Pseudoapendicite Causada por *Yersinia pseudotuberculosis*: Um Caso Clínico com Evolução Fatal

Pseudoappendicitis due to *Yersinia pseudotuberculosis*: A Case Report with a Fatal Outcome

Cláudia Antunes[1], Daniela Antunes[1], Cátia Santos[2], Ana Araújo[2], Luís Pereira[2]

Resumo:

As espécies de *Yersinia* causam frequentemente quadros de enterocolite ou pseudoapendicite. A yersiniose é maioritariamente transmitida por alimentos crus ou mal cozinhados, nomeadamente carne de porco. A gravidade clínica está relacionada com estados de imunodepressão ou de sobrecarga de ferro. Apresenta-se o caso clínico de um homem de 79 anos, com antecedentes de hipertensão e diabetes, que deu entrada no serviço de urgência por lombalgia direita com irradiação anterior para a fossa ilíaca direita (FID). Analiticamente com leucocitose, neutrofilia, e proteína C-reativa e procalcitonina elevadas. A tomografia computorizada abdominal revelou uma coleção líquida de cerca de 60x40 mm na FID. O quadro clínico evoluiu para choque séptico com suspeita de ponto de partida em apendicite. Apesar de iniciada antibioterapia com piperacilina/tazobactam, e ter sido isolada em hemoculturas *Yersinia pseudotuberculosis* sensível, o doente acabou por falecer. A baixa prevalência e a capacidade de mimetizar outras doenças dificulta o diagnóstico desta entidade. O caso alerta para a ausência de resposta ao tratamento precoce com antibioterapia de largo espectro, o que questiona a possibilidade de existência de fatores de virulência ainda por identificar, bem como para a necessidade de determinação de qual a antibioterapia mais eficaz de acordo com a gravidade clínica.

Palavras-chave: Choque Séptico; Infecções por Yersinia pseudotuberculosis; Yersinia pseudotuberculosis.

Abstract:

Yersinia species often cause enterocolitis or pseudoappendicitis. Yersiniosis is mostly transmitted by raw or undercooked foods, namely pork. Clinical severity is related to states of immunosuppression or iron overload. We present the clinical case of a 79-year-old man with a history of hypertension and diabetes, who was admitted to the emergency department for right low back pain with anterior irradiation to the right iliac fossa (RIF). Analytically with leukocytosis, neutrophilia, and C-reactive protein and procalcitonin elevated. Abdominal computed tomography revealed a liquid collection of about 60 x 40 mm in the RIF. The clinical status evolved to septic shock with suspicion of starting point in appendicitis. Although antibiotic therapy with piperacillin/tazobactam, and isolation in blood cultures of susceptible *Yersinia pseudotuberculosis*, the patient eventually died. The low prevalence and the ability to mimic other diseases makes difficult to diagnose this entity. The case warns of the absence of response to early treatment with broad-spectrum antibiotic therapy, which questions the possibility of virulence factors yet to be identified, as well as the need to determine which antibiotic is more effective according to clinical severity.

Keywords: Shock, Septic; *Yersinia* pseudotuberculosis; Yersinia pseudotuberculosis Infections.

Introduction

The yersinioses are zoonotic infections caused by three important species of the genus *yersinia*: *Yersinia pestis*, *Yersinia enterocolitica* and *Yersinia pseudotuberculosis*.[1,2]

These *Yersinia* species are gram-negative *coccobacilli*, which are both aerobic and facultative anaerobes,[3] and most commonly cause enterocolitis or pseudoappendicitis (same symptoms of an appendicitis but appendix itself normal). *Y. enterocolitica* is the more common to cause disease.[4] On the other hand, in Europe, *Yersinia pseudotuberculosis* only causes disease in a sporadic way.[5] Transmission of yersiniosis is largely foodborne, occasionally waterborne, and there are also reports of infection related to exposure to household pets and transfusion of blood products.[6,7] Undercooked or raw pork products consumption is an important mode of transmission for *Y. enterocolitica* and *Y. pseudotuberculosis*.[8,9] The severity of the clinical status is usually related to depression of the immune system and states of iron overload.[10] The diagnosis is established by culture isolation of this coccobacilli[4] and prognosis is related to severity of the clinical presentation but mortality from yersiniosis is low.[8,11,12] However, in the presence of sepsis in patients with chronic liver disease the mortality rate exceeds 75%.[3]

[1]Medicina Interna, Centro Hospitalar de Leiria, Leiria, Portugal
[2]Medicina Intensiva, Centro Hospitalar de Leiria, Leiria, Portugal

