

## May Iliac Vein Thrombosis Induce Iliac Artery Stenosis?

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### Introduction

Arterial atherothrombotic disease (acute myocardial infarction, ischemic stroke and peripheral artery disease) and venous thromboembolism have long been viewed as separate pathophysiological entities with distinct clinical presentations. Nevertheless an increasing number of evidence suggest that this distinction seems to be an oversimplification. Atherosclerosis and venous thromboembolism (VTE) share common risk factors, including age, obesity, diabetes mellitus and metabolic syndrome; and their potential association has already been described by other authors.

### Case Report

In February 2010 a 69-year-old man with a history of previous stroke and hypertension, was hospitalized for the onset of sudden dyspnea. A pulmonary computerized tomographic angiogram (CTA) showed the presence of endoluminal opaqueness defects related to athromboembolic phenomena in the distal left pulmonary artery, in its lateral segmental branches and in the right pulmonary artery, in its lobar and segmental branches. Doppler ultrasound imaging showed patency of lower extremity arteries and veins. While a total body CTA pointed out a thrombosis of the left iliac vein. The clinical history and the research of biochemical markers of thrombophilia (factor V Leiden, prothrombin G20210A, antithrombin III, protein C, protein S deficiency, and hyperhomocysteinemia) did not revealed known risk factors for venous thromboembolism. The patient was treated with low molecular weight heparin and than warfarin and discharged after ten days. Nine months later the patient was again hospitalized for the onset of claudicatio intermittens. A Doppler ultrasound of the lower limbs has pointed out a severe stenosis of the left iliac artery. Pulmonary CTA has shown the resolution of pulmonary embolus. The patient underwent arteriography with the insertion of a stent in femoral artery. Serum analysis, performed after a 12-h fast during the two hospitalization showed glycaemia 97 mg/dl, BUN 60 mg/dl, creatinine 0.94 mg/dl, cholesterol 110 mg/dl, HDL-cholesterol 25 mg/dl, triglycerides 175 mg/dl.

### Discussion

Clinical experience shows, that the arterial atherothrombotic disease can be associated with venous thrombotic disease. This link is an interesting but debated question. Atherothrombosis and deep venous thrombosis have many common risk factors such as age, obesity, diabetes mellitus and metabolic syndrome, while uncertainty remains the role of other risk factors such as smoking, hypertension and hyperlipidemia [1,2]. The potential association between venous thromboembolism and atherosclerosis was described for the first time in 2003, by Prandoni et al, through a five years duration prospective case control study [3]. This study demonstrates a relation between asymptomatic atherosclerosis lesions and deep venous thrombosis of

the leg, even if the predominant interest was focused on the development of recurrent deep venous thrombosis and the postthrombotic sequelae. In another study published in 2006, by Prandoni et al, a number of 1919 patients with a first episode of deep venous thrombosis, were followed up for the incidence of symptomatic arterial disease (such as: ischemic stroke, ST-elevation or non ST-elevation acute coronary syndromes, peripheral arterial disease, and systemic hypertension). After a median follow-up of about 4 years, at least one arterial event occurred in 15.1% of patients with idiopathic deep vein thrombosis when compared to 8.5% in patients with secondary deep venous thrombosis [1]. Subsequently other clinical studies have reported an increased risk of VTE events in patients affected by peripheral arterial disease, coronary artery calcification, intima-media thickness increase of carotid and femoral arteries or carotid plaques [4,5]. Nevertheless, other researches have not found a relationship between arterial lesions and venous thrombosis [6-8]. In our patients, probably the left iliac artery atherosclerotic stenosis is subsequent to the venous thrombosis strengthening the hypothesis of common local inflammatory pathways between arterial and vein thrombosis. Certainly other studies occur to clarify the nature of association between atherothrombotic disease and deep vein thromboembolism but these initial findings have several implications for medical practice. Patients with idiopathic deep venous thrombosis could be examined for asymptomatic atherosclerosis using carotid ultrasonography, ankle-brachial blood pressure index and electrocardiography, in order to modify the risk profile in those with abnormal test results.

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