Undisclosed methamphetamines use and acute abdominal pain. A case report

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Case report

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Background: Acute abdominal pain continues to demand diagnostic challenges for emergency department clinicians. Nonocclusive mesenteric ischemia is a life-threatening disease, and its diagnostic evaluation mandates an approach that relies on the likelihood of disease, patient history, physical examination, laboratory tests and imaging studies. A debilitated patient-doctor relationship can make a patient purposefully withhold information motivated by the belief that the information would reflect poorly on the patient. Withholding important information during an emergency care setting, clinicians ´recommendations and decisions may harm patients. We present a case of a 39-year-old patient who presented with acute abdominal pain following inhaled methamphetamine consumption. The case took place in a rural General Hospital in Mexico with limited imagining and a non-disclosed personal history information of methamphetamine use, extending the patients correct diagnosis and treatment, which was eventually guided by his clinical signs and symptoms, undergoing emergency surgery with an ileocecal resection. Patient recovered after 16 days in hospital and was discharged without any complications. An early and precise diagnosis of patients with acute abdominal pain having a history of methamphetamine use is of importance for fast acting and correct diagnosis and treatment.

Keywords: Acute abdominal pain, metamphetamines abuse.

Patients withholding information from doctors can result in misdiagnosis and other medical mistakes that can easily lead to avoidable health consequences and mortality. Efficient and effective communication is crucial in the healthcare system especially in an emergency department, where clinicians rely on patients to disclose their symptoms, health behaviors and thoughts and feelings so that the correct diagnosis and treatment recommendations can be determined. Growing concern of methamphetamine use worldwide has been gaining attention, independent of wealth or region. Methamphetamine abuse may result in a diverse array of side effects involving almost any organ, including cerebral ischemic stroke, pulmonary hypertension, myocardial infarction, heart failure, cardiac arrhythmias. All well documented in the medical literature. In contrast, medical literature regarding non-occlusive mesenteric ischemia (NOMI) following methamphetamine consumption is scarce. We present a case report of delayed treated non-occlusive mesenteric ischemia due to undisclosed methamphetamine use.

Case report

A 39-year-old male patient presented with acute abdominal pain to the emergency department, accompanied by his sister, he referred the pain as continuous, achy-dull, located in the epigastric area radiating to the left flank and left iliac fossa, intensity 8 out of 10, alleviating factors were sustaining a fetal position and contracting the abdominal wall, aggravating factors were releasing abdominal wall tension and any movement that involved bouncing of his intestines, associated with nausea and vomiting in 3 occasions but no fever or diarrhea, last bowel movement was 2 days ago. Patient states having sudden acute abdominal pain, 24 hours ago, while working as a carpenter, took 2 painkiller pills given by a co-worker, that did not relief pain. On clinical examination, patient with facial expressions of pain, had a pillow with a belt around pressing his abdomen, stated was for comfort, dried mucus membranes, chest lungs clear to auscultation, heart auscultation tachycardic no murmurs or rubs

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Figure 1. Films obtained on patient's second ER visit. A. Chest x ray. B. Supine and C. Simple abdominal x rays.

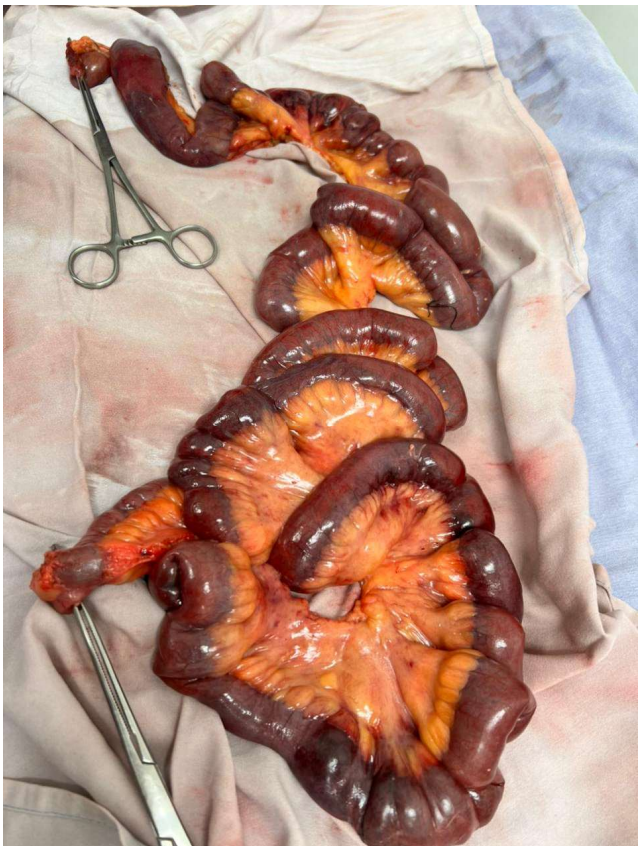

Figure 2. Anatomical piece removal of 150cm of jejunum and 15cm of ileum.

