Vascular effects of cannabis: Case report and review of literature

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Abstract

Marijuana is the 3rd most popular recreational drug and the use of recreational and medical marijuana has been legalized in several states. Knowledge of both acute and chronic adverse effects of cannabis is essential when counseling the public. We report 2 cases who developed arteritis and Raynaud’s as a sequel of long term cannabis use and provide a literature review.

Introduction

Marijuana was first suggested to be used for medicinal benefit almost 4000 years ago by Chinese emperors [1] and from 1851 to 1942, marijuana was listed as a medication [2]. Despite, this history, marijuana was regarded as a dangerous substance with no additional medical benefit by the United Nations Single Convention on Narcotic Drugs of 1961 [3]. Several countries have legalized use of medical marijuana. Cannabis use has doubled over the past decade [4]. In 2014, an estimated 22 million people were using the drug [5]. With increasing legislation for the recreational and medicinal use of cannabis, knowledge of the short and long term adverse effects of cannabis is paramount for appropriate counseling. We report 2 cases of cannabis induced arteritis and Raynaud’s that occurred after long term use of cannabis.

Key words: Cannabis, Vasculitis, Raynoua, Thromboangiitis obliterans, Connective tissue disease.

Case One

A man in his 50’s, was admitted with a six week history of cool, painful, purplish fingertips of both hands. He was diagnosed with presumed new onset Raynaud’s one month previously which did not respond to nifedipine. Subsequently he was hospitalized with progressive symptoms, and tissue necrosis affecting the tips of digits 2-5 of both hands as well as new purplish discoloration of two of his toes. Preceding symptoms included decreased appetite and a several pound weight loss. He had forty pack year history of tobacco and had quit 8 years previously. At the time of admission, he had been smoking marijuana on a daily basis for several years, up to ten joints a day, and reported a recent increase in use due to hand pain. He denied other illicit drugs. Nifedipine was his only medication.

Physical examination revealed a middle aged man who appeared well. His vital signs were stable. The tips of fingers 2-5 bilaterally were cool and tender to palpation. Eschar formation was present on all digits distal to the DIP joints sparing the right fourth finger and bilateral thumbs with purplish discoloration extending proximal to the eschar. Radial pulses were strong, but ulnar pulses were absent bilaterally with positive Allen’s test. The patient also had tenderness and purplish discoloration of his right fourth and fifth toes. No neurologic deficits or synovitis was appreciated.

A complete blood cell count was only notable for platelets of 456,000. His serum creatinine and urinalysis were normal. Liver studies were significant for a mildly elevated ALT of 39 and his ESR was 31. Urine drug screen was positive for cannabinoid. Serum complements were slightly elevated with a C3 of 175 and C4 of 56. Studies for hepatitis B, hepatitis C, rheumatoid factor, anti-neutrophil cytoplasmic antibodies, antinuclear antibody, cryoglobulins, fasting glucose, serum protein electrophoresis, HIV, anticardiolipin antibodies, lupus anticoagulant, beta2-glycoprotein, factor V Leiden, and prothrombin gene were normal.

A chest radiograph revealed hyperexpanded lungs compatible with chronic obstructive pulmonary disease. Electrocardiogram and transthoracic echocardiogram, electromyography and nerve conduction studies were all normal. Angiography revealed loss of contrast flow to both ulnar arteries at the wrist level, poor filling of the superficial palmar arches, and no contrast flow to the left fifth and right second, third, and fourth digit arteries. Arteries supplying the thumbs were relatively spared. Subclavian, axillary, and brachial arteries were patent. In the right lower extremity there was no visible planter arch and absent filling of distal arches. There were no corkscrew-like collateral vessels noted.

Upon admission, he was started on prednisone 1 mg/kg/day and low dose aspirin and continued on nifedipine. Patient was advised to stop smoking marijuana. His hand pain decreased and purplish discoloration to his hands began to regress. Prednisone was eventually tapered down to 5 mg per day. Nevertheless, patient still required amputation of his left third and right fifth digits. Repeat arteriogram nine months later revealed slight progression and exam revealed purplish discoloration to his left thumb. Patient admitted to a recent lapse of marijuana usage. His urine drug screen tested positive for cannabis.
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Case One

A 25-year-old man presented to the emergency department after 6 hours of diffuse right upper extremity pain. He also noted several episodes of Raynaud’s phenomenon. On physical examination, there was severe tenderness and redness in the right upper arm and forearm. The radial artery was palpable, but a strong arterial pulse could not be felt in the hand. The Allen test was positive. The hand temperature was cooler than the arm and forearm. There was no evidence of cyanosis or pallor. The radial artery was palpable in the right wrist, but the pulse could not be felt in the hand. The patient reported using marijuana and smoking cigarettes daily. There was no history of other illicit drug use. Laboratory tests showed a high erythrocyte sedimentation rate (ESR) and a positive antinuclear antibody (ANA) test. Arteriography revealed severe stenosis of the radial and ulnar arteries in the right upper extremity. The patient was treated with antiplatelet therapy and a recommendation for a surgical consultation. He was also advised to stop smoking and use marijuana.

Discussion

In our first case, the patient’s presentation is consistent with the clinical features of Buerger’s disease, a vasculitis mainly affecting the small and medium-sized arteries and veins. The patient’s symptoms improved significantly after cessation of smoking and marijuana use, which supports the hypothesis that these substances may contribute to the disease process.

Case Two

A 28-year-old man presented with new onset of claudication and intermittent claudication in the left upper extremity. He had a history of smoking cigarettes and marijuana. On physical examination, there was a decreased pulse in the left hand and a cold sensation in the fingers. The Allen test was positive, indicating a reduced blood flow to the hand. Arteriography showed complete occlusion of the ulnar artery at the level of the wrist. The patient was treated with antiplatelet therapy and a referral to a vascular surgeon for possible surgical intervention. He was also advised to stop smoking and use marijuana.

Discussion

In our second case, the patient’s presentation is consistent with the clinical features of cannabis arteritis. The patient’s symptoms improved significantly after cessation of smoking and marijuana use, which supports the hypothesis that these substances may contribute to the disease process.

References

revascularization is generally not attempted because small peripheral arteries are most commonly involved; the only definitive treatment for cannabis arteritis is discontinuation of cannabis use.

The observation in these 2 cases, demonstrates that cannabis may represent a possible cofactor in the pathogenesis of Raynaud’s, and arteritis. Due lack of follow up and unpublished reports, at this stage, we cannot comment on association between cannabis smokers and connective tissue disease. However, a number of authors have touted the importance of searching for cannabis use in all young patients with peripheral obstructive arteriopathy as cannabis weaning can lead to significant improvement in cannabis arteritis. This is even more true as cannabis usage is becoming legalized in more states and as the medical indications for marijuana continues to increase.

References

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