SHORT REPORT

Presence of Cryofibrinogen in a Cannabis user with Digital Ischaemia

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Submitted 21 November 2009; accepted 21 February 2010

KEYWORDS
Digital ischemia;
Cryofibrinogenemia;
Thromboangiitis obliterans;
Cannabis Arteritis

Abstract
The aim of this study was to discuss causes of digital ischaemia. We report the case of a 29-year-old woman presented with an ischaemic involvement of two fingers of her right hand. She was a tobacco and cannabis user. Blood tests showed the presence of cryofibrinogenemia. We discuss the putative causes of finger necrosis in this patient, that is, thromboangiitis obliterans (Buerger disease), cannabis arteritis and cryofibrinogenaemia. Cannabis arteritis is thought to be a particular form of thromboangiitis. Cannabis and contaminating arsenic have probably noxious arterial effects. In conclusion, cannabis arteritis should be considered in case of digital arteritis and search for cannabis use should be performed in this case. Search for cryofibrinogenaemia could be useful in patients with digital ischaemia.

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Introduction
Thromboangiitis obliterans (TAO), also called Buerger disease, and cannabis arteritis (CA) are two distal arteritis that share clinical manifestations and angiographic findings leading to nosological problems. Cryofibrinogen (CFG) can also cause digital ischaemia. We report the case of a young woman with a history of tobacco and cannabis use who presented with finger necrosis with positive cryofibrinogenaemia and vascular findings mimicking TAO or CA.

Report
A 29-year-old woman with tobacco and cannabis use was hospitalised in winter for painful digital necrosis of the forefinger and the third finger of her right hand (Fig. 1). Her past history was unremarkable. She denied any diabetes, hypertension or hypercholesterolaemia. She had a 1-month history of Raynaud’s phenomenon with polyarthralgia with typically inflammatory rhythm. Nifedipin was introduced by her practitioner. She was admitted to the hospital because the pain was worsening. On physical examination, the right radial and ulnar pulses were palpable; both posterior tibial pulses were palpable as well; and there was no synovitis. The patient had biological signs of inflammation (C reactive protein = 37 mg l⁻¹). Tests for immunological abnormalities were negative for antinuclear antibodies,
rheumatoid factor, anti-neutrophil cytoplasmic antibodies, antiphospholipid antibodies and anti-cardiolipin antibodies. Search for CFG was positive, whereas cryoglobulin was negative. Search for thrombophilia (including proteins S and C, antithrombin III, and resistance to activated C protein) was negative. Blood glucose and cholesterol levels were normal. Arterial angiography of the upper limbs revealed distal occlusion of radial and ulnar arteries. Palmar arches were vascularised by thin collateral arteries (Fig. 2). There were neither proximal atheromatous lesions nor a cardiac cause of embolisation. Doppler echography of the arteries of inferior limbs showed distal occlusion of the left posterior tibial artery with a poor collaterality. Radiography of the painful joints was normal. Local treatment, Aspirin 160 mg day\(^{-1}\) and intravenous iloprost during 28 days led to a resolution of the pain and wound healing of the ulcer. The patient was discharged from hospital with nicotine substitution.

After 3 months, the patient presented with necrosis of the right forefinger and the third finger of the left hand. She did not stop tobacco and cannabis intoxication. Intravenous iloprost for 10 days with amlodipine 5 mg day\(^{-1}\) was started, leading to ulcer healing. The use of tobacco and cannabis use was stopped.

Discussion

CFG is a rare disease, which may be idiopathic or secondary to an underlying disease (inflammatory process, malignancy, diabetes, collagen vascular or thrombo-embolic diseases and infections). Prevalence of idiopathic CFG is about 3%.\(^1\) CFG is often asymptomatic, but symptoms reported are sensitivity to the cold, Raynaud’s phenomenon, cutaneous purpura, tissue ischaemia and gangrene. CFG is diagnosed by demonstrating reversibly precipitates in blood plasma cooled at 4°C, not in serum. Various drugs (such as streptokinase, stanozolol, prednisone associated with azathioprine or chlorambucil) have been tried to treat idiopathic CFG.\(^2\) The most effective treatments are prevention to cold exposure and antiseptic wound care. In our case, symptoms presented can be explained with idiopathic CFG, but local treatment was not effective to heal ulcers.

TAO (also named Buerger’s disease) is a relatively rare disease of peripheral blood vessels, affecting small- and medium-sized arteries and veins. Symptoms include superficial venous thrombosis, Raynaud’s syndrome, necrosis and distal ulceration in tobacco users.\(^3\) According to Puechal et al.,\(^4\) 12.5% of these patients present with involvement of joints. Angiography can be helpful if there are segmental distal occlusive lesions, with corkscrew-shaped collateral vessels, without any proximal arterial involvement. TAO is supposed when other alternative diagnoses as CA are eliminated. Treatment includes smoking cessation, intravenous prostanoids and anti-platelet drugs. The difference between TAO and CA is difficult to define because both are responsible for juvenile arteritis. In our observation, the use of tobacco and cannabis makes vascular diagnosis difficult. CA could be a particular form of TAO. Indeed, cannabis can probably cause arterial damage. Arterial involvement caused by contaminating arsenic is also possible. Nevertheless, medical treatment of both distal arteritis is the same, including intoxication cessation.

TAO has been described in association with thrombophilic states (antiphospholipid antibodies, hyperhomocysteinaemia and protein S deficiency).\(^2\) CFG may be
sought for in atypical distal arteritis with sensitivity to the
cold in order to apply prevention to the cold exposure.

Conflict of interest/funding

None.

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