ACUTE THROMBOSIS OF SUBCLAVIAN ARTERY: A CASE REPORT

Vahid Mokhberi[(1)], Mahdi Davoodi[(2)], Jeren Marjani[(3)]

Abstract

INTRODUCTION: Subclavian artery thrombosis is a condition in which the blood flow through the vessel is suddenly obstructed. In fact, occlusion occurs in one of subclavian arteries, especially in the left subclavian artery. A patient with an acute occlusion presents with a cold, painful, cyanosis, pulseless upper extremity.

CASE REPORT: A 48 years old lady admitted to Imam Khomeyni hospital (Sari, Iran) with a history of acute left upper limb pain. On examination, her left hand was cold, blue and painful on active and passive movements. Her left axilliary pulse was detected with no brachial or ulnar pulses. Left subclavian angiography showed a large thrombus in the proximal part of her left subclavian artery, the other sites of artery were normal. She had an elbow amputation in Tehran later.

CONCLUSION: Therapeutic intervention is indicated in any symptomatic patient. Rapid diagnosis and treatment of thrombosis of subclavian artery prevent ischemia and gangrene of upper extremity. Subclavian artery thrombosis is uncommon cause of acute upper extremity ischemia, but should always regard to it. A true history and physical exam could be established rapid diagnosis and prevented side effects such as gangrene and amputation of upper extremity.

Keywords: Acute thrombosis of Subclavian artery, Ischemia of upper extremity.

***ARYA Atherosclerosis Journal* 2008, 4(2): 89-91**

Date of submission: 1 Apr 2008, ***Date of acceptance:***18 May 2008

Introduction

Subclavian artery thrombosis is a condition in which the blood flow through the vessel is suddenly obstructed. Thrombosis is 2 types: acute and chronic. Subclavian artery thrombosis is rare condition demonstrated with acute symptoms, but chronic thrombosis is common condition and usually occurs secondary to atherosclerotic changes and patient presents with no symptoms. In chronic thrombosis should be attention to thoracic outlet syndrome and subclavian steal syndrome.[1]

Acute subclavian artery thrombosis is rare disease suffering ischemia of upper extremity. Subclavian artery thrombosis may occur in young athletic individuals who exert a significant amount of upper body activity. In patient with underlying atherosclerotic disease, suddenly occlusion occurs to Emboli.[1] Thrombosis of a subclavian artery is an uncommon cause of acute upper extremity ischemia.[2] Trauma is the most frequent non-cardiac cause of subclavian artery thrombosis.[3]

A patient with an acute occlusion presents with a cold, painful, cyanosis, pulseless upper extremity. A history of upper extremity claudication is common. Axillary, brachial, and radial pulses are generally absent. The affected upper extremity may or may not demonstrate diminished pulses. Blood pressure differences between the affected and unaffected sides may be noted.[1]

Lab Studies

Complete blood cell count, platelet count, prothrombin time, activated partial thromboplastin time, Antithrombin III level, Alpha-macroglobulin, plasminogen levels, fibrinogen, factor VII and VIII levels, protein C and S levels and factor V Leiden and factor II C20210-a level.[1]

Imaging Studies

- Arteriography: This is a vital component of the

1) Assistant Professor of Sari University of Medical Sciences, Interventional Cardiologist – Fatemezahra Hospital, Sari University of Medical Sciences, Sari, Iran. E-mail: mokhberi27@yahoo.com

2) Assistant Professor of Sari University of Medical Sciences, Vascular Surgery – Imam Hospital, Sari University of Medical Sciences, Sari, Iran.

3) Research Assistant of Sari University of Medical Sciences - Fatemezahra Hospital, Sari University of Medical Sciences, Sari, Iran.

Corresponding aughor*: Vahid Mokhberi*

evaluation process in order to determine the aberrations of the arterial system.

- Computerized axial tomography scanning
- Magnetic resonance arteriography
- Doppler color sonography.[1]

Treatment

- Medical Therapy: Early diagnosis and therapy of subclavian artery thrombosis are indicated to prevent disabling upper extremity ischemia and gangrene. Catheter-directed thrombolytic therapy may be indicated. Anticoagulation may be considered as supplemental therapy after surgical intervention.
- Interventions include angioplasty and stenting and catheter-directed thrombolytic therapy and embolectomy.
- Surgical Therapy: Surgery to correct subclavian artery thrombosis is the treatment of choice. Excision of the anatomical structure compressing the artery, bypass (subclavian-carotid, subclavian-subclavian, and axillary-axillary bypasses).[1]

Case Report

A 48 years old lady was admitted to Imam Khomeyni hospital (Sari, Iran) with a history of left upper limb pain. She complained of left wrist pain initially radiating to her shoulder with pins and needles of her left hand. She was non-smoker with no history of diabetes or hypertension. She also denied of habitual abortion or any cardiac diseases. She had a history of hyperlipidemia and hypothyroidism. Her medication consisted of indometacin, levothyroxine, gluocosamine and OCP.

On examination, her left hand was cold, blue and painful on active and passive movements. Her left axilliary pulse was detected with no brachial or ulnar pulses and no bruit around her neck. No enlarged lymph node was detected but her thyroid gland was enlarged uniformly. Her heart sounds were normal with no added sounds and murmur and her lungs were clear.

