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CASE REPORT

Brachial Artery Aneurysm as a Limb Threatening Condition; a Case Report

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Abstract

Brachial artery aneurysms are rare but potentially limb threatening condition. The presented case here is a 52-year old male referred to the emergency department complaining a sudden onset and progressive pain with coldness of his right upper extremity during brushing. The right upper extremity was pulseless and three-dimensional computed tomography showed an aneurysm of the proximal right brachial artery associated with arterial occlusion in its distal branch. Embolectomy was done, the aneurysm resected, and the artery successfully revascularised by interposing a saphenous vein graft.

Key words: Brachial artery; aneurysm, dissecting; peripheral arterial disease; vascular grafting; limb salvage

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Introduction:

Localized balloon-like bulge in an artery wall is called aneurysm that classified as true, pseudo, and mycotic types. True aneurysm is the localized dilation involving all three layers (intima, media, and adventitia) of the arterial wall, but a false type or pseudoaneurysm is a collection of flowing blood that communicates with the arterial lumen and is filled only by the adventitia or surrounding soft tissue (1). Aneurysms can manifest in all arteries but peripheral artery aneurysms in the upper extremities are rare so that brachial artery aneurysms have an overall prevalence of 0.5% (2-4). Also, mycotic and post-traumatic are more common than true aneurysm (3, 5). There are few reports in this regard and the following presentation described a patient referred to the emergency department (ED) with signs and symptoms of arterial insufficiency and final diagnosis of brachial artery aneurysm.

Case Report:

A 52-year-old male referred to the ED with complaining of sudden onset and progressive pain with coldness of his right upper extremity when he was brushing. The subject had no other complaint such as chest pain, palpitation, or shortness of breathing. He had no history of trauma, injection, dialysis, arteriography, intravenous drug abuse, or surgery in his right upper extremity. The patient's history was negative regarding hypertension, ischemic heart diseases, diabetes mellitus, hyperlipidemia, etc. On physical examination, he had a swelling on his right axilla without pigmentation. Palpation revealed a 2 × 2.5 centimetre pulsatile, compressible mass with no tenderness and the temperature equal to the surrounding skin. Supraclavicular and axillary lymph nodes were not bilaterally palpable. Pulse of the axillary artery was palpable, but brachial and radial arteries were pulseless. The capillary refill time was in normal range and sensory and motor functions were intact. Cardiac examination revealed no murmurs, lungs sounded clear, and abdomen was soft with no tenderness. The remainder of the systemic examination was unremarkable. Paraclinic investigation showed 6800/mm^3 white blood cell (WBC) count , 14gram/decilitre haemoglobin level, 13 millimetres/hour erythrocyte sedimentation rate (ESR), 13 seconds Prothrombin time (PT), and 33 seconds partial thromboplastin time (PTT). Color Doppler ultrasonography of right upper extremity arteries showed an anechoic, pulsatile, 25 × 22 millimetres mass with turbulent flow seen along the brachial artery. Computed tomoangiography showed an aneurysm of the proximal right brachial artery associated with arterial occlusion in distal radial branch (Figures 1 and 2). Embolectomy was done, the aneurysm resected, and the brachial artery successfully re-vascularised by interposing a saphenous vein graft. The resected aneurysm displayed a true aneurismal sac filled with internal thrombus. Finally, the patient was discharged, under warfarin anticoagulation therapy, without any complication on the fifth days after surgery.

