

CASE REPORT

Cannabis arteritis: ever more important to consider

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SUMMARY

Cannabis arteritis (CA) is a major and underdiagnosed cause of peripheral arterial disease in young patients. A 34-year-old man, daily smoker of 20 cigarettes and two cannabis cigarettes for 14 years, presented with a necrotic plaque of left hallux for 3 weeks. The Doppler ultrasound and angiography were compatible with severe Buerger's disease. Submitted to a revascularisation procedure and hypocoagulation with rivaroxaban. He had ceased smoking but maintained consumption of cannabis. Owing to the persistence of distal necrosis, amputation of the hallux was performed with good evolution. CA is a subtype of Buerger's disease. It is poorly known but increasingly prevalent and manifests in cannabis users regardless of tobacco use. The drug is considered at least a cofactor of the arteriopathy. The most effective treatment is cessation of consumption. Being cannabis one of the most consumed drugs, its mandatory to ask about its use in all young patients with arteriopathy.

BACKGROUND

Cannabis is one of the most used drugs in the world and has been associated with arterial diseases like stroke, myocardial infarction and arteritis.¹⁻³ Cannabis arteritis (CA) was first described by Stern and Ducastaing in 1960⁴ but fewer than 100 cases were reported in the literature since then. The authors present a possible case of CA highlighting the importance of the clinical suspicion and close clinical follow-up in this diagnosis. The condition is likely widely underdiagnosed.

CASE PRESENTATION

The authors present a 34-year-old man admitted for a painful necrosis of the left hallux. The patient revealed that the necrotic lesion had arisen 3 weeks before but referred a previously erythematous and oedematous plaque of the distal extremity of the left leg with about 6 months of evolution. This plaque had been previously treated for a cellulitis without any improvement. He had no cardiovascular risk factors. The patient had no relevant personal or family background. He smoked tobacco (~20 cigarettes a day) and cannabis (about two cigarettes a day) for over 14 years. He denied using other drugs.

The clinical observation revealed an erythematous and oedematous plaque of the distal left leg that condition an evident asymmetry of colour and volume relative to the contralateral limb. On the pulp of the left hallux we noticed an exudative ulcerated lesion partially covered by a necrosis plaque (figure 1). No clinical signs of infection were present. He presented no signs of

claudication. The pedal pulses were not palpable in both feet and neither was the left popliteal pulse.

A prompt search for thrombophilic factors and immunologic diseases proved negative. Blood glucose, calcium and lipids were normal.

Doppler ultrasonography of the lower limbs was performed and showed supragenicular popliteal occlusion of the left lower limb and absence of Doppler signal in the anterior tibial artery of the same leg. The Ankle-Brachial Index was 0.67 on the left and normal on the right.

Lower limb arteriography showed permeability of the aortoiliac sector bilaterally but occlusion of the peroneal and anterior tibial arteries as of the plantar arch in both legs (figures 2 and 3). Additionally, it showed occlusion of the supra-articular popliteal artery in the left leg (figure 4).

Attending to the clinical features including the patient's young age, heavy smoking and the arteriographic findings, a presumable diagnosis of thromboangiitis obliterans (Buerger's disease) was made.

The patient agreed to a revascularisation procedure and an autoexpandable stent was placed on the left popliteal artery. After the procedure, the left distal pulses were palpable. Hypocoagulation was initiated with rivaroxaban 20 mg a day. The need to stop his smoking habits was explained to the patient.

After a 2-month follow-up, however, the necrotic lesion had not improved, there was a recurrence of the pain and the left distal pulses weren't palpable. The patient admitted to maintain consumption of cannabis but affirmed to stop smoking tobacco since he was instructed to do so.

After 6 months of the revascularisation procedure, the lesion and the pain were still maintained and clinical signs of infection showed and amputation of the left hallux was finally required. The patient was instructed to cease the cannabis use.

