

Case report

*Corresponding author

Konstantinos M. Nikolakopoulos, MD, MSc
 Department of Vascular Surgery
 University General Hospital of Patras
 26504, Rio, Patras, Greece
 Tel. 0030 6972452643
 E-mail: konstantinosn@yahoo.com

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Acute Digital Ischemia In a 30-Year Old Man: A Case Report

Konstantinos M. Nikolakopoulos, MD, MSc^{*}; Stavros Kakkos, MD, MSc, PhD, DIC, RVT; Chrysanthi P. Papageorgopoulou, MD; Spyros I. Papadoulas, MD, PhD; Ioannis Ntouvass, MD, MSc, PhD; Anastasia Kouri, MD; George Lambropoulos, MD, PhD; Ioannis A. Tsolakis, MD, PhD

Department of Vascular Surgery, University General Hospital of Patras, 26504, Rio, Patras, Greece

ABSTRACT

Objective: To report a rare case of acute digital ischemia at a young man.

Methods: A 30-year old man presented with painful bluish discoloration of the toes and palpable pedal pulses.

Results: Physical evaluation and urgent angiography revealed a severe stenosis of the right common iliac artery. Treatment started with a low molecular weight heparin for fifteen days and completed with a bilateral common iliac artery angioplasty after two months.

Conclusion: Blue toe syndrome is considered a relatively frequent manifestation of limb ischemia, especially in elderly patients. Treatment is based on surgical or percutaneous elimination of the source of embolisation and restoration of arterial perfusion. In this case report, we present an unusual case of blue toe syndrome caused by a severe common iliac artery stenosis at a 30-year-old male patient. Blue toe syndrome is a rare manifestation of peripheral arterial disease at younger patients, but physicians should be aware of this in order to include it in the differential diagnosis of acute lower limb ischemia.

KEYWORDS: Blue toe syndrome; Occlusion of small vessels; Emboli; Thrombi; Digital cyanosis; Angioplasty.

INTRODUCTION

Blue toe syndrome, described by Karmody in 1976¹ was the most common clinical manifestation of tissue ischemia, caused by small vessels occlusion, resulting to limb loss or even death.² The main symptom was a spontaneous onset of a painful bluish discoloration of the toes, usually in elderly patients, without vasospasm and with skin lesions related to the occluded artery. Differential diagnosis includes Raynaud's syndrome, a common cause of digital discoloration in young patients, usually, due to vasospasm disorders or rheumatological disorders. The most common causes of blue toe syndrome are aneurysms, atherosclerotic disease and microemboli due to acquired hypercoagulable disorders. Keen et al, reported that 85% of the emboli arises from aorto/iliac occlusive or aneurysmal disease.³ Aneurysms located on the aorto-iliac and/or femoro-popliteal arterial system and the ulcerated atherosclerotic plaque can typically lead to embolisation, which manifests spontaneously.⁴ Episodes of microembolisation can appear on elderly after vascular or endovascular surgical procedures regardless being covered by anticoagulation. The blue toe syndrome can be misdiagnosed on initial presentation, due to the often palpable pedal pulses which can mislead the physician to a non-vascular pathology diagnosis. Therefore, diagnosis can be most frequently confirmed by muscle and/or skin biopsy and fundoscopic examination which identifies the cholesterol crystals. Although surgery is the appropriate treatment for patients with aneurysms, for all the other causes of blue toe syndrome, surgery is rarely indicated because the origin of the emboli is not certain. Mild forms of the syndrome can subside without consequences and in some

cases endovascular procedures (angioplasty with or without stenting) can eliminate the emboli source and substitute the need for reconstructive surgery.⁵ Herein, we present a case of blue toe syndrome, which occurred in a young male.

CASE PRESENTATION

A 30-year-old Caucasian male presented at the emergency department of our hospital, with cyanosis and acute pain on the second, third and fourth toe of his right foot (Figure 1a). The patient was a heavy smoker and had untreated hypercholesterolemia, due to family history.



Figure 1a: Bluish discoloration of the toes.

Physical examination revealed a normotensive, obese male with fixed toe cyanosis of the right foot and palpable pedal pulses, but with an insidiously weak right femoral pulse. The laboratory testing revealed normal white cell count (9.897 k/ml with an eosinophil count of 1.8%) and normal serum creatinine (0.8 mg/dl).

Urgent angiography of the aorta and the arteries of the lower limbs revealed a severe stenosis of the right common iliac artery and a mild stenosis of the left one (Figure 1b). Aspirin and statin were prescribed and the patient was treated as an outpatient with a low molecular weight heparin (Tinzaparin sodium 14.000 [iU]/0.7 mL) for fifteen days. After two months the patient was readmitted for scheduled bilateral common iliac angioplasty and was discharged two days afterwards.



Figure 1b: Angiography revealed severe stenosis of the right common iliac artery.

DISCUSSION

Although blue toe syndrome most commonly appears in elderly men after invasive vascular procedures and is associated with cholesterol crystal embolisation, our patient was a young male with no history of invasive vascular procedure or symptoms of peripheral arterial occlusive disease. Prior to the cyanosis of the digits, pain was the main symptom. We ruled out all possible causes and concluded to the extensive iliac atherosclerotic stenosis, regardless the patient's age. In such cases, it is mandatory to eliminate the risk factors of atherosclerosis and control the extension of tissue lesion, even though the treatment of pain is often disproportionate. The administration of aspirin⁶ can help temporarily restore the circulation and relief the pain, but anticoagulation should be discontinued.⁷ Antiplatelet therapy is the cornerstone of conservative medical treatment for blue toe syndrome and in this case, after the diagnosis was made, we started treatment with low weight heparin for fifteen days. The aim of this treatment was to eliminate the source of emboli and the need for surgical operation as the patient was at a young age.

In conclusion, the most commonly responsible arterial part for symptomatic embolisation is the aorto-iliac axis. The manifestation of digital cyanosis can range from an isolated cyanotic toe to a multiorgan system disease. Due to the palpable distal pulses, progression to gangrene is unusual, while treatment should include elimination of the embolisation source by conservative or invasive means. In order to determine the origin of emboli it is highly useful to order a non-invasive vascular testing and imaging, echocardiography and angiography of aorta and peripheral arteries. Surgery remains the indicative treatment for patients with aneurysms, but antiplatelet therapy is one of the most effective treatments in mild cases of the syndrome. Our case is a good example of the manifestation of the blue toe syndrome in a 30-year-old young male.

DECLARATION OF CONFLICTING INTERESTS

The authors report no financial relationships or conflicts of interest regarding the content here in.

ETHICAL APPROVAL

Our institution does not require ethical approval for reporting individual cases or case series

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INFORMED CONSENT

Verbal informed consent was obtained from the patient for her anonymized information to be published in this article.

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