Pharmacotherapeutic Approach to a Young Case with a Diagnosis of Chronic Partial Thrombus within Bilateral Popliteal and Trifurcation Arteries

U YETKIN, B ÖZPAK, Y ÜREKLİ, A GÜRBÜZ

Citation
U YETKIN, B ÖZPAK, Y ÜREKLİ, A GÜRBÜZ. Pharmacotherapeutic Approach to a Young Case with a Diagnosis of Chronic Partial Thrombus within Bilateral Popliteal and Trifurcation Arteries. The Internet Journal of Thoracic and Cardiovascular Surgery. 2008 Volume 14 Number 1.

Abstract
Thrombosis can occur on the arterial side of the circulation. In this study, we aimed to present our principles for pharmacotherapeutic approach to a young case with a diagnosis of chronic partial thrombus within bilateral popliteal and trifurcation arteries.

INTRODUCTION
Arterial thrombosis usually results from abnormalities in the blood vessel wall. Each has different causes, requires a different diagnostic workup, and responds to different therapies(1). Secondary prevention includes antithrombotic therapy, treatment of risk factors, and interventional treatment of arterial stenosis.

CASE REPORT
Our case was a 31-year-old male. His chief complaint was pain in his legs, worsening with walking, which initiated 2 years ago. He was a non-smoker. As his complaints started two years ago, his maximum walking distance was about 400 to 500 meters. During the last 6 months, this distance dropped to a level of 200 to 300 meters. As his complaints first started he was admitted to a health institution. Bilateral lower extremity arterial Doppler ultrasound revealed that no flow was detected in the right dorsalis pedis artery and presence of parvus et tardus flow pattern in his right posterior tibial artery (probably due to collateral circulation). Moreover, the left dorsalis pedis artery showed a monophasic pattern (Figures 1&2).
He was then recommended to use enteric-coated acetylsalicylate preparation, 100 mg per day. Yet, after a follow-up period of one year, his complaint of intermittent claudication worsened and walking distance dropped. He was admitted to the same institution. His MR angiography revealed the popliteal arterial occlusion probably secondary to popliteal entrapment syndrome and medical follow-up was recommended. He then experienced no symptomatic relief and was admitted to our clinic. His physical examination identified ankle-brachial pressure indices (ABPI) of 0.8 and 0.7 in the right and left lower extremity, respectively. A new color-Doppler investigation was performed revealing that no flow could be detected within the dorsalis pedis arteries, bilaterally. But, biphasic flow patterns were detected within both anterior tibial arteries. All the other arterial segments showed normal triphasic flow pattern (Figure 3).

For right lower extremity, a similar thrombus material was visualized at trifurcation level, reaching the proximal segments of the anterior and posterior tibial arteries. Bilateral crural arteries were patent until the level of ankle (Figure 5).
The examination of immunological panel of blood followed by consultation by the Department of Rheumatology excluded the probable pathologies owing to vasculitis. Further investigations and consultation by Department of Hematology described no pathological condition consistent with hypercoagulable state. His medical therapy was then regulated as 300 mg of enteric-coated acetyl salicylate, 75 mg clopidogrel and sodium warfarin to keep INR level between 2 and 2.5. He was also educated about elimination about risk factors. Long-term follow-up of this patient found out that his walking distance rose up to 500 meters and marked improvement in his quality of life. He still is under follow-up.

DISCUSSION

Peripheral arterial disease (PAD) is characterized by a gradual reduction in blood flow to one or more limbs secondary to atherosclerosis. Risk factors include smoking, diabetes mellitus, hyperlipidemia, and hypertension. The most common clinical manifestation is intermittent claudication (2).

PAD is a distinct atherothrombotic syndrome marked by stenosis and occlusion of peripheral arterial beds, typically those in the lower extremities. Symptoms range from intermittent claudication (IC) during exercise to peripheral limb ischemia requiring limb amputation. IC, the most common symptom, is experienced by 2% to 3% of men and 1% to 2% of women aged 60 years and older. Despite its recognition as a major atherothrombotic risk factor, PAD is not widely appreciated by clinicians, and most cases remain undiagnosed. Asymptomatic PAD, as indicated by a reduced ankle brachial systolic pressure index, should alert the health care provider to the presence of diffuse atherothrombotic disease and need for treatment (3).

The ankle:brachial pressure index (ABPI) is a useful measure of disease severity; an ABPI of 0.5-0.9 is common in intermittent claudication (2). The aim of pharmacotherapy is to improve the symptoms of PAD (especially IC), defer onset of limb-threatening ischemia, and improve long-term survival (3). The goals of therapy are to relieve or reduce ischemic symptoms, alleviate disability, improve in functional capacity, prevent progression that may result in gangrene and limb loss, and prevent cardiovascular and cerebrovascular events (2).

Antithrombotic options can include antiplatelet drugs such as aspirin, clopidogrel, or clopidogrel plus aspirin (4). Aspirin monotherapy offers a modest risk reduction for vascular death. Clopidogrel is superior to aspirin in high-risk patients suffering from stroke, MI, or peripheral arterial disease. The combination of clopidogrel plus aspirin might offer benefit in short-term secondary prevention (4). Available data suggest that aspirin reduces morbidity and mortality in PAD, while clopidogrel reduces the risk of atherothrombotic events such as myocardial infarction and stroke in these patients (3). Risk-factor modification and antiplatelet drugs are the mainstays of therapy for patients with intermittent claudication, the most common manifestation of peripheral arterial disease (2).

Warfarin sodium (Coumadin) is used most often to treat acute and recurrent venous thromboembolic disease, arterial disease, valvular heart disease, and atrial fibrillation (5). Oral anticoagulation therapy is monitored by maintaining the International Normalized Ratio (INR) and the prothrombin time in the therapeutic range.

The results of the study of Harley et al. suggest that there may be a gap between the clinical trial and coagulation clinic performance of warfarin in reducing the risk of thromboembolic events versus what is achievable in general practice (6).

The risk of bleeding during anticoagulant therapy has been evaluated in 10 recent studies of warfarin treatment for the prevention of arterial thromboembolism. The mean annual...
incidences of fatal and major bleeding was 0.5 percent and 1.6 percent, respectively, as compared with the placebo figures of 0.1 percent and 0.6 percent, respectively. The reasons for the reduction in incidence may be less intensive anticoagulant treatment than formerly, improved laboratory control by the introduction of the International Normalized Ratio, and careful pretreatment evaluation of patients selected for clinical trials(7).

References
Author Information

Ufuk YETKİN
Clinical Deputy Chief in CVS, Assoc. Prof., Department of Cardiovascular Surgery(CVS), İzmir Atatürk Training and Research Hospital

Berkan ÖZPAK
Resident in CVS, Department of Cardiovascular Surgery(CVS), İzmir Atatürk Training and Research Hospital

?smail YÜREKLİ
Chief Resident in CVS, Department of Cardiovascular Surgery(CVS), İzmir Atatürk Training and Research Hospital

Ali GÜRBÜZ
Clinical Chief in CVS, Assoc. Prof., Department of Cardiovascular Surgery(CVS), İzmir Atatürk Training and Research Hospital