OUTCOME AND FOLLOW-UP

After a 6-month follow-up, the patient declared that he had stopped smoking cannabis, and there was complete resolution of the pain and a good clinical outcome of the left hallux stump.

Attending to this clinical evolution of absence of improvement with tobacco smoking cessation and progression of the disease with maintenance of cannabis use, a presumable diagnosis of CA was made.

DISCUSSION

When peripheral arterial disease is found in a young individual, the main causes for juvenile arteritis should be considered: atherosclerotic disease, systemic and autoimmune diseases and thromboangiitis obliterans (or Buerger's disease).⁵



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Figure 1 An exudative ulcerated lesion partially covered by a necrosis plaque on the pulp of the left hallux.

In our patient, there was no cardiovascular risk factor other than smoking and the screening for systemic and autoimmune diseases was negative. Our patient met the criteria for thromboangiitis obliterans as he was <45 years old, presented peripheral ischaemia without other cause of arterial disease, was a tobacco smoker and presented compatible arteriographic findings.⁵ However, the clinical course was not compatible with Buerger's disease because even with smoke cessation, the disease continued to evolve. This outcome gives room to consider cannabis at least as a cofactor of the arteriopathy.

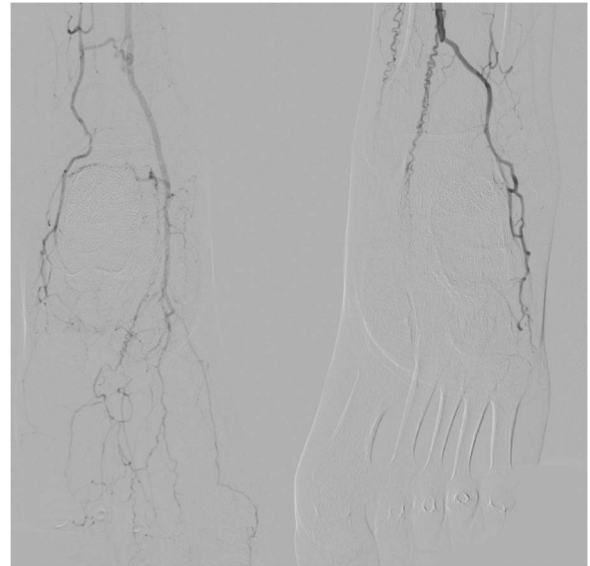


Figure 3 Occlusion of the plantar arch of both feet. Note the arterial poverty of the feet.

CA was first described in 1960⁴ but since then fewer than 100 cases were described in the literature. However, CA seems to be an underdiagnosed disease because of its clinical and imagiological resemblance to Buerger's disease.

This pathology seems to be more frequent in young men and most patients reported to be consumers of tobacco and cannabis.⁶ This consumption varies from light to heavy (up to 20 tobacco cigarettes and up to 15 cannabis cigarettes a day).⁴

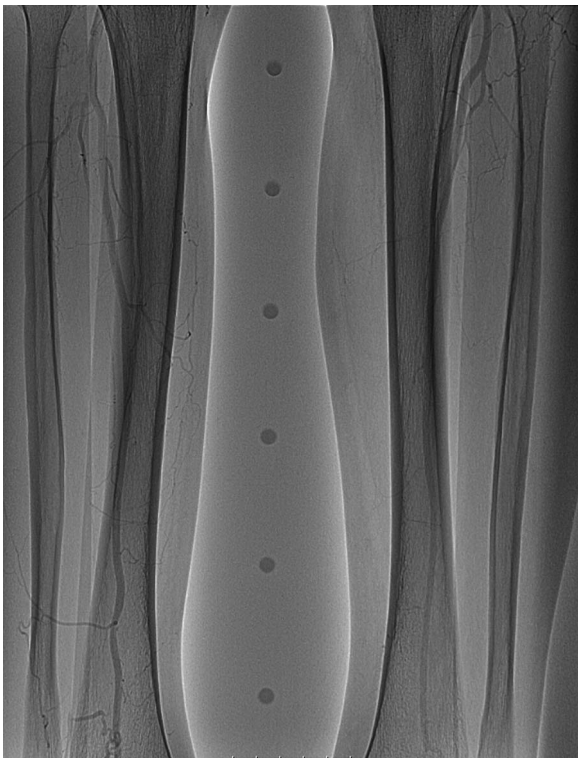


Figure 2 Occlusion of the anterior tibial artery and peroneal artery in both legs.