A full blood counts showed hypochrome and microcytic anemia with normal serum iron, total iron binding capacity (TIBC), and Ferritin level. Fasting blood sugar, blood urea nitrogen, creatinine, Natrium, and Kalium were normal. Prothrombin time and partial thromboplastin time were normal. Serum (homocysteine, Anti Nuclear Antibody, Anti ds DNA, Anti cardiolipin, Antiscleroderma–70 Antibodies) were normal.

Her ECG and echocardiography were normal. Left subclavian angiography showed a large thrombus in the proximal part of her left subclavian artery (Figure 1). Patient was scheduled for subclavian to carotid bypass but did not accept our offer. She had an elbow amputation in Tehran, later.

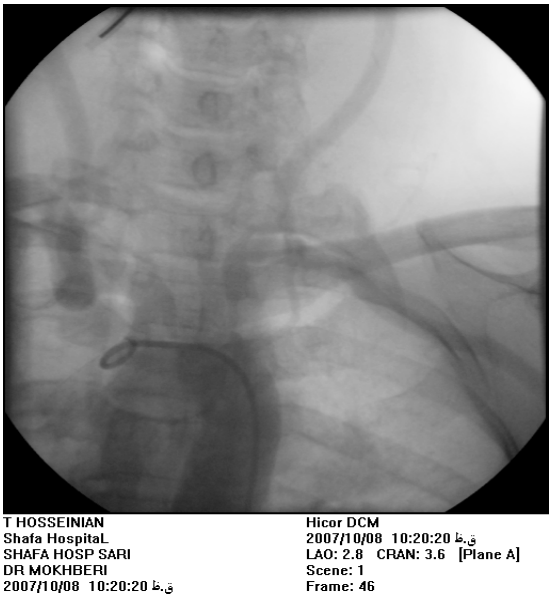

Figure 1. Large thrombus in proximal of left subclavian artery in angiography

Discussion

Thrombosis of a subclavian artery is an uncommon cause of acute upper extremity ischemia. Malformations of the aortic arch system are also rare.[2] Symptomatic lesions occur in less than 1% of the population. In autopsy series, 9% of the populations demonstrate stenosis or occlusion of one subclavian artery, usually on the left. Symptoms occur secondary to lack of blood flow to the affected extremity.[1]

An arteriography is essential for correct diagnosis and should include the subclavian artery in the hyper abduction position of the hand.[3]

Therapeutic intervention is indicated in any symptomatic patient. Early diagnosis and therapy of subclavian artery thrombosis are indicated to prevent disabling upper extremity ischemia and gangrene.[1] During the acute phase proposed thrombolysis and embolectomy.[3] Use of catheter-directed thrombolytic therapy may be indicated for superimposed clot formation in an area of stenosis. Prolonged anticoagulation therapy for an obvious mechanical problem is not indicated. Anticoagulation may be considered as supplemental therapy after surgical intervention. Surgery to correct subclavian artery thrombosis is the treatment of choice. Angioplasty and stenting of stenotic and even occluded arteries have been undertaken successfully with adequate patency rates and minimal morbidity.[1]

Percutaneous transluminal angioplasty (PTA) has been shown to be an effective method of treatment of subclavian artery stenosis.[4] Subclavian restenosis after percutaneous transfemoral angioplasty (PTA)-treatment studied in two groups; the first group with intermittent stenosis, while the second group with complete stenosis of subclavian artery occlusion. All patients were treated with angioplasty and stent application and were followed up for a period of 5 years. The restenosis rate was 6.67% in the first group and 40.75% in the second group. Patients with a complete subclavian artery occlusion present a higher risk of subclavian restenosis.[5]

The occluded artery may require a bypass procedure, depending on the location of the occlusion. The bypass options include subclavian-carotid, subclavian-subclavian, and axillary-axillary bypasses. Another possible bypass option is transposition of the subclavian artery to the ipsilateral carotid artery.[1]

Administer preoperative prophylactic antibiotic therapy in the form of a first-generation cephalosporin. Check distal upper extremity pulses immediately after the operative procedure. Evaluate postoperative effusions for the presence of chyle, which would be indicative of thoracic duct injury, perform postprocedural angiography at prescribed times after the operative intervention in order to assess patency of the graft or stent.[1]

References

1. Mancini MC. Subclavian artery thrombosis [on line]. [Cited 2008 Jan 15]. Available from URL: http://www.emedicine.com/med/topic2751.htm.
2. Boas N, Desmoucelle F, Bernadet V, Franceschi JC. Rare cause of acute ischemia of the right upper extremity: thrombosis of a retroesophageal subclavian artery. Ann Vasc Surg 2002; 16(3): 387-90.
3. D'Addato M, Pedrini L. Non-cardiac causes of acute ischemia in the arms. J Mal Vasc 1996; 21(5): 303-7.
4. Whitaker SC, Gregson RH. Case report: occlusion of subclavian artery treated by percutaneous angioplasty. Clin Radiol 1991; 44(3): 199-200.
5. Filippo F, Francesco M, Francesco R, Corrado A, Chiara M, Valentina C, et al. Percutaneous angioplasty and stenting of left subclavian artery lesions for the treatment of patients with concomitant vertebral and coronary subclavian steal syndrome. Cardiovasc Intervent Radiol 2006; 29(3): 348-53.