

# Cannabinoid Hyperemesis Syndrome: Cyclic Vomiting, Chronic Cannabis Use, and Compulsive Bathing

by Vikram Budhraja, Tarun Narang, Sulaiman Azeez

**Marijuana is an illicit, but frequently used drug. Recently, a syndrome characterized by chronic marijuana use, cyclic vomiting, and compulsive bathing has been described in the literature. We report the third case of Cannabinoid Hyperemesis in the United States and its complete symptomatic resolution following abstinence from marijuana. This case represents the first reported case of Cannabinoid Hyperemesis in the Hispanic population. The case reported also demonstrates the earliest development of symptoms following habitual marijuana use and suggests a need to clearly define the characteristics of newly emerging diagnosis.**

## INTRODUCTION

**M**arijuana is one of the most frequently abused illicit substances in the United States (U.S.) (1). Cannabinoid Hyperemesis Syndrome was first reported recently in the literature with a series of patients exhibiting a triad of symptoms: cyclic vomiting, chronic marijuana use, and compulsive bathing (2–4). These patients have recurrent episodes of self-limited nausea and vomiting lasting a few days, and are asymptomatic between episodes. Acutely, these patients are managed conservatively with intravenous fluids, antiemetics, and acid suppressive therapy. Reports of patients from Australia and the Netherlands have shown resolution of symptoms upon abstinence from marijuana. We present a case of a 19-year-old Hispanic man with cyclic vomiting, chronic marijuana abuse, and compulsive bathing. This is the first reported case of Cannabinoid Hyperemesis Syndrome within two years of habitual marijuana use (as opposed to 10 years in other reported cases), the third reported case in the U.S., and the first in the Hispanic population (5,6).

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## CASE REPORT

A 19-year-old Hispanic man presented to the emergency department with nausea and vomiting for three days, and daily marijuana use for the last 18 months. He was admitted for intractable nausea, non-bilious non-bloody vomiting 10–12 times per day, and epigastric pain. Nausea was relieved by hot showers, and he reported taking up to 20 hot showers daily. He had been admitted five times at regular intervals over the last eight months with similar episodes. During each admission, he received supportive care and all diagnostic tests including abdominal imaging studies were negative. Symptoms resolved typically in three-to-five days and he remained symptom free between episodes. He had been compliant with Pantoprazole that was prescribed earlier. Vital signs at presentation were normal and examination revealed mild epigastric tenderness. Laboratory exam was unremarkable except for mild hypokalemia and urine toxicology positive for tetrahydrocannabinol (THC).

He was admitted for gastritis and treated with intravenous fluids, acid suppressive medications, and antiemetic therapy. Esophagogastroduodenoscopy revealed gastritis and *Helicobacter pylori* testing via mucosal biopsy was negative. His symptoms resolved by the next day. Having elicited a history consistent with Cannabinoid Hyperemesis Syndrome, the patient was counseled to stop marijuana use and referred to a substance abuse program.

On follow-up, five months later, he has abstained from marijuana use, has had no recurrent episodes of nausea or vomiting, and showers just once daily.

### DISCUSSION

Marijuana is a popular recreational drug despite its illicit status. Prevalence of marijuana use in the U.S. is 4% and has significantly increased among adults. Marijuana abuse and dependency significantly increased in young black and Hispanic men (1). However, less than 30 cases of Cannabinoid Hyperemesis Syndrome have been reported in the literature, only two of which are from the U.S. We suspect that Cannabinoid Hyperemesis Syndrome is much more common than currently recognized, and a study is currently underway at our institution to estimate this prevalence.

Tetrahydrocannabinol (THC) is the major psychoactive ingredient in marijuana and acts on endogenous cannabinoid receptors CB1 and CB2. CB2 receptors are expressed in various immune cells and their biological role is currently being characterized. CB1 receptors are expressed primarily in the brain and are thought to be responsible for most of the known effects of marijuana use, such as euphoria and appetite stimulation. Marijuana continues to be used medicinally as an anti-emetic and appetite stimulant, especially in patients receiving chemotherapy (7). However, another study showed that gastric emptying was significantly delayed by THC in healthy volunteers, an effect unexpected for an anti-emetic (8). Cannabinoid Hyperemesis Syndrome is a paradoxical reaction occurring with prolonged THC exposure, resulting in recurrent bouts of nausea and vomiting on a weekly or monthly basis with complete symptom resolution between episodes. This alternating pattern is seen against a background of continuous marijuana use, obscuring a straightforward cause and effect relationship. Physician unfamiliarity with this entity leads to a delay in diagnosis. While the mechanism of this syndrome remains unknown, it may involve chronic dysregulation of the endogenous cannabinoid system or overwhelming episodic gastroparesis. Further studies on cannabinoids and their effect on GI motility may help elucidate the involved pathways.

Transient symptomatic relief from nausea by hot showers is a unique and interesting characteristic of this syndrome. The extent to which this behavior is adopted in the case presented is consistent with the previous reports

of an almost universal tendency to bathe compulsively, even to the point of inappropriately warranting a diagnosis of Obsessive-Compulsive Disorder (9). Duration of marijuana use preceding symptoms is another interesting facet of this case. Until now, all reported cases have involved habitual marijuana use for approximately 10 years preceding diagnosis. In contrast, the duration of marijuana exposure in the case presented here was 18 months. This suggests a need to redefine 'habitual marijuana use' in the context of this syndrome and emphasizes the importance of consideration of this diagnosis in patients with cyclic vomiting and marijuana use.

### CONCLUSION

Cannabinoid Hyperemesis Syndrome, characterized by cyclic vomiting, chronic marijuana use, and compulsive bathing, is a recently recognized but still relatively unknown entity. Cyclic vomiting creates significant patient distress and is a financial burden on the health-care system. A thorough drug history in patients presenting with recurrent nausea and vomiting is important. Recognition of the disorder, appropriate counseling, and marijuana cessation are critical in treating this condition. Abstinence from marijuana usually leads to cessation of symptoms, and failure to improve may suggest an alternate diagnosis. We suggest the need for further clinical studies to better characterize this clinical syndrome, as well as basic research to advance our understanding of the role of cannabinoids in GI motility. ■

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