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Case Report

Renal infarction due to ascending aortic thrombus: A case report

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Abstract

Ascending aortic thrombus is a rare condition that is fatal due to its complications [1]. In this case report, we aim to present a case of renal infarction due to ascending aortic thrombus. A 71-year-old male patient was admitted to the emergency department with chest pain and right-side pain. Physical examination revealed tenderness in the right flank. Thoracic Computed Tomography (CT) angiography was performed, and ascending aortic thrombus and focal parenchymal infarction area in the right kidney were observed in abdominal sections included in the examination.

Introduction

Thromboembolic diseases of the aorta occur as a result of the atherosclerotic process. Plaques that develop due to lipid accumulation in the intima and media layers of the aorta transform into secondary inflammation, fibrous tissue accumulation, and surface erosion. Thrombus may result in thrombotic or atherosclerotic embolism [1].

Thromboembolism usually leads to occlusion of the middle and large arteries, resulting in stroke, transient ischemic attack, renal infarction, and peripheral thromboembolism. Atherosclerotic embolisms cause occlusion of the small arteries and arterioles, resulting in renal failure, blue finger syndrome, and mesenteric ischemia [1].

Risk factors for thromboembolic diseases of the aorta are age, gender, hypertension, diabetes mellitus, hypercholesterolemia, sedentary lifestyle, and smoking; these are common risk factors for other vascular diseases. In addition, several factors are associated with arterial thrombus, including atherosclerosis, malignant tumors, factor V Leiden mutation, and protein S deficiency [2].

In this case report, we aim to present a case of renal infarction due to ascending aortic thrombus.

Case report

A 71-year-old male patient was admitted to the emergency department with complaints of chest pain and right-side pain for 2 days. Patient anamnesis revealed that chest pain often occurred with exertion, taking rest resulted in partial relief, but side pain was continuous, severe, and the use of analgesics showed no effect. The patient had hypertension, diabetes mellitus, and coronary artery disease and used acetylsalicylic acid, Ca^{2+} channel blocker, and oral antidiabetic.

Physical examination revealed; blood pressure: 130/65 mmHg, heart rate: 92/min, and sensitivity in the right flank area. No abnormality was observed in other systems. Electrocardiogram revealed T wave inversion and ST segment depression (<1 mm) in anterior leads (V1–4). Transthoracic echocardiography was performed with the preliminary diagnosis of acute coronary syndrome. No diagnostic acute finding was found. The patient's laboratory evaluation upon admission; Glomerular filtration rate (GFR): 90,8 ml/dak/1.73 m2, Urea: 32 mg/dl Creatinine: 0,7 mg/dl.

Thoracic angiogram Computed Tomography (CT) was performed to exclude aortic dissection. CT results revealed ascending aortic thrombus and focal parenchymal infarction

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area in the right kidney in the abdominal sections included in the CT field [Figures 1–4].

The patient was advised cardiovascular surgery. Because of systemic and peripheral thromboembolism risk, the operation and interventional procedures were not included in the treatment plan. Anticoagulant treatment was decided, and the patient was heparinized in the emergency room, heparinization therapy was initiated with enoxaparin 1 mg/kg.

Patient was then transferred to the intensive care unit for thrombolytic therapy. Recombinant tissue-type plasminogen activator (rtPA), 100 mg, over 2 hours, intravenous infusion was preferred.

On the fifth day of the treatment we have seen the thrombus resolution via thoracic angiogram CT. As the patient's physical examination and vital parametres were normal, he was discharged with medical treatment, acetyl salicylic acid 100 mg and rivaroksaban 20 mg/per day.

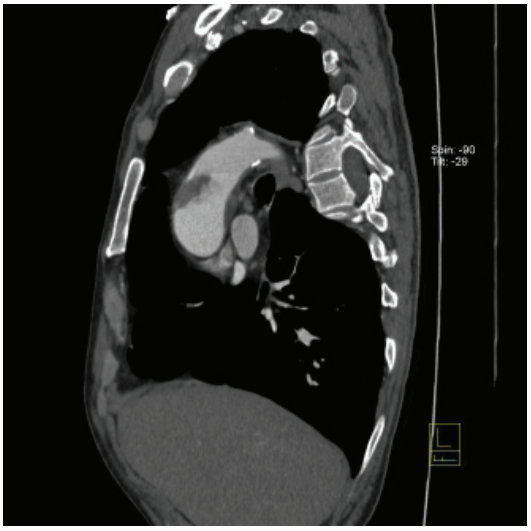


Figure 1: Ascending aortic thrombus, thoracic CT angiography sagittal section.

