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Stercoral perforation associated with methadone treatment

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ABSTRACT

Stercoral perforation (SP) is a rare, life threatening condition, characterized by non-traumatic intestinal rupture caused by fecal impaction in the absence of an underlying intestinal lesion. It usually occurs in elderly patients with chronic constipation, with increased incidence among patients with specific illnesses and medications. We herein describe a fatal case of SP associated with methadone treatment in a 28-year-old man who had worsening abdominal pain for a few days and suffered a cardiac arrest while at home, prior to seeking medical attention. The diagnosis was confirmed on Autopsy. In this report we provide a literature review of the disease, to highlight a rare life threatening complication associated with Methadone treatment.

Key words: *Stercoral perforation, methadone.*

RESUMEN

La perforación estercoral es una causa rara de perforación intestinal no traumática, potencialmente mortal, secundaria a la impactación fecal, frecuente en pacientes de la tercera edad con constipación crónica, portadores de enfermedades específicas e ingesta de medicamentos. Presentamos el caso fatal de una perforación estercoral asociada a la ingesta de metadona, en un hombre de 28 años de edad, inició con dolor abdominal progresivo y paro cardiorrespiratorio domiciliario antes de recibir atención médica. El diagnóstico se confirmó en la autopsia. Hacemos una revisión de la literatura de esta rara entidad potencialmente letal asociada a metadona.

Palabras clave: *Perforación estercoral, metadona.*

INTRODUCTION

Stercoral perforation is defined as intestinal perforation caused by severe fecal impaction (Fecaloma) in the absence of external injury or a primary intestinal lesion such as a tumor, or diverticulosis.

It is a rare disease, and to the best of our knowledge, fewer than 200 cases have been reported in literature up to 2017. It is a surgical emergency that requires familiarity with its pathogenesis, associated risk factors, clinical presentation, and radiologic findings, to allow early diagnosis and management.

Methadone may lead to chronic constipation, but the association with stercoral colonic perforation is extremely rare, with only a few cases described in literature.[1,2]

CASE REPORT

Emergency medical services (EMS) responded to a call regarding a 28-year-old man who was found unresponsive at home by his family. He had history of heroin abuse, on chronic methadone treatment (160 mg/day) and history of seizure disorder, treated with phenytoin. Upon EMS arrival the patient was pulseless with no respiratory effort, and failed to respond to the resuscitative efforts provided on the scene. Family members reported that he complained of mild abdominal pain, which progressed over a few days prior to the event. He was pronounced dead prior to Hospital arrival.

Autopsy was significant for severe colonic distension, involving the descending colon, with palpable hardened

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fecal material, friable wall and focal perforation in the distal end of the descending colon. There was no evidence of tumors or other lesions, and microscopic examination revealed inflammation with focal ulceration and necrosis at the site of perforation.

DISCUSSION

The pathogenesis of SP is thought to follow a regular sequence of events where a slow colonic transit and diminished fecal hydration leads to: 1) fecal impaction, 2) fecaloma formation, 3) stercoral colitis, 4) pressure necrosis, 5) stercoral perforation, followed by the complication of stercoral peritonitis, and finally bacteremia and sepsis *(Figure 1)*.[3-5]

In most cases, the site of perforation is found in the sigmoid colon, as it represents a watershed area of perfusion supplied by the inferior mesenteric and hypogastric arteries.[6] Sudeck's critical point refers to an area at the rectosigmoid junction which is the point of origin of the last sigmoid arterial branch, from the inferior mesenteric artery (IMA), a high risk area for ischemic colitis due to the lack of collateral circulation.[7]

Berry described the first case in 1894,[8] and classified spontaneous colonic perforations into «stercoral» and «idiopathic» perforations on the basis of etiology and characteristics of the lesion.

SP is associated with an ulcerative lesion, with a «round» or an «ovoid» hole with necrotic and inflammatory edges, often seen in the sigmoid colon or rectum.[8,9] Idiopathic perforation is a linear «tear» with a normal colonic wall.[9] Both types are associated with a high mortality rate, and are often diagnosed intraoperatively.

However, unlike idiopathic perforation, SP may be preventable as it has several known risk factors, and early identification of the disease at the stage of stercoral colitis, can prevent the progression to a perforation.

The idiopathic type is less common than stercoral type, and often carries a better prognosis because of the minimum degree of fecal contamination, and absence of significant bowel inflammation/necrosis.

