



TWO- STAGED REVASCLARIZATION OF SUPRA-AORTIC TRUNKS DISEASE.

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ABSTRACT

We report a case of symptomatic stenosis of supra-aortic trunks disease successfully treated surgically with ascending aorta-left common carotid artery and carotid-subclavian artery bypasses as transthoracic and extrathoracic approaches respectively. The patient had symptomatic relief with good recovery after surgery, and postoperative radiological imaging showed a good revascularization.

KEYWORDS : Supra-aortic trunks disease; ascending aorta-left common carotid artery bypass; carotid-subclavian artery bypass.

Introduction

Arterial occlusive disease of the supra-aortic trunks involves the subclavian, common carotid, or innominate arteries and can present as a multitude of cerebrovascular insufficiency symptoms or, in the case of the subclavian or innominate arteries, can produce upper extremity embolic phenomenon or claudication.

Occlusive disease is often asymptomatic; however, 18% to 62% of patients present with vertebrobasilar insufficiency and 13% to 69% with upper extremity ischemia [1].

Case Report

An 80-year-old man was admitted to the hospital because of exertional dizziness and syncope. Heart examination was normal with non-electrical disturbances and no valve disease. Left arm blood pressure could not be measured and the patient also referred weakness and paresthesias.

A computed tomography angiogram (Fig 1) showed a long occlusion of left subclavian artery with revascularization through a patent vertebral artery. The ostium of the left common carotid artery showed a large plaque with a severe stenosis.

The patient underwent a two-staged revascularization process. The first stage consisted in mini-sternotomy and ascending aorta-to-left common carotid artery bypass with 8 mm Dacron graft (latero-terminal anastomosis) (Fig 2).

The second stage consisted in carotid-to-subclavian artery bypass with 6 mm ringed polytetrafluoroethylene graft.

The patient had a good recovery and was discharged two weeks after first surgery. Postoperative computed tomography scan showed a good revascularization.

Comment

The treatment has evolved during the years and currently includes open surgical reconstructions (transthoracic and extrathoracic) and endovascular interventions. Although endovascular techniques have become an increasingly popular treatment modality for occlusive disease of the supra-aortic trunks, open surgical reconstructions persist because of their better midterm freedom from failure and long-term patency compared with endovascular intervention [2]. In addition, open surgical reconstructions remain an effective secondary revascularization option after failure of initial endovascular treatment. Transthoracic reconstruction, which was

first performed in 1957 by DeBakey as bypass grafting from the aortic arch, resulted in long-term patency yet was also previously associated with significant morbidity and mortality rates ranging from 8% to 20% [3]. Extrathoracic reconstructions, developed as safer alternatives because of their decreased morbidity and mortality [1,4]. A wide range of rates of perioperative stroke and mortality have been reported for both approaches [1,2,3,4].

At United States hospitals, extrathoracic reconstruction is the more common approach for this disease. Transthoracic reconstruction results in more resource utilization because of its postoperative complications and complexity.

Extrathoracic revascularization of the supraaortic trunks is well tolerated and durable when operations are confined to the supraclavicular fossa and do not involve the axillary artery. Carotid-subclavian bypass grafts with polytetrafluoroethylene are safe, effective, and durable and should remain the procedure of choice, particularly in good-risk patients.

In this case report, the treatment performed was surgical reconstruction because of long occlusion of subclavian artery and a large plaque with severe stenosis of ostium of the left common carotid artery. Although endovascular technique is a good alternative, surgical reconstruction presents a better midterm freedom from failure and long-term patency compared with endovascular intervention [2].

The patient underwent a two-staged revascularization process. The first stage (transthoracic) consisted in mini-sternotomy and ascending aorta-left common carotid artery bypass. The second stage (extrathoracic) consisted in carotid-subclavian bypass.

This combined technique was considered because of a good-risk patient, the use of a minimally invasive surgical exposure as an effective and safe repair approach for left common carotid artery lesions [5] and also because may be more durable in atherosclerotic disease involving supra-aortic trunks in comparison to cervical approach.

Conclusion

The supra-aortic trunks disease may be treated effectively using ascending aorta-left common carotid artery and carotid-subclavian artery bypasses as transthoracic and extrathoracic approaches in selected patients.

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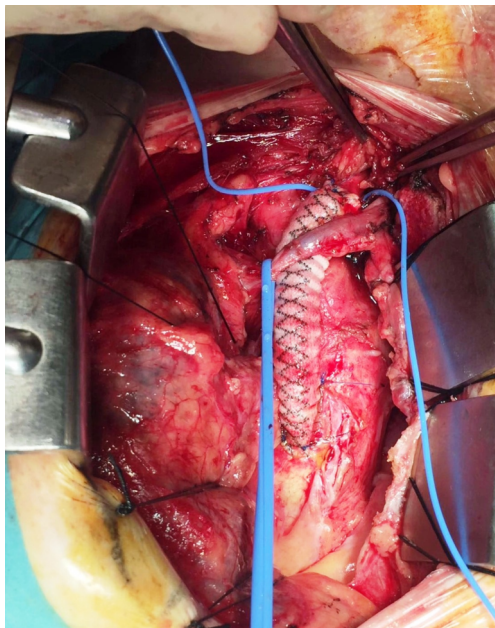
Conflict of interest

None declared.

Figure 1. Severe stenosis of the ostium of the left common carotid artery.



Figure 2. Ascending aorta-left common carotid artery bypass graft.



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