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Case Report

Compression of the ostium of left main coronary artery caused by aortic root intramural hematoma after blunt thoracic trauma

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Abstract: We reported a case of compression of the ostium of left main coronary artery caused by aortic root intramural hematoma after blunt thoracic trauma treated with percutaneous coronary intervention (PCI). A 46-year-old man visited our hospital because of exertional chest discomfort and dyspnea for 4 months. He was diagnosed as compression of the ostium of left main coronary artery caused by aortic root intramural hematoma, severe stenosis in the ostium of the left main coronary artery. The percutaneous coronary intervention was conducted, and a drug-eluting stent was implanted successfully. The symptoms were improved and the patient had a good recovery after PCI surgery.

Keywords: Aortic root intramural hematoma, trauma, stenosis, percutaneous coronary intervention, the left main coronary artery

Introduction

Aortic intramural hematoma (IMH) is an acute, potentially lethal disorder that is similar to but pathologically distinct from acute aortic dissection [1]. The most common risk factors associated with IMH are hypertension, atherosclerosis, and advanced age. IMH is life-threatening because the hematoma may extend along or rupture through the aorta, leading to hemothorax, cardiac tamponade, stroke, mesenteric ischemia, or renal insufficiency. At present, optimal treatment is still somewhat controversial. There have been no reports on cases of compression of the ostium of left main coronary artery caused by aortic root intramural hematoma after blunt thoracic trauma. Here we describe such a patient.

Case report

A 46-year-old man was admitted to our hospital with exertional chest discomfort and dyspnea for 4 months after a vehicle accident. The patient was knocked by motorcycle handlebar in that accident, but there was no open injury in his body. He had not any cardiovascular risk factors before the accident. After admission, the transthoracic echocardiography (TTE) showed normal chambers, valves and left ventricular function (LVEF=73%). Computed tomography angiography (CTA) revealed the ostium of the left main coronary artery was compressed by intramural hematoma located in the aortic root (**Figure 1A**). The coronary angiography demonstrated severely stenosis in the ostium of the left main coronary artery (**Figure 1B**, **1C**). Percutaneous coronary intervention (PCI) was performed, and one drug-eluting stent was implanted successfully [2-5]. Angiography after PCI showed the stenosis was eliminated (**Figure 2A**, **2B**). After providing the treatments of anticoagulation, crown expansion, nutrition myocardium and reduce the load on the heart, the symptoms was improved and the patient had a good recovery. The patient did not experience any discomforts after PCI and was followed up for several years [6]. CTA and coronary angiogram were repeated after 1 year, which showed normal lumen of the left main coronary artery

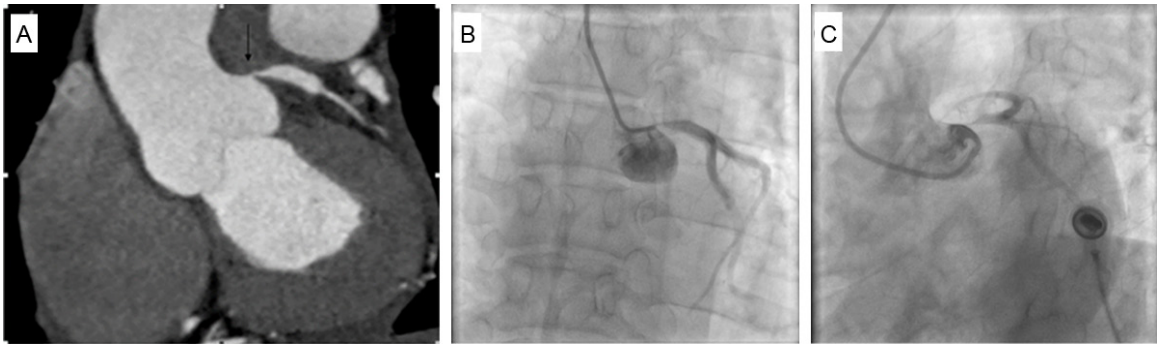

Figure 1. Computed tomography and coronary angiography: The ostium of the left main coronary artery was compressed by intramural hematoma located in the aortic root (A). The left main coronary artery was severe occlusive (B). The right coronary artery was normal (C).

