



GASTRIC PERFORATION DUE TO COCAINE USE AND APPENDICITIS "VALENTINO'S SYNDROME"

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ABSTRACT

Objective: To document the case of a 33-year-old man with a history of chronic cocaine use who presented with acute appendicitis and gastric perforation at Hospital General Ambato. **Brief description of the case:** patient with abdominal pain of 4 days of evolution who underwent emergency surgery for acute inflammatory abdomen initially considered acute appendicitis and based on Rx pneumoperitoneum was observed, exploratory laparotomy was performed, finding gastric perforation and peritonitis secondary to the presence of fluid in the right parietal colic sliding (Valentino syndrome), the lesion was affiliated, cavity washed and appendectomy was performed. **Conclusion:** Among the adverse gastrointestinal effects of cocaine and its derivatives, there is perforation of the hollow viscera. It would be advisable for a thorough interrogation on the consumption of cocaine and other drugs or the request of their presence in the urine and the clinical suspicion of non-occlusive intestinal ischemia caused by cocaine in those young adults without cardiovascular risk factors who present with acute abdominal symptoms, especially to plan the correct treatment.

KEYWORDS: gastric ulcer, cocaine, acute appendicitis, Valentino's syndrome

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RESUMEN

Objetivo: Documentar el caso de un hombre de 33 años con antecedente de consumo crónico de cocaína que curso con apendicitis aguda y perforación gástrica, en el Hospital General Ambato. **Descripción breve del caso:** paciente con dolor abdominal de 4 días de evolución que fue intervenido de urgencias por abdomen agudo inflamatorio inicialmente considerado

apendicitis aguda y basado sobre todo en Rx se observa neumoperitoneo, se realizó laparotomía exploratoria encontrando perforación gástrica, y peritonitis secundaria a presencia de líquido en corredera parieto cólica derecha (síndrome de Valentino), se realiza rafia de la lesión, lavado de cavidad y apendicectomía. **Conclusión:** Entre los efectos adversos a nivel gastrointestinal de la cocaína y sus derivados, se encuentran la



perforación de víscera hueca. Sería aconsejable un interrogatorio minucioso sobre el consumo de cocaína y otras drogas o la solicitud de su presencia en orina, y la sospecha clínica de una isquemia intestinal no oclusiva originada por cocaína en aquellos adultos jóvenes sin factores de riesgo cardiovascular, que acuden con cuadro de abdomen agudo sobre todo con vistas a planificar el correcto tratamiento.

PALABRAS CLAVE: Úlcera gástrica, cocaína, apendicitis aguda, síndrome de Valentino

INTRODUCTION

Cocaine is an alkaloid prepared from the leaves of the *Erythroxylon coca* plant. It acts on the sympathetic nervous system at the synaptic level by altering the reuptake of neurotransmitters, enhancing the effect of norepinephrine and dopamine. Cocaine sulfate (cocaine base paste, basuco, crack or anguish), the new cocaine-free base, is obtained from unrefined cocaine by processing it with various substances. This scourge has grown in popularity and consumption, and its characteristics include its low cost, wide social diffusion, and ability to induce rapid addiction and effective absorption when smoked. There are many well-documented complications associated with cocaine use. However, the advent of cocaine base paste as a popular drug has introduced additional complications, including cerebral vascular accident, pulmonary hemorrhage, pulmonary edema, barotrauma, interstitial pneumonitis, pneumomediastinum, acute myocardial infarction, ischemic colitis, gastrointestinal hemorrhage, and other complications.

Effects of cocaine on the digestive system

Cocaine has sympathomimetic properties that seem to be due to the effects of this drug on noradrenaline in the postganglionic terminals of the autonomic nervous system, sympathetic branch. In the digestive system, the most common disorders are anorexia (although this complication is produced by the actions of cocaine on the central nervous system), nausea, vomiting, diarrhea and, although rare, there are also complications of ischemic origin that produce gastroduodenal ulcers with hemorrhage and perforation.

The use of crack cocaine and amphetamines, through vasoconstriction and ischemia of the gastroduodenal mucosa that they can cause, are also ulcerogenic.

Complications of ulceration are perforation and hemorrhage. Perforation of a gastroduodenal ulcer is the second most common complication after gastrointestinal bleeding and occurs in 80% of cases of duodenal ulcers and 20% of gastric ulcers.

