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A Case of True Brachial Artery Aneurysm in an Elderly Male

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ABSTRACT

Brachial artery aneurysms are relatively rare and are mostly pseudoaneurysms rather than true aneurysms**,** as true aneurysms are even rarer entities. Patients can be asymptomatic, or present with pulsatile masses, or ischemia due to associated thromboembolic complications. Distal embolism can occur with transient or minimal ischemic symptoms; however, aneurysm itself can thrombose entirely. The authors report a case of upper limb acute ischemia caused by true brachial artery aneurysm thrombosis in an elderly man, managed by reconstructive vascular surgery.

Introduction

Brachial artery aneurysms are relatively rare compared to lower extremity aneurysms.[1-3] Most of these are pseudoaneurysms caused by trauma, including iatrogenic trauma, and drug abuse.[4,5] True aneurysms are even rarer entities and can occur in infantile or older age groups.[6] Etiology consists of congenital connective tissue abnormalities, Kawasaki's syndrome, Buerger's disease, and repetitive trauma, or they may be idiopathic.[4] Patients can be asymptomatic, or present with pulsatile masses, or ischemia due to thromboembolic complications.[4] Distal embolism can occur with transient or minimal ischemic symptoms or aneurysm itself can thrombose entirely.[7] Natural history of brachial artery aneurysm is not well defined, and vascular repair is the main treatment option.[4,5] Although endovascular techniques have been used to manage these patients (mainly for pseudoaneurysms), most of true brachial artery aneurysm cases have been repaired by open surgery.[1,4] Here we present the case of an elderly male with upper extremity acute ischemia caused by true brachial artery aneurysm thrombosis with idiopathic etiology.

Case Report

A 67-year-old male presented with pain in his right hand and forearm originated acutely one week ago. The pain had begun during manual work on the farm. The patient was complaining of reduced hand grip. His medical history was negative for diabetes mellitus, hypertension, or cardiac disease. There was not any history of trauma or medical procedures in his right arm. He was non-smoker with no history of drug abuse. He was not on any medications either. On physical examination no cardiac arrhythmia was detected, and heart auscultation was normal. There was no existing carotid bruit. Vascular examination was normal in left upper and both lower extremities, and there was no history of intermittent claudication. Our patient had no history of pain or reduced muscle force in right hand prior to current situation. On presentation, right axillary artery pulse was palpable but there was no detectable brachial or radial pulse in the right side. Right hand had some pallor compared to left side; no mottling or cyanosis existed. Distal paresthesia could be detected in right hand. Trans-thoracic echocardiography was performed and no significant findings were observed. CT angiography revealed thrombosis in proximal and middle right brachial artery with run-off in distal antecubital part and proximal radial and ulnar arteries. Distal radial and ulnar arteries were not patent (Figure 1,2). There was no significant finding in aortic arch, innominate, right subclavian, or axillary arteries. The patient was transferred to operating room and right arm was explored under general anesthesia. Brachial artery was aneurysmal in its distal third with a maximal diameter of 2 cm, and complete thrombosis was propagated

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proximally to its middle part (Figure 3). Aneurysmal part of artery was resected and proximal thrombus was removed by Fogarty catheter. We were able to pass Fogarty catheter only to the midlevel in the forearm and distal radial and ulnar arteries were occluded. Remaining arteries were not atherosclerotic. A reversed greater saphenous vein graft was interposed and anastomosed end-to-end proximally and distally to the normal remaining parts of brachial artery. A patent radial recurrent artery was anastomosed end-to-side to the vein graft. After surgery, distal pulses were not palpable, but the hand was warm. Pallor, paresthesia and pain were resolved. On follow up, 2 weeks and 1 month later, there was no sign of ischemia despite impalpable distal pulses and the patient satisfactorily recovered.