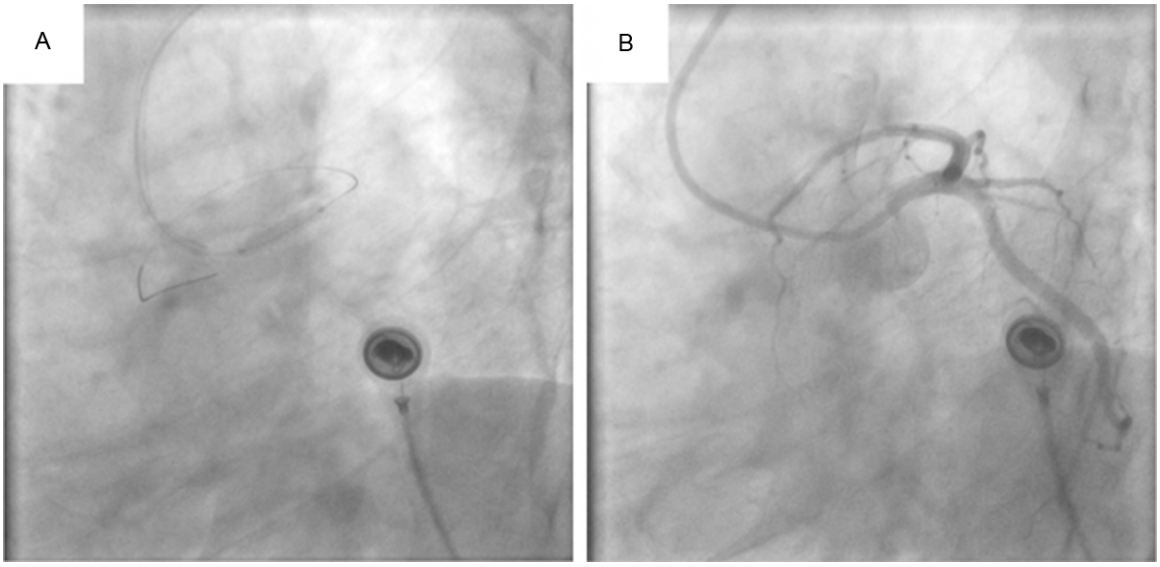

Figure 2. Coronary angiography after PCI: The stenosis in the ostium of the left main coronary artery was eliminated.

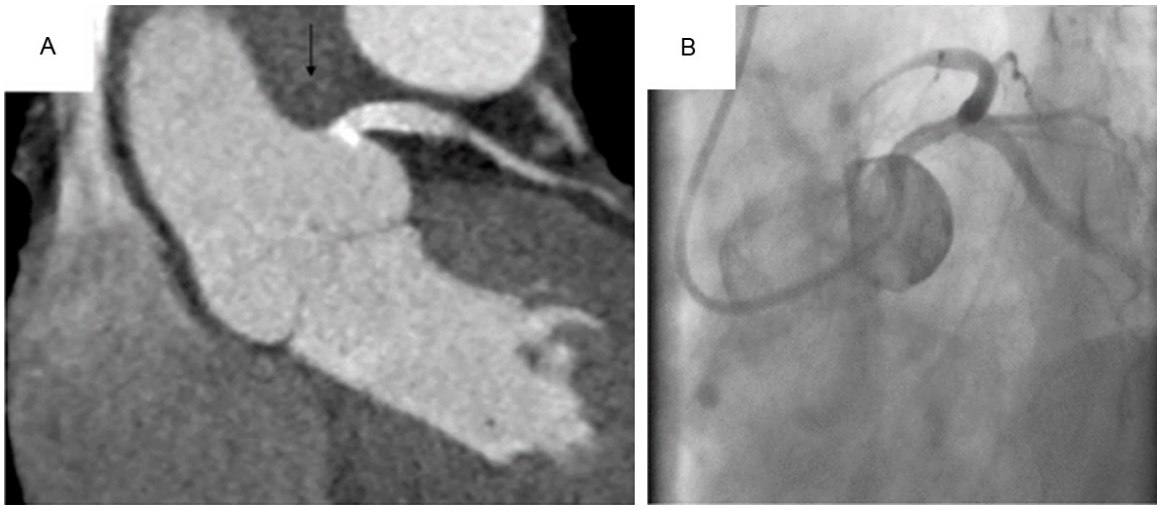

Figure 3. Computed tomography and coronary angiography: The left main coronary artery showed normal lumen and the intramural hematoma in the aortic root was partial diminished (A). The left coronary artery was normal (B).

and the intramural hematoma in the aortic root was partial diminished (**Figure 3A**, **3B**).

Discussion

Acute aortic syndrome is the modern term that includes aortic dissection (AD), intramural hematoma (IMH), and symptomatic aortic ulcer [7, 8]. This case diagnosed as compression of the ostium of left main coronary artery caused by aortic root intramural hematoma, severe stenosis in the ostium of the left main coronary artery. There had no reports on cases of compression of the ostium of left main coronary artery caused by aortic root intramural hematoma after blunt thoracic trauma in clinical. Coronary angiography revealed that the severe stenosis of the left main coronary artery, this patient was in jeopardy condition. Percutaneous coronary intervention was conducted in order to solve this hazardous condition. The patient did not experience any discomforts after PCI and the uncomfortable symptoms were improved.

For this case, the patient' left main coronary artery was severely occlusive because of aortic root intramural hematoma. The clinical presentation of IMH is indistinguishable from that of acute aortic dissection, which has no aortic intimal tear and communication with the true lumen. For trauma patients at the same time when there are abnormal ECG findings, we should be vigilant and make a definite diagnosis as soon as possible, and coronary angiography is necessary in some conditions [9, 10]. When we have a definite imaging diagnosis of coronary artery stenosis in clinical, we must perform stent implantation as soon as possible so as to open blocked blood vessels and reduce the of death risk of patients. Of course, after surgery we should also regularly review CTA and coronary angiography, attaches great importance to the progress of aortic intramural hematoma and recovery of patients for the sake of preventing the occurrence of coronary restenosis.

So we learn a lesson from the case that it is important to make a definite diagnosis as soon as possible when trauma patients have any cardiovascular symptoms and abnormal ECG findings, we should be vigilant and make a definite diagnosis as soon as possible, and coronary angiography is necessary in some conditions. Once we have a definite imaging diagnosis of coronary artery stenosis, we must perform stent implantation at once.

Disclosure of conflict of interest

None.

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