

Surgery For Acute Upper Limb Ischemia Due To Subclavian Artery Disease, Case Report.

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Summary :

Acute ischemia is a vascular emergency that can jeopardize both life and function. Treatment can be surgical or endovascular. This case concerns a 57-year-old patient with acute upper limb ischemia treated with a left carotid-subclavian bypass using a prosthetic graft.

Keywords : Ischemia, Surgery, Bypass.

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I. Introduction

Acute ischemia of the upper limb secondary to subclavian artery occlusion is a relatively rare condition in routine vascular surgery practice.

Atherosclerosis is the most common underlying cause.

The severity of the condition varies depending on the quality of collateral circulation that develops.

Treatment involves arterial revascularization, which can be performed through surgical or endovascular techniques, depending on the location and extent of the lesions.

This report describes the case of a patient admitted with acute arterial ischemia of the upper limb due to subclavian artery occlusion, treated with a carotid-subclavian bypass.

II. Case Report :

Our patient is a 57-year-old male with a history of cardiac disease managed with beta-blockers and hypertension treated with amlodipine. He reported intermittent claudication in the left upper limb for six months prior to admission.

He was admitted to the emergency department with acute ischemia of the left upper limb.

On admission, the general examination revealed a conscious patient with a Glasgow Coma Scale (GCS) of 15, hemodynamically and respiratory stable, with a blood pressure of 130/70 mmHg and a heart rate of 75 beats per minute.

The vascular examination of the left upper limb showed coldness, pallor, cyanosis of the fingertip pulp, and paresthesia without associated motor deficits.

Pulses in the axillary, brachial, radial, and ulnar arteries of the same limb were absent.

The electrocardiogram (ECG) showed a regular sinus rhythm.

Biological assessment: Hemoglobin: 11 g/dL, platelets: 700,000/mm³. Coagulation profile and electrolyte panel were normal. Blood type: AB+

Imaging studies:

The CT angiography performed at admission revealed a lack of opacification in the left subclavian artery from its origin, with downstream revascularization at its prevertebral segment "Figure 1"

Transthoracic echocardiography: no abnormalities detected.

The patient was taken to the operating room under general anesthesia.

An embolectomy of the humeral and axillary arteries was performed, resulting in the restoration of attenuated blood flow.

Arteriographic control revealed an occlusion at the ostium of the left subclavian artery (Figure 2). Attempts to recanalize the occlusion using both retrograde and antegrade approaches (via right common femoral artery puncture) were unsuccessful.

A decision was made to perform a left carotid-subclavian bypass using an 8-mm polytetrafluoroethylene (PTFE) prosthesis (Figures 3, 4, and 5).

The postoperative course was marked by warming of the limb, pain relief, recovery of all pulses, and improvement in sensory disturbances.

The patient was initially placed on unfractionated heparin administered via the SAP (self-pulsating syringe) and was discharged on postoperative day 4 with a prescription of direct oral anticoagulants (DOACs), aspirin, and a statin.

The patient continues to be regularly monitored in vascular surgery follow-up consultations.



Figure 1: Coronal View: Lack Of Opacification In The Left Subclavian Artery From Its Ostium, With Downstream Revascularization At Its Prevertebral Segment.



Figure 2: Arteriographic Image Showing An Impassable Lesion At The Ostium Of The Left Subclavian Artery.



Figure 3: Patient Positioned In The Dorsal Decubitus Position With A Bolster Placed Under The Shoulders, Utilizing A Supraclavicular Cervical Approach.

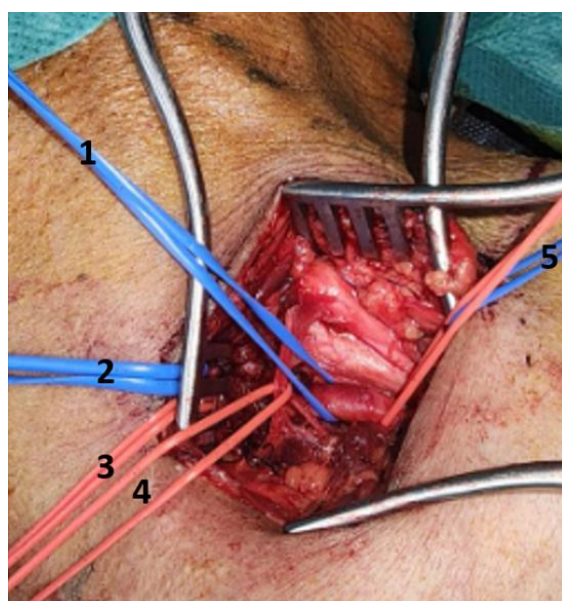


Figure 4: 1: Left Subclavian Artery, 2: Left Internal Jugular Vein, 3: Left Common Carotid Artery, 4: Left Phrenic Nerve, 5: Left Brachial Plexus.



Figure 5: Carotid-Subclavian Bypass: The Prosthetic Graft Is Positioned Posterior To The Internal Jugular Vein And The Phrenic Nerve.

III. Discussion

We will review the various etiologies reported in the literature.

Atherosclerosis is the most common, accounting for 97% of cases [1], with the lesions typically located at the ostial and prevertebral segments.

Other identified etiologies include Takayasu's disease, Horton's disease, and dysplasias [2].

The symptoms observed mainly include intermittent claudication, rest pain, and in some cases, trophic disorders, which occur in less than 15% on average [3].

The patency rates for carotid-subclavian bypasses range from 82% to 90% at five years [3, 4, 5]. Prosthetic bypasses demonstrate better five-year patency rates than venous bypasses, estimated at 91% versus 58% [6].

Rare postoperative complications have been reported in the literature, including phrenic nerve injury in 2.7% of cases and anastomotic dehiscence in 5.5% [7].

Mortality rates are below 5.6% in most studies [3, 8, 9].

IV. Conclusion

Upper limb ischemia due to occlusive lesions of the subclavian artery is a rare condition in routine vascular surgery practice. Endovascular techniques have largely supplanted surgery, which remains reserved for extensive and anatomically challenging lesions.

Carotid-subclavian bypass provides excellent long-term patency and a durable resolution of symptoms, with low rates of operative mortality and morbidity.

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