A CASE OF SALMONELLA-ASSOCIATED NONANEURYSMAL FOCAL ABDOMINAL AORTITIS

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Abstract

Infectious aortitis is a rare, life-threatening disease. Diagnosis and management of infectious aortitis can be challenging. Herein, we will report on an unusual case involving a 74-year-old female who presented with an altered mental status and was later demonstrated to have focal Salmonella aortitis. An initial brain computed tomography scan and lumbar puncture were unrevealing. Empiric antibiotics were started; however, Salmonella enterica serotype Enteritidis was demonstrated in the initial blood culture. An abdominal computed tomography showed focal abdominal aortitis at the L2 level. The patient made a full recovery after completion of a course of antibiotics.

Key Words: focal abdominal aortitis, consciousness disturbance, Salmonella

Introduction

Infectious aortitis has become a rare but life-threatening disease in the antibiotic era.1 In some reports, infectious aortitis can manifest with an aneurysm, but it is difficult to determine an aortic infection before an aneurysm forms.2 Only a small number of cases of nonaneurysmal infectious aortitis have been discussed in medical literature, and its true incidence and natural history are not well defined.3 Salmonella infections outside of the gastrointestinal tract remain uncommon, and the presentation of a Salmonella-infected focal aortitis is rare. Herein, we will report on an unusual case of a 74-year-old female who presented with disturbed consciousness secondary to Salmonella bacteremia that caused aortitis.

Case Report

A 74-year-old woman with a significant past medical history comprising well-controlled hypertension presented to the emergency department (ED) with general malaise for 5 days and altered consciousness for several hours. In addition to complaints of generalized malaise for 5 days, her family reported that the patient did not have a fever, a cough, diarrhea, chest pain, or abdominal pain. Upon physical examination, her mental status was altered with a Glasgow Coma Scale of E3V4M5; her blood pressure was 153/79 mmHg; her heart rate was 87 beats per minute; and her body temperature was 35.8°C. Chest and abdominal radiographs were negative. Initial laboratory tests performed in the ED
showed only leukocytosis (white blood cell count [WBC], 14.63 K/mL), and the other laboratory tests were unremarkable. Because of a fever spike in our ED during observation, blood and urine cultures were performed to investigate the focus of her fever. Brain computed tomogram (CT) and lumbar puncture were performed, and both revealed negative findings. Because an infection might have been the cause of her poor mentation, she was initially admitted for empiric antibiotic therapy with cefazolin.

However, two sets of blood cultures were obtained in the ED that later revealed *Salmonella enterica* serotype Enteritidis (serogroup D). Stool cultures for *Salmonella* were negative. Her antibiotic therapy was changed to ceftriaxone, and an abdominal CT (Figure 1 and 2) revealed increased infiltration in the left para-aortic region with enlarged lymph nodes at the L2 level. An osteomyelitis study (bone scan) revealed a negative finding. Echocardiography revealed no vegetation. A cardiothoracic surgeon was consulted, but her family decided against any surgery and opted for medical management only. Weeks later, a follow-up CT demonstrated improvement, with smaller lymph nodes and less focal infiltration in the left para-aortic region at the L2 level. Her latest abdominal CT showed complete resolution of aortitis, with no evidence of abdominal aortic inflammation.

**Discussion**

Numerous devastating diseases can present with disturbed consciousness in the ED. A routine workup in the ED can include pulse oximetry to rule out hypoxia and a serum glucose to evaluate hypoglycemia. A brain CT and lumbar puncture are performed to determine the presence of an intracranial hemorrhage, tumors, or meningitis. In select patient groups, a urine screen for drugs and serum ammonia are also obtained. Our patient presented with altered mentation with focal *Salmonella* aortitis and had no risk factors for a *Salmonella* infection. She denied that her case had been inflicted via household contacts, eating habits, ownership of unusual pets such as reptiles, or any recent history of gastroenteritis. She was considered immunocompromised because of her advanced age alone. Diagnosis of *Salmonella* bacteremia and aortitis in our case was based on blood cultures and a CT scan only. Stool cultures for *Salmonella* were negative. As the differential diagnosis of infection with altered consciousness can be broad, no unique initial clues exist that could lead to a correct diagnosis without...
microbiologic or radiologic studies. Because of the patient’s immunocompromised state related to her advanced age, unusual pathogens necessitated consideration. Of note, Wang et al. reported that 35% of adults aged 65 years or older with positive blood cultures for nontyphoid Salmonella had aortitis.\(^4\)

In most reported cases of infectious aortitis, patients presented with an aneurysm; however, it is difficult to determine the presence of an aortic infection prior to the formation of an aneurysm.\(^2\) There are two possibilities that can explain this type of pathology. First, untreated nonaneurysmal aortitis progressed to form a mycotic aneurysm. Second, a preexisting aortic aneurysm became secondarily infected and then became a mycotic aneurysm. Our patient initially had only focal aortitis without progression to an aortic aneurysm. She chose to have conservative treatment without surgical intervention. A follow-up CT revealed further improvement of focal aortitis, and her latest abdominal CT demonstrated complete resolution of the aortitis. This result was quite different from a previous case report on a case with bacterial aortitis that rapidly progressed within 6 days to an ascending aortic mycotic aneurysm that was documented with transesophageal echocardiography.\(^5\) \(^\text{Staphylococcus aureus}\) was the pathogen in that case. In fact, nonaneurysmal aortitis and mycotic aneurysms represent two extremes of the same disease. If left untreated, most cases with an infected nonaneurysmal aorta would likely progress to a mycotic aneurysm.\(^6\) In our patient, the quick resolution of the infected aorta without progression could be due to early diagnosis and treatment.

Clinical manifestations of infectious aortitis are often nonspecific, depending upon the infected site and whether an aortic aneurysm forms. Fever, chest, back, or abdominal pain is the most frequent nonspecific symptom. Patients with no aneurysm formation could be less symptomatic.\(^2\) The reasons why only a small number of cases of nonaneurysmal infectious aortitis are reported in the literature can be explained by underdiagnosis and delayed diagnosis.

There are still no randomized controlled studies to establish the management of infectious aortitis, to our knowledge. Most experts believe that antibiotic therapy for at least 6 to 12 weeks in combination with early resection of the infected aorta is the best treatment choice. Surgery helps not only confirm diagnosis, but also control sepsis and possible rupture, with reconstruction of the arterial vasculature.\(^7\) In addition, clearance of blood cultures is generally recommended, with a longer course reserved for patients with an immunocompromised state.

**Conclusion**

In this current case, \textit{Salmonella enteritidis} bacteremia causes nonaneurysmal abdominal aortitis with septic encephalopathy. We conclude that it is important to look for the infectious foci for \textit{Salmonella} bacteremia using adequate imaging studies and to initiate treatment with adequate antibiotics in patients presenting with an unexplained fever and disturbed consciousness.

**References**

沙門氏菌感染相關的局部腹主動脈炎：一病例報告

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摘要

感染性主動脈炎是一種罕見且威脅生命的疾病，在診斷上也是具有挑戰性。我們報告一名74歳的女性以意識改變為初步臨床表現之沙門桿菌感染性局部腹主動脈炎個案。腦部斷層掃描和腰椎穿刺結果是陰性。血液培養出沙門氏菌腸炎血清型。腹部電腦斷層檢查，顯示局部腹主動脈炎。病人經抗生素療程結束後完全康復。

關鍵詞：局部腹主動脈炎，意識改變，沙門氏桿菌

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