heard, abdomen auscultation decreased bowel sounds, during palpation of the abdomen patient was purposefully guarding, once he released active abdominal contraction, he had generalized tenderness, positive rebound tenderness and tympanic on percussion. His medical history was remarkable for daily recreational Ritalin consumption for a period of 2 years, last consumption was 2 months ago and social alcohol use, last consumption 2 days ago. Patient was previously admitted to the emergency department due to acute abdominal pain, 12 hours ago, was treated with IV fluids and pain relievers, discharged after 6 hours with a diagnosis of gastroenteritis and ambulatory treatment instructions were given. Currently feeling worse than his time of discharged, patient was readmitted for observation. On detailed examination patient disclosed he had inhaled an unknown substance, 24 hours ago, given to him by his co-worker and after 30 minutes started with an excruciating achy abdominal pain that dropped him to the floor. Patient omitted such information on his first admission since he was accompanied by his wife, then told the health team to prohibit such information to his wife.

At the time of admission, laboratory investigation revealed elevated leucocytes 26.81x103/µL (4.50-10.00) from 15.10x103µL on his first admission, C- reactive protein (CRP) 42.3mg/L (0.0-5.0mg/L), Lactate 3.00mmol/L (0.46-2,47)

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Amylase 199.00U/L (28.0-100.0), Total bilirubin 1.28mg/dL (0.00-1.20), Indirect bilirubin 1.15mg/dL (0.10-0.50), Lactate dehydrogenase 266U/L (120.0-246.0) Glucose 147mg/dL (70-115), Creatine phosphokinase-MB 63U/L (0.0-24.0). Electrocardiogram showed sinus tachycardia, 120bpm, with no further abnormal readings. A drug screening test was no performed on either admissions.

Acute intestinal obstruction was suspected, and plain x-rays of the abdomen revealed multiple gas-filled prominent loops and an ileus pattern. A simple abdominal CT-scan was read as poor distension of gastric chamber with the presence of a tube in its interior and slight thickening of the mucosa at the level of the cardia without alteration of the adipose plain. Liver, spleen, pancreas and gallbladder with normal size, morphology, and density. Discrete distension of the small intestinal loops with liquid which suggests nonspecific enteral process, no mesentery adipose plain alterations or adenomegalies are documented. Alteration of the renal adipose plain exists due to probable chronic nephropathy. Colonic frame with discrete copropneumocolia. The study was negative for pneumoperitoneum. Diagnostic impression: Enteral process findings and slight thickening of gastric cardia without evident perforation. Nasogastric tube in adequate position. The rest without alterations.

The patient was referred for urgent exploratory laparotomy. Intraoperative anatomical findings of the small intestine were observed with necrosis, areas of maceration and fibrin patches. At first the surgical team intended to preserve small intestinal blood flow, this was done by covering the area with warm sterile towels for 10 minutes, which resulted in better blood flow, affirming by visual color changes of the proximal jejunum, 50cm approximately and the last 15cm of the terminal ileum. Despite conservative measures, necrotic areas were still present, concluding with a resection of the small intestine, 50cm of Treitz ligament, to the ileocecal valve and jejunostomy. Anastomosis of the jejunum and ascending colon was not possible to perform because of abundant fecal material found in the colon (Fig. 3). His bowel was left in discontinuity with a view of second-look operation within 24-48 hours depending on his condition. Post-operatively, the patient was transferred to the surgical care unit. Patient had good nasogastric feeding tolerance but had poor gastrointestinal absorption of nutrients observing complete portions of food from his stomal output. He was started on intravenous total parental nutrition.

Retrospectively, the histology of the excised specimen revealed acute enteritis with hemorrhagic necrosis, submucosal edema with vascular congestion and recent hemorrhage, mesenteric vascular congestion, and submucosal edema of the surgical limits, which was consistent with ischemia.

A second look laparotomy was performed 48 hours later with no mucosal necrosis advancement. Bowel continuity was restored by stapled side-to-side anastomosis. Patient was discharged after 16 days with special nutritional indications and follow up appointment in 5 days with general surgery.