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Case Report

A 79-years-old man with history of hypertension and diabetes was admitted to the emergency department for right low back pain with anterior irradiation to the right iliac fossa (RIF) with one month of evolution and fever in the last two days. The patient was vigil, disoriented about time and localization, Glasgow coma scale (GCS)14, blood pressure 124/78 mmHg, pulse 80 beats/min, peripheral oxygen saturation 95% without oxygen supply, pain at deep palpation of the right iliac fossa and apyretic. The patient lived in a house with piped water and had no pets. Eating habits were not questioned. Laboratory tests revealed leucocytosis 46.3 10^3/uL (neutrophilia 81%), thrombocytopenia 132 10^3/uL, C-reactive protein level 209.9 mg/L and procalcitonin 10.00 ng/mL also elevated, renal and hepatic blood tests were normal. Chest x-ray and urine analyses do not revealed signs compatible with infectious focus. In order to clarify the clinical case patient was submitted to an abdominal ultrasonography that revealed a heterogenous hepatomegaly with dispersed micro cystic images and, in RIF there was a hypoechogenic oval image of liquid content that could correspond to abscess about 72x46 mm or the thickened and ectasiated appendix. To better detail the image observed in the right iliac fossa was requested abdominal computed tomography that also revealed hepatomegaly with regular contours and multiple cystic nodularities, between 4 and 14 mm, and a liquid collection of about 60x40 mm in RIF. When the patient was returning from imaging, he presented clinical worsening with prostration, with eye opening response to speech, verbal response confused and localised pain (GCS 12), fever (38.5ºC – axillary temperature) and hypotension 76/56 mmHg. The diagnosis of septic shock with a starting point in appendicitis was made after persistent hypotension, serum lactate level 4.6 mmol/L, requiring initiation of aminergic support with norepinephrin. Two sets of blood culture were collected and empirical antibiotherapy with piperacillin/tazobactam (4500 mg every 8 hours) was initiated. After hemodynamic stabilization the patient underwent exploratory laparotomy that revealed several hepatic nodules of lipomatous characteristics and a rounded formation in dependence on the appendix suggestive of mucocele/teratoma that was removed, with no signs of carcinomatosis or abscess. Pathological anatomy confirmed the diagnosis of mucocele. The patient was admitted on the Intensive Care Unit on day three and on day four the 2 sets of blood culture tests revealed the presence of *yersinia pseudotuberculosis* and antibiotic was switched to ceftriaxone (2 g every 24 hour). On day five the blood tests revealed elevated white blood cell count 29.3 10^3/uL (neutrophilia 74.8%), thrombocytopenia 48 10^3/uL, INR 2.13 ratio, elevated total bilirubin level 79.5 µmol/L (direct 62.8 µmol/L, indirect 17.7 µmol/L), alanine transaminase 251 U/L, aspartate transaminase 650 U/L, normal serum iron level (12.9 µmol/L), decreased serum unsaturated iron-binding capacity level (16.9 µmol/L), elevated transferrin saturation (TSAT) level (76.3%) and ferritin 9204.5 ng/mL. At the same day the patient went into cardiorespiratory arrest, in asystole, and died besides cardiopulmonary resuscitation.

Discussion

This case corresponds to a patient with factors that endanger/compromise the robustness of the immune system, which are associated with more severe *yersinia* infection, namely diabetes. The clinical worsening and the need for stabilization of the patient as well as the availability of the result of blood cultures on the fourth day drove away the additional etiological study of adjacent pathologies. The patient had a transferrin saturation of 76.3%, which could indicate iron overload, that may have contributed to the severity of the condition.

Yersinia infection either because of its low prevalence, particularly in Europe, or by the fact that it mimics other diseases makes it difficult to diagnose or suspect clinically about this entity. The epidemiological context did not suspect any zoonosis, however, to point out that the collection of the clinical history should include the feeding habits of the patient. The antibiotherapy initiated was piperacillin/tazobactam, a broad-spectrum antibiotic, however, the patient eventually died. The mortality rate of patients with sepsis is significant, however, the chosen antibiotic demonstrated in vitro sensitivity. The fact that the patient had impaired immunity, by diabetes, his age, the hypothesis that he might have other associated conditions, was the possible major contributor to the fatal outcome. Progression to liver failure may be related to the presence of previous and undiagnosed liver disease. The clinical case warns of the need for a more detailed epidemiological context data collection in all patients. Although hygiene measures are currently more prevalent, cases of *yersinia* infections are still reported, which demonstrates the need to continue to focus on the education of the population with regard to food hygiene and food cooking. The fatal evolution of the case reported, despite early antibiotherapy alerts to the possibility of existence of virulence factors still to be identified as well as the determination of more effective antibiotherapy according to clinical severity. ■

Declaração de Contribuição

CA, DA, CA, AA, LP – Conceito, colheita e análise de dados do caso, redação e aprovação da versão final do artigo
Todos os autores aprovaram a versão final a ser publicada.

Contributorship Statement

CA, DA, CA, AA, LP - Concept, collection and analysis of case data, writing and approval of the final version of the article
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Correspondence / Correspondência:

Cláudia Antunes - claudia_c.a@hotmail.com
Medicina Interna, Centro Hospitalar de Leiria, Leiria, Portugal
Avª Heróis do Ultramar, Apartado 40, 3100-462 Pombal

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