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Omental Infarction, a Rare Entity of the Acute Abdomen

Infarto omental, una entidad rara del abdomen agudo

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RESUMEN

Introducción: El infarto omental, es una entidad del abdomen agudo que se caracteriza por ser un proceso inflamatorio, autolimitado y benigno. Su certeza diagnóstica oscila entre 0,6 y 4,8 %. Es más frecuente entre la cuarta y quinta década de la vida, con predominio del sexo masculino.
Objetivo: Describir las características clínicas y terapéuticas del infarto omental como entidad rara en el abdomen agudo.
Métodos: Se realizó una revisión bibliográfica a partir de 25 referencias. Se utilizaron artículos e información de publicaciones de las bases de datos Elsevier, SciELO, Medline, Dialnet y el motor de búsqueda de Google Académico.
Desarrollo: El infarto omental, es causado por el compromiso de la arteria gastro-omental derecha y se clasifican en primarios y secundarios. La clínica fundamental es el dolor; pero sin duda la imagenología juega un papel decisivo para el diagnóstico. El manejo inicial con fármacos es muchas veces la conducta inmediata.
Conclusiones: El infarto omental se cataloga como una causa rara de abdomen agudo. El manejo conservador se posiciona como la opción más usada, pero es sin dudas, el tratamiento quirúrgico el que ofrece una resolución completa al problema y menor riesgo de recidiva o formación de abscesos.

Palabras clave: Abdomen agudo, epiplón, infarto

ABSTRACT

Introduction: Omental infarction is an entity of the acute abdomen that is characterized by being an inflammatory, self-limiting and benign process. Its diagnostic certainty ranges between 0,6 and 4,8%. It is more frequent between the fourth and fifth decade of life, with a predominance of the male sex.
Objective: To describe the clinical and therapeutic characteristics of omental infarction as a rare entity in the acute abdomen.
Methods: A bibliographic review from 25 references was carried out. Articles and information from publications in the Elsevier, SciELO, Medline, Dialnet databases and the Google Scholar search engine were used.
Development: Omental infarction is caused by the involvement of the right gastro-omental artery and is classified as primary and secondary. The fundamental clinical manifestation is pain; but imaging undoubtedly plays a decisive role in the diagnosis. Initial management with drugs is often the immediate approach.
Conclusions: Omental infarction is classified as a rare cause of acute abdomen. Conservative management is positioned as the most commonly used option, but it is undoubtedly surgical treatment that offers a complete resolution of the problem and a lower risk of recurrence or abscess formation.

Keywords: Acute abdomen, omentum, infarction

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INTRODUCTION

Omental infarction is a benign, self-limiting inflammatory process, rarely diagnosed due to its similarity to other acute processes affecting the abdominal cavity. It is an entity that requires clinical and radiological skill to be confirmed, as this helps to avoid unnecessary surgical interventions. [1,2]

Despite the descriptions made by Eitel in 1899, it was not until 1946 that Robert A. Mackenzie described for the first time the disease in a retrospective study including 40 patients with symptoms and signs similar to omental torsion. In 1952, Leitner, mentioning several causes that can trigger the same entity, divided omental infarction into primary or secondary for the first time. [3,4]

Epidemiological data are scarce due to the diagnostic complexity. Worldwide, there are approximately 400 cases of primary omental infarction in the literature, being identified few of them before surgery for diagnostic certainty, between 0.6 and 4.8%. This represents an estimated incidence of 0.001 to 0.3% and 0.1% of laparotomies performed each year. [2-8]

The epidemiology is characterized by a peak of maximum incidence between the fourth and fifth decades of life in adults and it is more common in men than in women, a ratio of two to one. It can occur in pediatric ages, in 15% of cases, which represents up to 0.5% of children undergoing abdominal exploration for acute appendicitis. [8-11]

Due to the low diagnostic rates, as well as the limited knowledge about this disease, it is necessary scientific research related to the clinical characteristics and treatment of omental infarction, to contribute to the improvement of the comprehensive management of patients. Therefore, the objective is to describe the clinical and therapeutic characteristics of omental infarction as a rare entity in the acute abdomen.

METHODS

It was carried out a bibliographic review from May to June 2024, based on 25 references that were generally five years old or less. Articles and information from publications from the Elsevier, SciELO, Medline, Dialnet databases and the Google Scholar search engine were used. The health descriptors used were acute abdomen, omentum, infarction and their equivalents in English. Articles with full texts were reviewed and the veracity and reliability of the selected references was analyzed to carry out a correct review.