Discussion

Acute abdominal pain accounts for 5 to 10 percent of emergency department (ED) visits1. Despite sophisticated diagnostic modalities, undifferentiated abdominal pain remains the diagnosis for approximately 25 percent of patients discharged from the ED. Intestinal ischemia can be caused by multiple conditions such as mesenteric arterial or venous occlusion, intestinal obstruction and hypoperfusion associated with non-occlusive vascular disease. Non-occlusive mesenteric ischemia (NOMI) is a mesenteric circulatory disorder that can involve inflammation, infarction, and ischemia of the visceral wall that was first observed in elderly patients undergoing cardiovascular surgery or dialysis.

NOMI is distinguished by patent splenic vasculature. It accounts for 15-30% of all acute mesenteric ischemia, it has a mortality rate in the order of 50%. Reasons for low survival rates are advanced age and the commonly long delay between the onset of symptoms and initiation of treatment2. The pathophysiology of NOMI involves spasm of the branches of the superior mesenteric artery supplying the small intestine and proximal colon. Risk factors include any condition that results in systemic hypoperfusion, including heart failure and cardiogenic shock, aortic insufficiency, and recent heart surgery3. Mesenteric vasospasm also can be caused by vasoactive and cardiotonic drugs such as digitalis, phenylephrine, amphetamines, vasopressin, and cocaine4.

NOMI should be considered in the differential diagnosis for hospitalized or critically ill patients with predisposing risk factors because imaging findings may be subtle, and the distribution of the affected bowel may be discontinuous or involve multiple vascular territories.

Clinical signs of NOMI are nonspecific. A retrospective study by Howard et al.5 described 113 patients with acute mesenteric ischemia, 12% of the patients were shown to have NOMI and 77% of these patients complained of abdominal pain. Physical signs such as abdominal distension, abdominal tenderness and muscular defense, hypotension, fever, decreased bowel sounds, nausea, diarrhea, and anorexia were observed with decrease frequency. Blood markers

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were also non-specific and only helpful to rule out other differentials.

Early diagnosis involves a clinical suspicion in patients with risk factors but often requires arteriography to firmly confirm the diagnosis. Radiographic features in plain film of the abdomen are first order modalities in patients presenting with acute abdominal pain. Probst et al.6 classified radiological features as nonspecific. Variable, well-defined intramural gas collections without thickening of the bowel wall were considered non-specific, distended small and large bowel loops with bowel wall edema, and air-fluid levels as appointing. Computed tomography as another non-invasive method can depict the abdominal aorta, the origins of the splenic arteries, their central parts, and first-order branches in diagnostic quality7. Angiography is the gold standard in diagnosing peripheral splenic vessel disease8. Supportive treatment for NOMI includes intravenous fluid resuscitation, broad-spectrum antibiotic therapy, bowel rest, and close monitoring to assess for worsening clinical status.

Substance misuse or illicit drug use is responsible for a significant number of emergency department attendances as well as being responsible for a significant number of deaths annually. Patients who use drugs may strategically choose not to disclose drug use of the full extent of their drug use to their health care provider over concerns of being denied care, not getting good quality care, as well as potential legal, and employment consequences associated with the criminalization of drug use. There is also a need to improve addiction training among physicians, as studies have shown that physicians often fail to screen clients for substance use disorders. Withholding information behavior is influenced by patient-physician relationships. Patient physician relationship, which is measured by time spent, understanding, involvement, and helpfulness is thought to be positively related with the intention to share protected health information. Implementing such practice in the emergency care setting would be beneficial both to the patient and physician, leading to better healthcare.

Conclusion

In the present case, patient presented with non-specific acute abdominal pain to our emergency department omitting consumption of toxic substances and misleading medical staff from correct diagnosis, thus prolonging correct medical treatment. Laboratory test and radiologic features helped rule out differential diagnosis, but his continuous physical deterioration led the consulting team to pursue an exploratory laparotomy, which revealed his main affection. Pathology reveled acute enteritis with hemorrhagic necrosis, submucosal edema with vascular congestion and recent hemorrhage, mesenteric vascular congestion, and submucosal edema which was consistent with non-occlusive ischemia. This patient admitted a 2-year of Ritalin abuse history and on one occasion nasal consumption of methamphetamine. Like cocaine, methamphetamine can block the reuptake of presynaptic norepinephrine and release the monoamine neurotransmitters dopamine, serotonin, and norepinephrine, leading to the accumulation of norepinephrine and resulting in an intense arterial vasospasm that can evolve to subsequent ischemia of organs, in our case to small intestine mucosal necrosis.

In summary, with the increasing abuse of methamphetamine, clinicians should be aware of its potential abdominal complications. Ischemia of the celiac viscera and mesenteric artery such as small intestine should be considered in young adult or middle-aged group with a history of methamphetamine abuse who present with abdominal pain.

Conflicts of interests

There are no conflicts of interest

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