Kratom Induced Cholecystitis and Hepatotoxicity: A Case Report

Tyler Martinez[1], Alexys Ramos[1], Morgan Arneson[3] , and Matthew Johnson, M.D.[2]

1. Edward Via College of Osteopathic Medicine, 2. HCA Fort Walton Beach, 3. Alabama College of Osteopathic Medicine

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Abstract

There are a variety of gallbladder pathologies that plaque society. With the rise of several new street drugs like Kratom, it can make diagnosing and treating gallbladder disease a challenge. Kratom (Mitragyna speciosa), is an herbal supplement that is native to southeast Asia. Due to its analgesic and opioid like effects, it has made its way into the United States being sold at gas stations, smoke shops, and online. Kratom has documented abuse and addiction potential but its effects on the hepatobiliary system are still being researched and no clinical guidelines are yet in place [15].

In this case report, a 43-year-old female presented to the emergency department with abdominal pain, pruritis, dark urine, scleral icterus, and jaundice. The patient also had elevated liver enzymes. Infectious and autoimmune causes were ruled out and upon further questioning the patient revealed she had been taking Kratom for four days at an unknown dose. Lab work and imaging showed cholecystitis with an acute on chronic presentation and she subsequently underwent a laparoscopic cholecystectomy with an endoscopic retrograde cholangiopancreatography (ERCP). At one month follow-up, the patient saw resolution of symptoms and labs were within normal limits. Given its increase in prevalence in the United States, we recommend Kratom be included in the list of etiologies when evaluating drug induced cholecystitis and liver injury.

Introduction

- Kratom (Mitragyna speciosa), is an herbal supplement that is native to southeast Asia. Locals have used it for centuries to reduce fatigue, increase productivity, treat morphine dependence, and as an opium substitute creating feelings of euphoria [5]. The active ingredients 7-hydroxymitragynine and mitragynine have been shown to stimulate the delta and mu-opioid receptors creating its effects similar to traditional opioids [9,10].

- Due to the described properties, Kratom has gained traction in the United States being sold in a capsule form in gas stations, online, and at smoke shops. However, the FDA has not approved Kratom for any medical use and the DEA has listed it as a drug of concern due to its harmful side effects and potential for abuse [14]. Most commonly Kratom can cause nausea, vomiting, constipation, pruritis, diaphoresis, polyuria, somnolence, tachycardia, and xerostomia [14]. In a few cases Kratom has been shown to cause cholestatic liver injury [8].

- However, Kratom is not at the forefront of clinical thinking when deducing etiologies of drug induced hepatobiliary dysfunction. Given its increasing popularity in the United States, more documentation and literature are to aid clinicians.

Case

A 43-year-old Caucasian female presents to the emergency department with a chief complaint of a non-radiating epigastric abdominal pain. The patient also had accompanying symptoms of generalized pruritis without exanthem or petechiae, easy bruising of her extremities, fatigue, nausea, decreased appetite, headache, myalgias, acholic stools, dark urine, and a self-reported fever that had been ongoing for the past several days. The patient was admitted for further workup and supportive care. In the three days after her initial presentation to the emergency department her epigastric pain migrated to the RUQ and was described as a burning character that radiated to her back. The patient does have a relevant past medical history of gastroesophageal reflux disease (GERD), migraines, and chronic low back pain. She attributed her abdominal pain to GERD and took her prescribed proton pump inhibitor which relieved her discomfort on some occasions. Her current home medications are pantoprazole 40 mg PO and butalbital/acetaminophen/caffeine 50-325-40, 1-2 tablets PO PRN for migraines. The patient stated she took a total of two doses of the butalbital/acetaminophen/caffeine the week prior but before that it had been an extended period of time since using the medication. She does have a penicillin allergy but no other known drug allergies. Patient has no history of renal or liver disease and denies previous episodes. She is immunized against hepatitis B, denies alcohol and illicit drug use. The patient showed minor scleral icterus and jaundice on physical exam. RUQ and epigastric tenderness. No rebound tenderness appreciated. All vital signs were within normal limits.