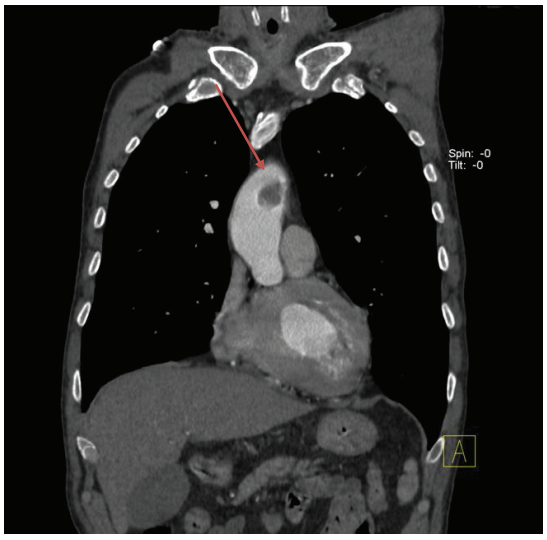
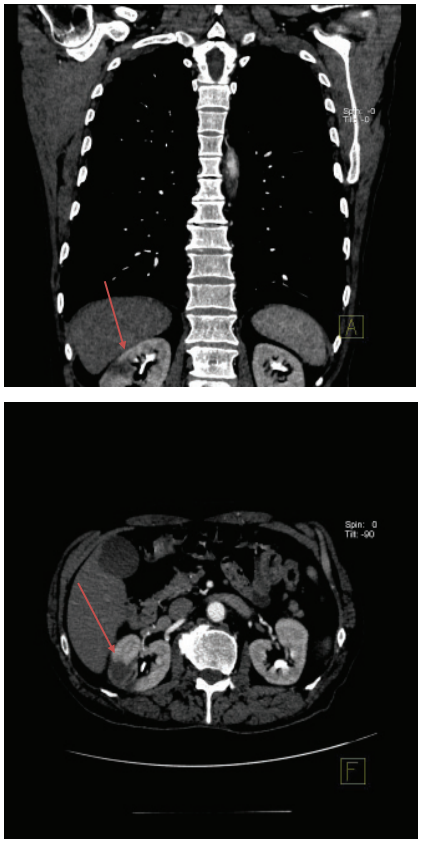


Figure 2: Ascending aortic thrombus, thoracic CT angiography coronal section.



Figures 3,4: Right renal parenchymal infarction area.

Discussion

Ascending aortic thrombus is usually incidentally diagnosed and sporadic cases have been reported in the literature [3]. Hypercoagulopathy, smoking, steroid use, trauma, substance dependence, rheumatic diseases, primary endothelial diseases, and vasculitis are the etiological factors. The thromboembolic disease of aorta has been known as a result of atherosclerosis, in the absence of hypercoagulopathy. Therefore, we emphasized the risk factors of atherosclerosis as the risk factors of ascending aortic thrombus. In our case, the patient had hypertension, diabetes mellitus, and coronary artery disease. The presence of all these diseases indicates that the thrombus formation has been developed due to atherosclerosis in this case. And also as the patient hasn't undergo surgery, we couldn't have pathological examination of the thrombus [4].

Aortic thrombi can cause non-cardiogenic peripheral thromboembolism, such as cerebral embolism, acute myocardial infarction or bowel ischemia [1,2,4]. Meyermann, et al. reported that descending aortic thrombosis has been diagnosed after a peripheral embolic event in most cases, similarly to ascending aortic thrombus. Differently to ascending aortic thrombus, approximately 50% of the cases presented with extremity emboli.

Aortic thrombi are frequently found in the descending aorta (37.5%), and ascending aortic thrombi have been less frequently reported [2,3,4].

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Although the European Society of Cardiology (ESC) 2014 Guidelines for the Diagnosis and Treatment of Aortic Diseases mentions surgical approach and interventional treatment as part of the treatment strategy for thromboembolic diseases of the aorta, the emphasis is on antiplatelet and anticoagulant therapies. The presence of comorbidity and complications poses a high risk for surgical intervention and increases morbidity and mortality rates. The risk of complications is high especially in atypically located and large thrombi [5].

Anticoagulant or antiplatelet therapy are suggested [6] and should be preferred in patients with peripheral embolism or stroke [7]. One of these treatment strategies should be chosen based on comorbidity and other indications. In the present case, anticoagulant therapy was selected and successful thrombus resolution was achieved.

Conclusion

We presented a case of ascending aortic thrombus complicated by renal infarction. There are several cases in the literature treated with surgical and interventional treatments. Anticoagulant and thrombolytic therapy was chosen in the present case, and successful thrombus resolution was achieved.

However, we think that there is a need for studies that compare the long-term results of antithrombotic therapy with interventional and surgical treatments.

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