The diagnosis is made in the emergency room in patients with sudden and intense pain in the epigastrium radiating to the shoulder and later to the right iliac fossa or the entire abdomen and may present the board abdomen and Jobert's sign. In the first phase of perforation, the first 6 to 12 hours, it is chemical peritonitis due to the exit of the upper digestive contents into the peritoneal cavity. Later it will be transformed by contamination and proliferation of germs in purulent peritonitis. In elderly patients, perforation may be silent and become more severe as it evolves and may present as systemic inflammatory response syndrome/sepsis and hemodynamic instability.

Diagnosis: Chest X-ray PA in a standing position is the technique of choice and abdominal X-ray in left lateral decubitus with a horizontal beam in case the first one is impossible. The indicated position should be maintained for 10-20 min.

Sometimes it is difficult to achieve an adequate technique due to the patient's condition, so the radiological signs in simple abdominal radiography in supine decubitus should be known. The most frequently found radiological sign is the presence of right subdiaphragmatic air. Signs of pneumoperitoneum in conventional radiology.

- Triangle sign. Presence of air of triangular morphology between three adjacent loops or between two loops and the parietal peritoneum.
- Sign of the dome. Air in the anterior part of the peritoneal cavity. Horizontal radiolucency below the cardiome-diastinum.
- Sign of the falciform ligament. Radiopacity is in the form of an arc that goes from the umbilicus to the anterior wall of the liver.
- Rugby ball sign. Ovoid abdominal radiolucency of the craniocaudal long axis

due to distension of the parietal peritoneum secondary to massive pneumoperitoneum.

- Hyperlucent liver sign. Decreased hepatic radiopacity due to the presence of gas between the abdominal wall and the liver.
- Hepatic border sign. Abdominal cavity gas delimits the lower hepatic border.
- Anterosuperior oval sign. Air in the space of Morrison. Fissure of the round ligament.

TOMOGRAPHY: It has a sensitivity of 85-100%. Lung window should be used. Check the region between the anterior area of the liver and the abdominal wall, folds of the mesentery and peritoneal recesses. In case of hollow viscera rupture: extravasation of oral contrast, focal thickening of the wall, alteration of the mesenteric fat, localization of the pneumo to locate the site of the rupture and its cause.
ULTRASOUND: Can detect from 1 ml of air. Sensitivity 95-100 % in cases of trauma. Position chest elevation 10-20° longitudinal transducer in the right paramedian epigastric area.

Treatment: Graham's patch: closure of perforation can be performed by suturing the greater omentum over the perforation and with wide drainage of the abdomen. At a minimum, all gastric ulcers should be biopsied because of the risk of malignancy. Graham's patch is the standard treatment for small perforations smaller than 2 cm in acute settings and can be performed laparoscopically or through an upper midline.

Antrectomy: if the perforation is too large to place a patch or if the patient has ulcers that are refractory to medical treatment, an antrectomy resection of the ulcerated area of the stomach should be performed.

DESCRIPTION OF THE CLINICAL CASE: This is a 33-year-old male patient with a history of cocaine and alcohol consumption since he was 22 years old who came to the emergency department for presenting abdominal pain of 4 days of evolution that began in the epigastrium of mild intensity accompanied by nausea that reached vomiting in addition to diarrheal stools and approximately 12 hours ago the pain was located in the lower hemiabdomen of great intensity, VAS scale 8/10.

Physical Examination: Vital signs on admission: BP 140/80, HR 82 bpm, RR 12x', Sat O₂ 96%, T°: 36.6c.

The patient is agitated, and the abdominal level is painful to superficial and deep palpation, tense, positive Mussy's sign.

SUPPLEMENTARY EXAMINATIONS

Laboratory tests: Leukocytes: 17220 mg/dl, hgb 16.5 mg/dl, hcto 41.2 %, platelets 293000, neutrophils: 91.60%. Na:139 K 4.7 Cl:101. Glucose 137, Urea: 48.5, Creatinine 0.96

