

Parasitic Diseases and Acute Abdomen

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Abstract

Parasitic diseases as causes of acute abdominal pain are considered a serious public health problem, especially in endemic areas. According to literature reviews, the diagnosis of this pathology can be delayed or incorrect, because it is often confused with other non-parasitic pathologies that also cause acute abdominal pain. In light of this problem, the objective of the current context is focused on developing compendiums on parasitic diseases that cause acute abdominal pain, in attempts to update the information first, and second, to offer health professionals knowledge concentrated in a few pages, since the information is dispersed, and therefore, difficult to obtain. This document offers an analysis of parasitic diseases that are commonly accompanied by acute abdominal pain as a tool for early diagnosis and timely treatment.

Keywords: acute abdominal pain; parasites; parasitic diseases

Introduction

Parasitosis is reported worldwide as a consequence of immigration, and many are endemic. Parasitic diseases cause 48.4 million cases and about 60,000 deaths per year, with special emphasis on vulnerable populations, but without correlation between incidence and severity of symptoms, determined by the fact that enteric protozoa infections, ascariasis and toxoplasmosis are more common, however, the global burden of disease is higher in cysticercosis [1]. Parasitosis affects different organs and structures of the body, with particular emphasis on the elements that make up the abdomen, generating nonspecific symptoms (which can cause diagnostic delays), among which stands out acute abdominal pain due to inflammatory processes of parenchymal organs, intestinal walls, bile ducts and peritoneal surfaces, as well as variable degrees of intestinal and bile duct obstruction, in addition to the formation of abscesses and rupture of focal cystic lesions. These pathologies have a devastating impact on people's health due to the severe acute abdomen symptoms they can cause [2]. The magnitude of medical or surgical acute abdomen is seriously impacted by the tendency of some parasites to not lodge in a single intra-abdominal organ, but can pass through several of them and be accompanied by superinfection or mass effect, and especially by the difficult differential diagnosis with other non-parasitic pathologies that cause surgical acute abdomen, hence the need to present specific information on this subject, the objective of this paper, whose purpose is

to provide conceptual tools that allow health professionals to diagnose and treat those affected appropriately [3].

Discussion

The description will begin with hydatidosis, which in humans mainly affects the liver (in 75% of cases, considered the first line of defense), although the larva can reach any part of the body. It is a disease caused by the tapeworm of the genus *Echinococcus*, mainly of the species *E. granulosus* and *E. multilocularis*, the latter with a lower incidence, but greater capacity for invasion and can be confused with malignant disease [4, 5]. In most cases, patients do not show symptoms and the discovery of the hydatid cyst is incidental, but acute abdomen occurs due to rupture of the cyst (especially large and thin-walled cysts; spontaneously [due to increased intracystic pressure], due to abdominal trauma or by accident during intraoperative manipulation; and in a contained form [surrounded by the hepatic parenchyma], communicating [with the bile or vascular duct] or directly or freely [in the peritoneal cavity]) in the biliary tree (causing acute cholangitis and in rare cases portal hypertension, portal vein thrombosis and Budd-Chiari syndrome), in the peritoneal cavity (with wall thickening of the intestinal loops and entanglement of the peritoneal fatty tissue, this is a potentially fatal complication [due to anaphylactic shock] and its management is not codified worldwide,