Lab Test	Result	Reference Range
Total Bilirubin	4.6	0.1-1.2
Urinalysis	2+ bilirubin	-
Aspartate Aminotransferase (AST)	326	<34 units/L
Alanine Aminotransferase (ALT)	669	10-49 units/L
Alkaline Phosphatase	229	46-116 units/L
Acetaminophen Toxicology	0.3 L	1-2 mg/dL
Anti-Nuclear Antibodies (ANA)	Negative	-
Anti-Mitochondrial Antibody	Negative	-
Hepatitis IgM Antibody	Negative	-
Hepatitis-B Surface Antigen	Negative	-
Hepatitis C Antibody	Negative	-
Liver Kidney Microsomal Antibody	Negative	-

The patients' labs remained elevated throughout her admission, but they did show a slight trend downwards with the start of ursodiol 300 mg two times a day (BID). The ursodiol was later discontinued in favor of cholestyramine 4 g BID. The rest of her chemistry panel as well as complete blood count (CBC) were unremarkable. Computerized tomography (CT) scan of the abdomen and pelvis with contrast revealed minor fatty infiltration of the liver. Magnetic resonance cholangiopancreatography (MRCP) showed common bile duct dilation of 8 mm. Ultrasound (US) showed gallbladder wall thickening without gallstones. Hepatobiliary iminodiacetic acid (HIDA) scan showed delayed uptake within the gallbladder and no drainage into the duodenum.

Given her symptoms, lab results, and imaging findings, a diagnosis of chronic cholecystitis and obstructive jaundice was made with a plan of a laparoscopic cholecystectomy and ERCP. Both procedures were successful with the ERCP showing an 8 mm dilated common bile duct with no passage of contrast distally into the duodenum suggesting obstruction. This was subsequently cleared by balloon sweeping. No gallstones were found and contrast on ERCP showed unobstructed drainage into the duodenum after ERCP.

Following the procedure, the patient reported a cessation of the burning and radiating RUQ pain. Upon further discussion with the patient, she revealed that prior to this episode she took an unknown dosage of Kratom for four consecutive days. Her labs immediately following were AST 90, ALT 256, alkaline phosphatase 201, total bilirubin 4.2. The patient was discharged on day 7 and instructed to follow up in 2 weeks at the outpatient clinic. Two weeks later her labs were still elevated but decreased from the time of discharge. Patient also had pruritis, dark urine, and mild jaundice but no other symptoms. Approximately one month after hospital discharge all of labs were within the normal range, and the patient reported resolution of symptoms.

Conclusion

Kratom is an unfamiliar etiology of drug induced hepatotoxicity and cholecystitis. Here we report a case of a 43-year-old female who presented with cholecystitis and elevated liver enzymes in the absence of calculi, infection, or autoimmune causes. The patient achieved resolution of her symptoms following appropriate treatment from a surgical and medical standpoint. Etiology of symptomology from the source of Kratom was only discovered as other pathologies were ruled out and an extensive patient history was explored. Further reporting of Kratom induced hepatobiliary injury would be helpful to spread awareness of its effects and aid clinicians in treatment of their patients.

Discussion

The effects of Kratom on the human body are still being discovered as the supplement gains popularity in the United States [7]. Due to the awareness of some of its harmful properties, the DEA and FDA have listed it as a drug of concern and several states have moved to ban it altogether [14,15]. However, these governing bodies have done so mostly due to the concern for addiction and abuse. The FDA is still evaluating all available scientific evidence about the herbal supplement before it can move to issue a more definitive regulation [7]. Therefore, more literature is needed to highlight the various effects of Kratom that go beyond just the potential for addiction and abuse. Other case reports show Kratoms deleterious effects on the hepatobiliary system and this report aims to add to that collection [8,9,13]. Not only for governing bodies to make a more supported decision but also for health care clinicians to have a better understanding of the herb when generating a differential diagnosis and treating patients.

Although uncommon, Kratom has been shown to cause liver injury in a cholestatic pattern. Patients present with symptoms of fatigue, nausea, pruritis, dark urine, and jaundice [13]. Other cases have highlighted these symptoms along with elevation of associated labs such as total bilirubin, AST, ALT, alkaline phosphatase [2,3,8,9,11,13]. MRCP and US in these cases were unremarkable and did not show any pathology [4,8,6]. Both infectious and autoimmune causes were ruled out and a diagnosis of drug induced liver injury with cholestasis was reached by exclusion. Most other cases were also managed symptomatically, and resolution was seen in an average of four weeks after cessation of Kratom use [13].

The patient in this case did see resolution of symptoms four weeks after hospital discharge. However, the patient differed from the other cases reported due to the findings of a thickened gallbladder wall and dilation of the common bile duct with a filling defect at the distal end. For these reasons, operative management was warranted. The thickening of the gallbladder wall on US as well as increased emptying time on HIDA scan indicated chronic cholecystitis. With the patient taking Kratom for four days leading up to the flair this case suggests an acute on chronic presentation of cholecystitis. Cholestasis has been demonstrated in other case reports, but this is the only case where a cholecystectomy and combination with ERCP was used to treated kratom induced cholecystitis and liver injury. Due to its novelty, guidelines have not yet been established on how to manage Kratom hepatotoxicity. This report adds to the evidence and options for treatments with future patients.

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