DEVELOPMENT

The omentum or epiplon is a fat-rich peritoneal structure of embryological development that is located in the anterior abdominal wall. The greater omentum hangs from the greater curvature of the stomach and the lesser omentum from the liver to the lesser curvature of the stomach; this gives it multiple functions as it acts as a protector of internal organs against injury or inflammation and houses macrophages. [12, 13, 14]

Omental infarction is a rare process due to the rich vascularity of the affected area. Its most frequent location is on the right side due to two fundamental factors: the long and tortuous blood supply that causes a poor supply to the lower right portion; as well as the greater length and mobility of the omentum, which makes it more prone to twisting on its longitudinal axis, this causes spontaneous venous thrombosis and therefore necrosis. [14-19]

Etiology and classification

Primary omental infarction represents a third of all cases and is the least studied. They are related to anatomic variants of the omentum, so malformations such as accessory or bifid omentum, local variations in the fat distribution and redundant omental veins predispose to this condition. [11, 20]

On the other hand, when there is an anchoring point, the omental infarction is secondary. Strangulated inguinal hernias, as well as reduction maneuvers trigger this complication, even the infarcted omentum can form part of the hernial content. Other triggering entities are inflammatory conditions, neoplasias, vascular thrombosis, surgical wounds and visceral adhesions. [5, 8, 14]

The physician should not limit himself to these diseases, any entity that presents symptoms and signs of vascular insufficiency should be taken into account.

Obese patients have a higher risk of suffering omental infarctions, since excess fat compresses the surrounding blood vessels and heavy meals cause vascular congestion, so there is less probability of this in pediatric ages. Other risk factors are excessive physical effort, hyperperistalsis, coughing, use of laxatives and trauma. [2, 11, 12]

Clinical manifestations

Acute pain in the right side of the abdomen is the constant symptom in the clinical status of these patients. It is usually located in the hypochondrium and right iliac fossa, however, one researcher,[9] in his study

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shows that diffuse abdominal pain is the most common form of presentation, highlighting the lumbar region as a frequent site of pain.

It usually appears suddenly, with a continuous and moderate character and once the condition established it intensifies progressively. In addition, it is rare for it to radiate to another region. However, another author,[3] presents a case with abdominal pain and radiation to the lumbar area and the ipsilateral lower limb.[5, 6, 11, 21]

In children, the form of presentation is similar, with the particularity that the left side can be affected simultaneously. Besides, the intermittence of the pain is distinctive, as well as the rebelliousness to analgesics. [10, 13] The course of acute abdomen in pediatrics forces the physician to take this entity into account, however infrequent it may be.

Associated with abdominal pain, it is common to find sub febrile condition or mild fever, anorexia, nausea and vomiting. The general condition is good, with diarrhea or constipation being rare, as well as urinary symptoms. Patients generally show a lower degree of systemic inflammatory response than in appendicitis.[1,11, 12]

On physical examination of the abdominal region, positive data include pain on palpation, both superficial and deep, the presence of abdominal guarding and increased skin sensitivity. When a large segment is involved, a poorly defined mass with irregular edges and localized peritonitis is palpable. In up to 20% of cases, the diagnostic suspicion is directed toward acute cholecystitis, due to the presence of Murphy's sign, while typical signs of acute appendicitis are described in confirmed cases of omental infarction.[1, 2, 11]

Careful palpation and percussion provide interesting data, such as varying degrees of abdominal guarding or intensification of pain, even when none of these signs lead to a definitive diagnosis. For this reason, beyond suspecting omental infarction, elements that demonstrate irritation or ischemia in the peritoneum should be sought.

Complementary tests

Blood analysis reveals leukocytosis with a predominance of neutrophils in up to 50% of cases, very mild, usually not exceeding 14,000 cells per microliter. Other findings are accelerated erythrocyte sedimentation rate and thrombocytopenia, while C-reactive protein is slightly elevated with values ranging between 4.2 and 7.0 mg/dL. [3, 9, 18]

Indicating only acute phase reactants is very risky, since the results are not very suggestive and are limited to demonstrating the existence of an inflammatory process.

In one study [15], a case with acute symptoms and several altered laboratory tests, with a slight increase in serum lactate is presented. Another author,[11] points out that the increase in bilirubin combined with the clinical manifestation, requires the use of imaging techniques to confirm the diagnostic suspicion of omental infarction, while another study,[2] shows an altered liver profile that improves after treatment. It is believed that the use of liver tests tends to guide in this entity, not as a distinctive sign, but as an indicator that can reveal the possible causal agent.

Currently, imaging techniques constitute one of the most important pillars in the diagnosis of this condition, because unlike the clinical profile, these studies do show sufficient evidence to confirm omental ischemia.