despite having an incidence between 1 and 16%) or in the abdominal wall, which may be accompanied by superinfection and anaphylaxis [5-7]. Another parasitic disease of interest because it is involved in the genesis of acute abdomen is fascioliasis, a disease that has *Fasciola hepatica* and *Fasciola gigantica* (less common) as its etiologic agent, because in its hepatic (larvae) and biliary (adult) phases it generates symptoms such as fever, urticaria and pain in the upper right quadrant, with or without cholangitis or cholestasis. Symptoms that are a consequence of the hepatic migration process of the parasite, with the formation of microabscesses, subcapsular hemorrhage, partial or complete biliary obstruction, periportal lymphadenopathy, effusion, thickening and focal enhancement of the hepatic capsule. Among the rare complications, hemobilia related to bleeding ulcer, hepatic infarcts and large cavitory lesions are mentioned [8, 9]. Some authors believe that acute appendicitis, such as surgical acute abdomen, may be caused by *Enterobius vermicularis* (by inflammation of the mucosa due to the simple presence of the parasite or by obstruction of the appendix with them), a small nematode that produces the disease known as oxyuriasis, which is highly frequent worldwide (up to 40%), especially in children and adolescents, and is transmitted fecal-orally; although its ability to damage the intestine remains controversial, there are reports that these parasites can simulate a clinical picture compatible with acute appendicitis (up to 3%) [10, 11]. The most common parasite of the human intestine is *Ascaris lumbricoides*, capable of causing acute abdomen, a helminth that completes a long journey through the body of the human host that includes its passage through the stomach, liver, right heart, lungs, bronchi, trachea and gastrointestinal system where it finally becomes an adult parasite. Intestinal obstruction in massive ascariasis is expected, and with it intestinal infarction and gangrene, biliary complications (biliary colic, acute cholecystitis, recurrent cholangitis and liver abscess) and pancreatic complications are also common, but gastrointestinal perforations are rare [12-14]. Another nematode, *Strongyloides stercoralis*, usually asymptomatic, can cause acute abdomen in immunosuppressed patients and become disseminated strongyloidiasis [15]. It is worth mentioning that an accidental human parasitosis known as toxocariasis, whose etiologic agents are *Toxocara canis* and *Toxocara cati*, produces an acute abdomen in its larval form, by penetrating the wall of the small intestine and migrating through the blood to all organs (especially the liver, lungs, central nervous system and eyes). The severe tissue damage reported, with the formation of multiple nodules in the liver, where small lesions fuse to form large lesions, is attributed to the eosinophilic inflammation of the host's immune system [16, 17]. Infrequent complications such as intestinal obstruction, intestinal perforation, gallbladder perforation, acute pancreatitis, acute appendicitis and acute cholecystitis characterize the acute abdominal pain in human taeniasis, a parasitosis caused by *Taenia saginata*, *Taenia solium* and *Taenia asiatica*. Likewise, perforation of luminal organs has been described as a cause of acute abdomen by these parasites [18, 19]. *Entamoeba histolytica* causes the human pathology known as amoebiasis, which is asymptomatic in most infected patients, but in 10% of cases, due to involvement of the right colon and terminal ileum, it generates acute amoebic colitis accompanied by bloody diarrhea, straining, tenesmus and abdominal pain. Also, due to transmural extension of amoebic colitis, total colonic gangrene and intestinal perforation occur, this is known as fulminant amoebic colitis. Outside the intestine, *E. histolytica* causes predominantly solitary, oval or round liver abscesses near the liver capsule in the right lobe of the liver, which manifest with pain in the right upper quadrant and tenderness, and which may be complicated by right pleural effusion and perihepatic fluid [20, 21]. Gastrointestinal symptoms

in malaria are described for *Plasmodium falciparum*, in this sense, infected people report vomiting, dyspepsia, diarrhea, abdominal pain and intestinal bleeding. Acute pancreatitis, acalculous cholecystitis and subacute intestinal obstruction are noted as rare complications. Ischemia of the affected organ due to microvascular obstruction by this species of parasite seems to be the cause of the complications. In *Plasmodium* spp. hepatosplenomegaly is common and splenic infarction, splenic rupture and hemorrhage, ascites and periportal edema are also noted as possible complications of malaria [22]. In visceral leishmaniasis hepatosplenomegaly and lymphadenopathy are common, in addition to irregular and persistent fever. Massive splenomegaly causes pain in the upper left quadrant. Gastrointestinal bleeding may also occur due to the involvement of the duodenum. Pleural effusion and dilatation of the portal vein and inferior vena cava have been described as less common than ascites, and splenic infarction and rupture are extremely rare [23-25]. The fixation of *Anisakis* spp. larvae to the gastrointestinal wall of humans as accidental hosts after the ingestion of raw or undercooked fish or shellfish causes local tissue damage that includes granulomatous inflammation, ulceration and perforation, with the abrupt appearance of abdominal pain and, in exceptional cases, intestinal obstruction. The description of parasites capable of producing acute abdominal pain ends with dientamoebiasis produced by *Dientamoeba fragilis*, a protozoan that colonizes the human intestine, which also produces soft stools and anorexia [26-28].

Conclusions

Parasitic diseases caused by uni- or pluricerular organisms can cause acute abdominal pain, the diagnosis of which may be delayed or erroneous, because the clinical signs and symptoms are similar to those described for other non-parasitic pathologies. Therefore, it should be included in the differential diagnosis of acute abdominal pain, especially in patients living in areas endemic for parasitosis.

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