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Drug Induced Pancreatitis: Meth, Cannabis, or Meth laced Cannabis?

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BACKGROUND

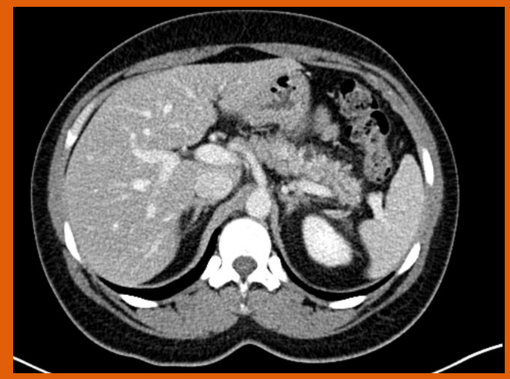
Drug-induced pancreatitis (DIP) is a rare entity with a 0.1 to 2% incidence of acute pancreatitis cases. Methamphetamine is a synthetic serotoninergic psychotropic drug used as a stimulant. It has infrequently been observed to cause pancreatic and hepatic damage due to its keen vasoconstrictive properties. Moreover, cannabis in its recreational form has also been linked with drug-induced pancreatitis. We report a 36-year-old previously healthy female who presented with findings of acute pancreatitis with subsequent thorough investigations revealing a drug-induced etiology.

CASE PRESENTATION

The patient is a 36-year-old previously healthy female who presented with diffuse, sudden in onset abdominal pain, radiating to the back, aggravated with food without alleviating factors of three days duration. She also reported nausea on the first day of her pain along with a single episode of nonbilious vomiting that had self-subsided. She denied previous similar episodes. Social history was remarkable for smoking marijuana since her teenage years unremarkable for alcohol and tobacco use. She reported resorting to street, methamphetamine laced marijuana, the past month. The patient was vitally stable with a physical exam remarkable for epigastric and left lower quadrant tenderness with negative peritoneal signs. Laboratory tests showed elevated lipase, amylase, and CRP with normal liver function tests, hematocrit, BUN, bilirubin, triglycerides, and phosphocalcium balances. Urine toxicology was positive for methamphetamines and cannabis. Ultrasound was done corroborating the absence of obstruction. Computed tomography (CT) abdomen was subsequently performed showing irregular contour of the pancreatic margins, blurring of peripancreatic fat planes, soft-tissue stranding, and trace-free fluid at the pancreatic body and tail without bile duct dilatation. Serological survey for mumps virus, cytomegalovirus (CMV), epstein barr virus (EBV), and human immunodeficiency virus (HIV) was negative. Anti-nuclear antibodies (ANA), neutrophil anti-cytoplasmic antibody (ANCA), and serum Ig G4 were also negative. She was diagnosed with mild acute pancreatitis with the culprit agent being methamphetamine-laced cannabis. The patient was followed up three months after agent cessation with marked symptomatic improvement and unremarkable lab work.

Drug-induced pancreatitis is a challenging diagnosis since **it lacks specific clinical symptoms.**

Methamphetamine may cause pancreatitis in **street marijuana** users.



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DISCUSSION

Cannabis exerts its action on the body through two receptors: CB1 and CB2. Both receptors are found in the pancreas and their activation may affect the pancreatic tissue. However, the exact mechanism by which activation of these receptors can lead to acute pancreatitis remains unknown. Cases reported in the literature usually allude to a history of heavy and daily use of marijuana. The clinical course is usually benign, with rare recurrence after the first episode. Our patient had her first episode of pancreatitis after resorting to meth laced cannabis. Methamphetamines have been infrequently observed to cause pancreatic and hepatic damage due to keen vasoconstrictive properties. The effects of chronic administration of methamphetamine on pancreatic tissues were histopathologically studied in experimental models. Methamphetamines (1ml/kg/body weight/day) was subcutaneously injected into five-week-old male Wistar Kyoto rats for 12 weeks with findings of severe regional hemorrhage, partial acinar cell necrosis, destruction of acinar cells, interstitial cell edema, and fatty cell necrosis.

CONCLUSION

This case highlights that methamphetamine might also be the precipitating cause of pancreatitis in street marijuana-associated pancreatitis cases. Drug-induced pancreatitis is often challenging because there are no unique clinical characteristics to distinguish drugs from other etiologies, let alone the possibility of identifying one potential drug versus another.

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