SP is commonly seen in the elderly and the median age of presentation is 60 years, ranging from 20-86 years.[10] It represents 3.2% of all colonic perforations,[4] with mortality rates reported in the range of 32-57%.[11]

Fewer than 200 cases have been reported in literature. Multiple clinical conditions and medications have been related SP, all of which share a common pathogenic factor of altered colonic motility. These include diseases such as hypercalcemia,[12] hypothyroidism, diabetic enteropathy,[13] type IV Ehlers danlos,[14,15] prolonged immobility, peritoneal dialysis, chronic kidney disease, and renal transplant.[16,17] Medications that have been described in association with SP include non-steroidal anti-inflammatory drugs, steroids, antacids,[18-22] narcotics,[23] tricyclic antidepressants,[24] methadone,[1,2] and neuroleptics.[25]

The increased incidence of the disease in debilitated, bed-ridden, mentally ill, or narcotic-dependent patients, is often related to a combination of factors: reduced activity, medication side effects and dehydration.[26]

Treatment with methadone, especially in cases of long-term maintenance therapy, is associated with chronic

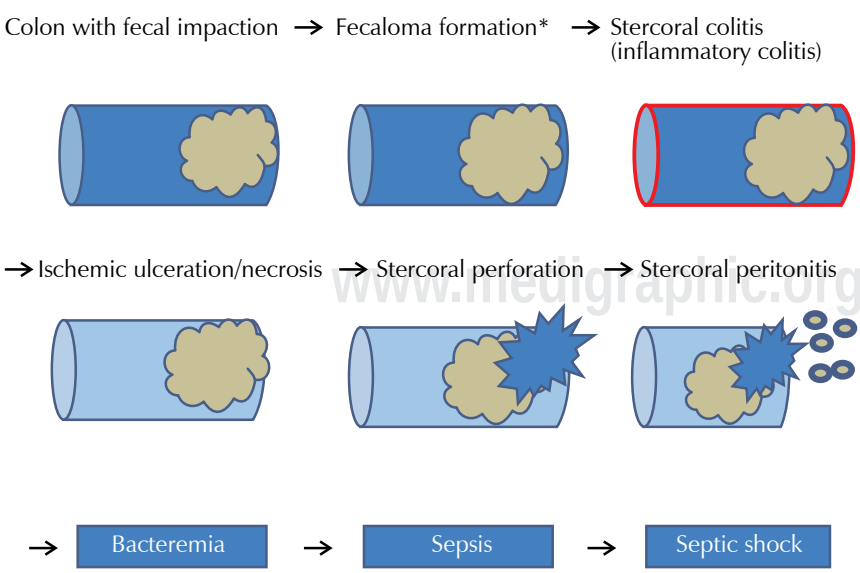

Figure 1.

**Fecaloma is hardened inspissated feces. This hardened mass of feces is most frequently noted in the distal colon and rectum, where fecal matter is most devoid of its water content.*
Fecalomas cause narrowing of the distal colon resulting in higher intraluminal pressure; when this exceeds the capillary perfusion pressure of the bowel wall pressure necrosis begins, especially on the antimesenteric border where perfusion is diminished. Eventually leading to ulceration and perforation.[3-5]

constipation, or what is referred to as «Methadone Ileus Syndrome».[27]

The clinical presentation is usually dominated by chronic constipation and abdominal pain. There is a wide variability in the acuteness and severity of pain among patients with SP,[10] with some experiencing subacute onset of mild-moderate pain, as in our patient, and in others presenting with the more common acute abdomen and signs of peritonism.

The diagnosis is suspected based on the clinical presentation with an acute abdomen in a high-risk patient, with imaging findings suggesting a perforated viscus (free peritoneal air and fluid collection). The diagnosis is then confirmed post operatively or on autopsy by its distinctive histologic picture.

Computed tomography is the imaging modality of choice with a sensitivity as high as 85.5%.[28]

Radiologic signs of SP on Abdominal-pelvic CT include fecalomas, extraluminal air, pericolic fat stranding, and abdominal-pelvic collections or abscesses.

Early surgery with vigorous debridement and irrigation of the peritoneal cavity is the treatment of choice. Simple primary closure, colostomy, Simple primary closure plus colostomy, Hartmann surgery are common surgical approaches depending on the physical status, laboratory findings and degree of peritonitis.

Subtotal colectomy should be considered in cases with multiple dilations and significant thinning of the bowel wall in order to prevent postoperative perforations.[29]

Prevention of SP may be achieved by:

1) Increasing disease awareness among the public and medical professionals.
2) Regular monitoring of bowel habits of the debilitated, bed ridden, and mentally impaired patients. This includes careful rectal and abdominal examinations, and manual evacuation to stimulate bowel motions.
3) Limiting the use of non-steroidal anti-inflammatory drugs and other medications known to reduce intestinal motility, especially when combined in high risk and chronically constipated patients.[30]

CONCLUSION

Although serious gastrointestinal complications in patients receiving methadone maintenance therapy are rare, it is prudent to recognize this complication at an early stage. Raising the public and medical professionals awareness regarding this disease may allow prevention, early diagnosis and management.

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