THORAX RX

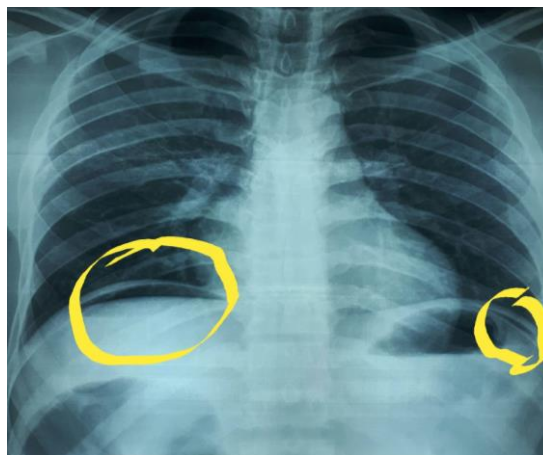


Image # 1 AP Chest X-Ray (X-ray at hospital admission) showing Popper's sign (highlighted for didactic purposes). Source: HGDA Imaging Service

A patient diagnosed with an acute abdomen is admitted to the operating room for exploratory laparotomy.

In the proposed surgery, an exploratory laparotomy was performed through a supra and infraumbilical midline incision of approximately 35 cm, and the findings were as follows:

- Perforation in the anterior face at the level of the pyloric antrum, 1 cm in diameter with indurated edges.
- Free serous purulent gastric fluid in the cavity, approximately 100 cc
- Interassociated fibrinopurulent glomeruli
- Subserosal ascending caecal appendix about 12 x 1 cm stage II with appendicolith inside.

DEFINITIVE POST-SURGICAL DIAGNOSIS

- Gastric perforation + acute appendicitis vs. periappendicitis



Image # 2 Transsurgical exposure (secondary peritonitis without establishing origin). Source Authors

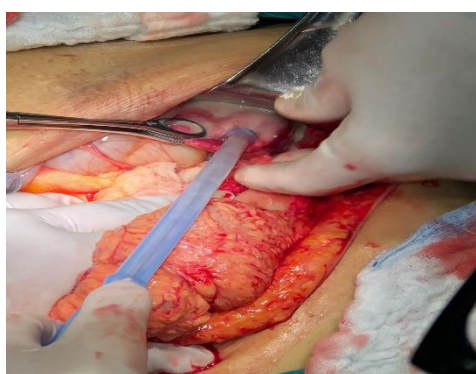


Image # 3 Transsurgical exposure (Gastric perforation). Source: The Authors

An exploratory laparotomy was performed using a midline and supra umbilical diaeresis, the affected area was thoroughly examined and the perforation at the gastric level was identified, a sample was taken for biopsy, primary raffia and Graham patch. Next, the appendicular base was identified, clamping section and double ligation. The next step was to perform an exhaustive lavage of the cavity; drains were placed, one proximal to the gastric perforation and one in the right parietal-colic slider. Once hospitalized, he was managed with intravenous ceftriaxone and metronidazole, analgesics. The oral route was started on the sixth day and he was also treated by psychiatry for withdrawal syndrome, the drains of serous characteristics were removed on the ninth day and he was discharged. Postoperative surveillance gave a negative pathology report for malignancy.

Discussion

The diffusion among the generally young population of the consumption of this and other intoxicants derived from the alkaloids of *Erythroyilon coca* has led to an increase in emergency consultations for acute abdominal pain; generally, in many of these cases, patients undergo surgery without diagnosis or, more seriously, die without a diagnosis. In addition, the use of crack cocaine and amphetamines, through the vasoconstriction and ischemia of the gastroduodenal mucosa that they can cause, are also ulcerogenic. Complications of ulceration are perforation and hemorrhage. Perforation of a gastroduodenal ulcer is the second most common complication after gastrointestinal bleeding and occurs in 80% of cases of duodenal ulcers and 20% of gastric ulcers.

CONCLUSIONS

Given its genesis and consequent underdiagnosis and inadequate management, this syndrome should be given singular importance and maintained as a differential diagnosis, not only because of its challenging nature but also because of its considerable mortality. Therefore, it is concluded that the approach as an option can be laparoscopic since it allows a more integral evaluation of the abdominal content, allowing accurate diagnoses and conducts. Furthermore, the use of imaging studies should be considered in patients with signs of peritoneal irritation such as chest and abdominal X-rays in patients with signs suggestive of peritoneal irritation, since the presence of sub-diaphragmatic air opens the spectrum of differential diagnoses and a different approach to the patient, discarding or opening the diagnostic spectrum. And finally, the laparoscopic or open technique is recommended for the repair of perforated peptic ulcers with the Graham patch technique since it can be considered a safe and effective method.

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