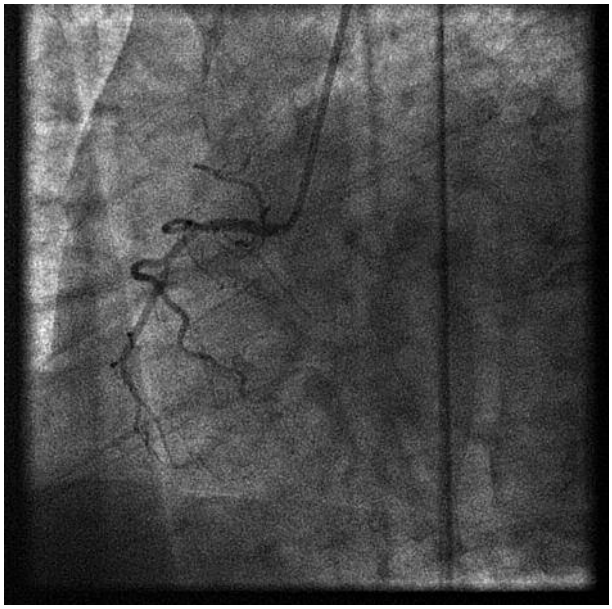

Fig. 5. Angiogram of right coronary artery – smooth artery without any atherosclerosis

Fig. 6. Angiogram of left coronary artery – smooth artery without any atherosclerosis

without CAD. On the other hand, it is estimated that the frequency of atherosclerosis restricted only to the peripheral vascular bed in the human body without any involvement of other arteries especially coronaries is beyond less than 0.5% of all PAD patients [4, 5].

The considered mechanism of acute coronary syndrome in the analyzed patient due to reversible wall motion abnormalities in echocardiography and no enzyme rise was microembolism followed by early and complete recanalization of the infarct-related artery (LAD) – "aborted myocardial infarction" [6].

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