Figure 4 Occlusion of the supra-articular popliteal artery in the left leg. Note the collateral vessels.

Interestingly, more than 40% of the patients with thromboangiitis obliterans assumed to be also cannabis smokers.⁷

Clinically, CA manifests with claudication, acral pain, sub-acute distal ischaemia (predominantly but non-exclusively of the lower limbs) and early disappearance of distal pulses.⁵

Doppler ultrasonography and arteriography are the imagiological exams of choice to study peripheral arterial diseases. Unlike atherosclerosis, typical calcified plaques of atherosclerosis along proximal arteries are usually not seen in CA.³ Arteriography reveals distal segmental stenosis that are often bilateral, a poor distal vascularisation and a weakly developed collateral vessels network.^{6 8 9} In our patient, we found bilateral occlusion of the peroneal artery, anterior tibial artery and plantar arch, as well as, of the left popliteal artery. This translates an extremely severe case.

Comparatively with Buerger's disease, the only truly effective treatment of CA is the cessation of the respective consumption. If this is achieved, the prognosis is excellent but if otherwise, the patient does not comply, symptoms progress and it can lead to amputation in up to 40% of cases.^{3 10} Also if the abuse is resumed, the disease recurs. Other medical treatments have been proposed with various results like vasodilator drugs (prostaglandins),³ platelet aggregation inhibitors (acetylsalicylic acid)³ or anticoagulant drugs (heparin).⁵ Hyperbaric oxygen therapy has been used for severe cases. However, without cessation of the abuse, none of these therapeutic options are sufficient. The surgical approach is generally not an option attending to the distal localisation of the lesions, being the amputation a last resort for refractory cases.^{6 8 9}

Attending to the similarities in terms of clinical and arteriographic findings and clinical evolution, most authors consider CA as a subtype of thromboangiitis obliterans.^{3 6 10-12} As main

differences, one must highlight obviously the object of addiction (cannabis vs tobacco) and it seems that the network of collateral vessels in thromboangiitis obliterans is better developed than in CA.⁵

The pathophysiology of CA has been a matter of debate. At least part of CA pathogenesis can be explained by the vasoconstrictor effects of Δ -9-tetrahydrocannabinol, the primary psychoactive constituent of cannabis.¹³ However, attending to the coabuse of cannabis and tobacco in almost all of patients with CA, a probable pathogenic role of a possible common contaminant of cannabis and tobacco has been proposed. In this field, arsenic could be this contaminant, impairing angiogenesis through inhibition of vascular endothelial growth factor and inducing endothelial cell apoptosis.¹⁰

In conclusion, cannabis is at least a cofactor of arteriopathy and, as one of the most consumed drugs in the world, asking about its use should be mandatory in all young patients with peripheral arterial disease.

Contributors The authors RPS and APV contributed to the planning, conducting and reporting of the work. The authors RPS, CIPR and CB contributed to the conception and design of the work. All the authors are responsible for the overall content.

Competing interests None declared.

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Learning points

- ▶ Cannabis arteritis (CA) is a probable underdiagnosed cause of peripheral arterial disease in young patients.
- ▶ The pathogenic role of Δ -9-tetrahydrocannabinol and a possible common contaminant of cannabis and tobacco have been proposed.
- ▶ CA is considered a subtype of thromboangiitis obliterans as the clinical and arteriographic findings are similar in both diseases.
- ▶ The main treatment is stop the abuse of cannabis but the symptoms recur if the abuse is resumed.
- ▶ Amputation is often needed if cannabis consumption is not stopped.

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