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Case Report: The Role Of Exercise On Arterial Recanalization Of Lower Extremity Limb In Elder Patient

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Abstract
Background*:The aim of this case is to assess the role of exercise as a non-invasive method to evaluate lower extremity arterial disease (LEAD) and concomitant medical treatment.*
Case summary*: a 80 year-old-man with intermittent claudication (IC) and no chronic cardiac disease. In addition to complete physical examination, doppler ultrasound (DUS) of lower arteries limbs showed occlusion by thrombotic obliterant aneurysm in femoro-popliteal artery. By-pass surgery was not succeeded, with occlusion of saphenous vein. A walking program was initiated, in addition to medical therapy. DUS was repeated after 12 and 24 months, with recanalization by collaterals in femoro-popliteal artery and reperfusion of tibial-fibular artery.*
Conclusion*: Exercise allied to medical therapy confirmed the potencial role of recanalization in LEAD patients, improving quality of life, symptoms relief and walking distance.*
Key words*: lower extremity artery disease; intermittent claudication; exercise; recanalization; elder patient; case report.*

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I. Introduction

Lower extremity artery disease (LEAD) is the most common disease in the elderly, caused by atherosclerotic plaques. Its prevalence is more than 10% in individuals above 60 years and >25% in individuals above 75 years[1]. Although the majority of patients with LEAD is asymptomatic, intermittent claudication (IC) is the most common symptom clinically identified. Regular exercise in conjunction with lifestyle modification and medical therapy with cilostazol – a phosphodiesterase III inhibitor - constitute effective strategies to symptoms relief, recanalization and development of collateral circulation, besides the improvement on walking distance and, consequently, better quality of life (QoL)[2,3].

II. Case Presentation

The patient, a 81 year-old-man complained intermittent claudication (IC) less than 100 mts and sudoresis that relieved with resting, and progressively worsening for less than 50mts. No history of arterial hypertension, diabetes or chest pain. Ex-smoker of one packet/day for 50 years, with cessation one year before. CHA_2DS_2-VASC score: 3. Physical examination: cardiac and respiratory apparatus were normal; abdomen was soft, painless, no abdominal aortic murmur; upper extremities normal. Left lower limb with palpable femoral pulse; popliteal, anterior and posterior tibial and distal arteries drasticly reduced, with foot pallor, minimal pelage. Blood pressure 110/70mmHg, heart rate 68 bpm. The patient was treated with Verapamil 160mg/day (history of isolated supraventricular tachyarrythmia) and ansiolitic. ECG monitoring: sinus rhythm with one supraventricular ectopy. X-Ray was normal. Transthoracic echocardiography was normal. Doppler Ultrasound (DUS) was normal on the right arterial lower limb; the left arterial lower limb showed chronic occlusion femoro-popliteal (thrombotic obliterant aneurysm) from Hunter channel to mid popliteal artery; common, superficial and profound femoral arteries with few non-obstructive plaques, with no haemodynamic repercution; venous doppler was normal. Peripheral arteriography confirmed DUS. The patient underwent left femoro-popliteal by-pass surgery (saphenous vein). However, the by-pass occluded less than 24hours afterwards. He was discharged after 72hours (patient refused reoperation) with ASA 100mg/day, Cilostazol 200mg/day and Verapamil 160mg/day. The patient began supervised exercise therapy (ExT) – walking – with gradual improvement on walking distance (WD). After 12 months, the patient underwent DUS arterial lower limbs: femoro-popliteal by-pass occluded (thrombotic obliterant aneurysm), reperfusion of tibial-fibular artery by collateral with triphasic flow and reduced amplitude. After 24 months – with unsupervised exercise – another DUS was made and showed no obstruction in right lower limb arteries in all its extention; left lower limb arteries with femoro-popliteal thrombotic aneurysm, tibial-fibular artery reperfused by great diameter collateral

with triphasic flow and normal amplitude; femoro-popliteal by-pass occluded with mid and proximal flow (recanalization) by collaterals, as well as posterior tibial artery, with triphasic flow and normal sistolic velocity. The patient maintains the same medical therapy and unsupervised walking exercise, 60 minutes/day for five days/week. Asymptomatic, no bleeding episodes.

III. Discussion

Elderly people are more sensitive to lower extremity artery diseases and one of the most important aspects in the management of LEAD is the improvement of quality of life (QoL) on the prevention of progressive functional disability. Clinical examination is important in elderly patients, but the diagnosis must be confirmed by objective tests. DUS provides extensive information on artery anatomy and haemodynamics and is the method of choice for routine follow-up after revascularization (2017 ESC Guidelines, class I level C)[2,3].

Femoro-popliteal lesion is common in claudicants, and autologous saphenous vein is the conduit of choice[3].

According to 2016 AHA/ACC Guidelines, there are two major points in the management of LEAD[3,4]. Firstly, the appropriate approach of cardiovascular risk factors, since atherosclerosis is a systemic process. Secondly, the symptoms related to occlusive vascular disease. Although the majority of patients with LEAD is asymptomatic, IC is the most common symptom clinically identified[5,6]. Pharmacological treatment with Cilostazol and regular walking exercise are important strategies to IC, and is recommended to improve quality of life, clinical symptoms and walking distance (Class I level A)[7,8].

CONFLICT OF INTEREST

None declared

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