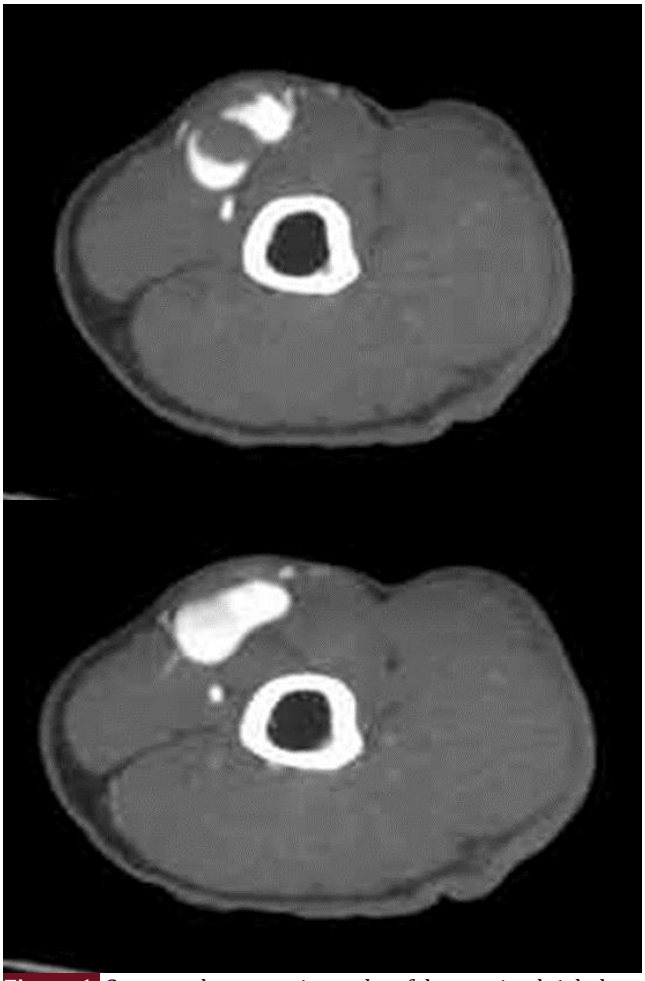

Figure 1: Computed tomoangiography of the proximal right brachial artery (axial cuts).

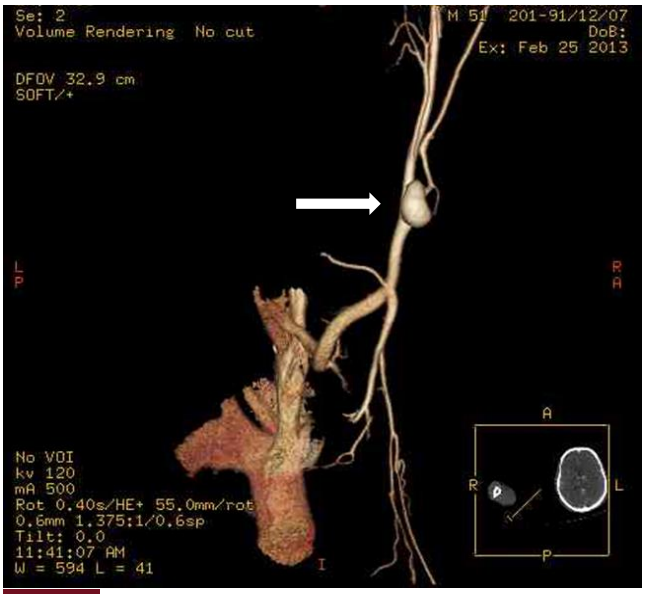

Figure 2: Three-dimensional computed tomoangiography of the proximal right brachial artery, white arrow shows the location of aneurysm.

Discussion:

The usual manifestation of peripheral aneurism is incidentally finding of a pulsatile, painless and asymptomatic mass, which becomes symptomatic when complications arise. Thrombosis in the sac, vascular collapse which throws emboli into peripheral circulation, and also disruption caused the profuse bleeding are among these complications (5). Atherosclerotic aneurysms, which commonly develop in advanced ages, are often seen in large arteries, while pseudoaneurysm may be observed in any location and age. Aneurysms are generally revealed in infrequent locations due to Marfan's syndrome, syphilis, and major trauma. Familial history of aneurysm, connective tissue disorders, and atherosclerotic risk factors (hypertension, hyperlipidemia, smoking, and age) are considered as it's risk factors (1, 4, 6). Without proper management, hemorrhage, extremity venous edema, cutaneous erosion, and especially adjacent neurological structure compression can develop due to enlargement of the aneurysm. The first symptom of upper extremity aneurysms can be nerve injury due to adjacent nerve compression (2). Prompt diagnosis and treatment of true peripheral artery aneurysms are necessary to minimize the complication rate and serious long-term squeal (7, 8). Differential diagnosis include pulsating tumours (such as bone sarcoma, osteoclastoma), arterio-venous malformation, lymphadenopathy, lipoma, hematoma, and abscess. The diagnosis should be confirmed by a duplex ultrasonography, show the arterial blood flow into the aneurysm. Computed tomography or magnetic resonance angiography can also be used for diagnosis (9). In spite of all above-mentioned, the gold standard tool is a selective upper extremity arteriography. However, the first choices in investigation are often color Doppler ultrasonography and subtraction image angiography (2). The defect in the artery is usually small and easily identified by a transient release of the proximal clamp (5). Close observation, thrombin injection, ultrasound-guided compression, and operative repair are treatment options.

Conclusion:

Aneurysms of the brachial artery are not common, but could be potentially limb threatening. Prompt diagnosis and proper treatment may prevent from irreversible squeal. The best therapeutic option is immediate operative repair.

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Conflict of interest:

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