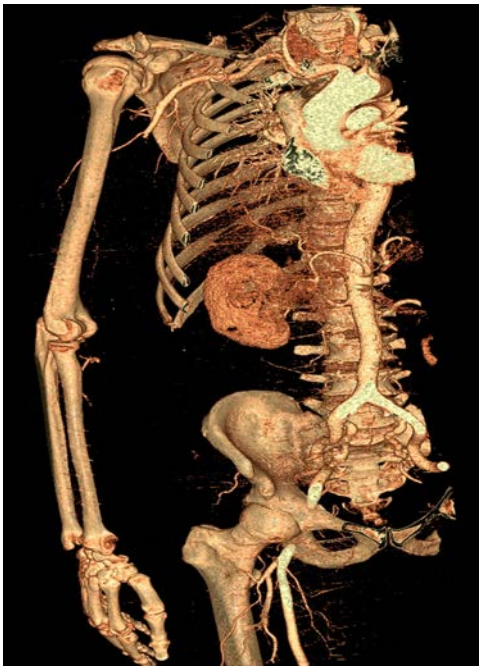

Figure 1. CT angiography of the limb (overall view)

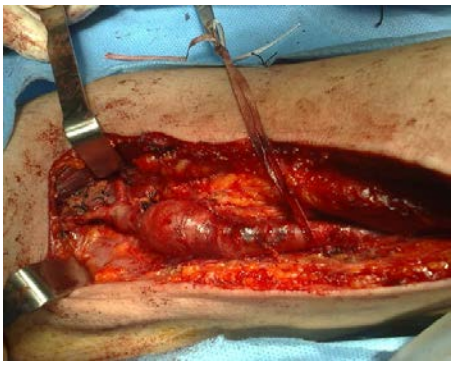

Figure 3. Gross pathology of the lesion

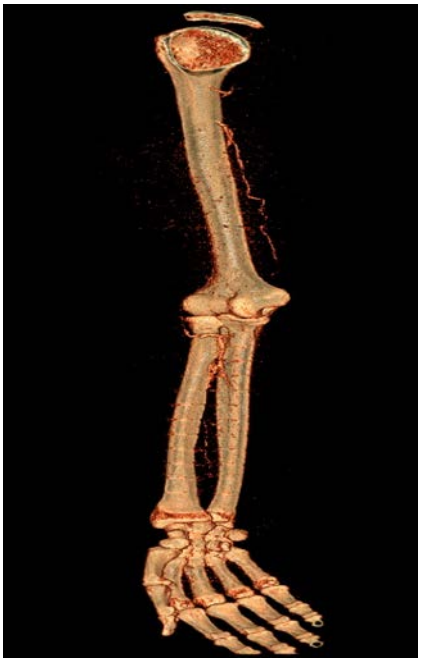

Figure 2. CT angiography of the Right limb

Discussion

Brachial artery aneurysms can be of true or false nature. True aneurysms occur due to atherosclerotic process, repetitive trauma, congenital disease, inflammation, or they can be idiopathic. On the other hand, false aneurysms occur more frequently because of increasing prevalence of invasive procedures (such as arterial lines, cardiac catheterization, dialysis access procedures, etc.). They can also occur due to infection and drug abuse. Clinical presentation can be variable in different cases. In one study, eight of twelve patients with true post-axillary artery aneurysms had a mass as the main clinical finding with no ischemic findings. Four patients had relative acute or chronic thromboembolic complications.[1] Similar to popliteal artery aneurysms, brachial artery aneurysms do not usually present with rupture.[2] In our case, it seems that due to relatively small size of aneurysm there was no palpable mass. As it has been stated in other reports, chronic microembolisms do occur and occlusion of distal ulnar and radial artery in our case was probably caused through this mechanism.[2] Thanks to preexisting collateral circulation, ischemia may be non-critical as in our case; however, vascular reconstruction has been considered mandatory to prevent future and more catastrophic complications. Use of endovascular techniques to repair true brachial aneurysms has not been reported in literature, but they can probably be feasible as similar cases have been reported for popliteal artery aneurysms.[8]

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Ethical issues: The local ethics committee of Tabriz University of Medical Sciences approved the study and all patients signed informed consent.

Conflict of interests: The authors declare no conflicts of interest.

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