Typical findings in ultrasound are hyperoic, non-compressible, solid, ovoid lesion, adhered to the peritoneum that covers the anterolateral intestinal wall and generally larger than 5 cm. If the omental infarction is primary, an echogenic area can be seen in the lower right quadrant, while if it is secondary, it is observed at the site of the bout. Fatty changes in the liver and bile ducts are seen, as well as discrete amounts of free peritoneal fluid in the infrahepatic Morrison pouch or the Douglas pouch. [9,10,11,17,18]

Despite its low sensitivity, various entities such as acute appendicitis, cholecystitis and perforated gastroduodenal ulcer are ruled out.

A computed axial tomography reveals a mass of fat with circumscribed margins between the ventral colonic margin and the anterior abdominal wall. The focal accumulation of fat is seen encapsulated with poorly defined edges, a hyper dense halo, fine linear images with greater density inside, peritoneal fluid and increased density in the intestinal loops, the latter suggesting edema and inflammation. [13, 14,18]

A useful element for differential diagnosis is that the accumulation of fat is disproportionate to the degree of thickening of the intestinal wall. Furthermore, the presence of swirling omental vessels, as a pathognomonic finding, excludes rare entities such as omental hernia, panniculitis, appendangitis and neoplasias with fat in their interior. [3,22, 23, 24]

The high specificity of this test must be fully exploited by radiologists and surgeons, since this examination is ideal for making differential diagnoses. Hence, false negatives are often present due to the poor skill of the examiner or erroneous interpretation.

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There is a diagnostic method considered the gold standard to confirm this disease: the histopathological study of the surgical specimen. This is of utmost importance, since by describing the lesion in detail, it introduces a new term: focal infarction of intraperitoneal fat. Thus, the main anatomo-pathological findings are focal ischemia, necrosis, chronic inflammation, fibrosis, edema and fluid centered in omental fat. [3, 6, 16, 19, 25]

Macroscopically, the presence of congestive tissue with incipient fibrosis and necrotic areas suggests a primary infarction, while swirling omental vessels indicate a secondary cause. Specialized histological evaluation is reserved to rule out malignancy.

Treatment is currently under discussion. However, it is used in 85% of cases, and surgery is limited to doubtful cases or when conservative intervention fails. [10,19]

The fundamental pillar of conservative therapy is to relieve pain and maintain an adequate patient condition prior to surgery. The use of analgesics and nonsteroidal anti-inflammatory drugs represent the best option. One researcher,[13] shows favorable results with the sole use of nonsteroidal anti-inflammatory drugs. Likewise, if the pain is severe, opioids are authorized with extreme caution due to their adverse effects. [14, 20]

Antibiotic therapy, combined with analgesics, helps to reduce hospital stays due to its preventive action. The combined use of metronidazole, 500 mg vial, three times a day and ceftriaxone, one gram vial daily or ciprofloxacin, 200 mg/100 mL vial, twice a day intravenously is preferred. [2, 12,20] Another study [18] presents a case treated with ertapenem, one gram vial daily. The patient has had a good evolution and satisfactory outpatient follow-up.

Other measures include the use of antiemetics. Suspension of oral administration in the first few hours, the use of intravenous fluids and bowel rest are supportive measures that should be applied. If the cause is secondary, specific treatment for the triggering condition is needed. [2, 20]

Recurrence of pain with accompanying fever is described in 25% of cases and persists for up to two weeks on average, and the risk of omental abscess and adhesions increases. The first 24 to 48 hours are crucial to ensure the success of conservative management, so a poor response or a slow evolution establishes indisputable criteria for surgical treatment, which is the least used, but the most effective.[10]

Partial omentotomy establishes the technique of choice in the approach to these patients due to its multiple advantages: definitive nature and identification of secondary causes. Other scholars of the subject, [7, 11] describe the visualization of 100 to 200 mL of serosanguineous fluid, successfully managed, aspiration and peritoneal lavage by this technique.

Recovery of the infarcted omentum by endobags is sometimes difficult due to the large size of the segment; hence the use of the widest necrostomy produces significant pain relief, although it is used only in cases of secondary infarction or imminent abscess formation. [10]

The McBurney incision does not offer adequate visualization of the necrosed segments, which makes it mandatory to widen the incision or perform a median and open laparotomy, being an invasive procedure, is relatively contraindicated. [5, 22]

CONCLUSIONS

Omental infarction classifies as a rare cause of acute abdomen. Conservative management is the most used option, but, undoubtedly, the surgical treatment is which offers a complete resolution of the problem and a lower risk of recurrence or abscess formation.

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CONFLICT OF INTEREST

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