

## Non-aneurysmal infectious aortitis presenting with low back pain and abdominal pain

*Bel ağrısı ve karın ağrısının eşlik ettiği anevrizmal olmayan enfeksiyöz aortit*

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Non-aneurysmal infectious aortitis which is rarely seen presents with non-specific symptoms. Delayed treatment of the disease may result in aneurysmal changes, pseudoaneurysmal formation, and aortic rupture. A 59-year-old male patient was admitted to the emergency department with complaints of low back pain and abdominal pain. The patient had concomitant diabetes, hypertension, and rheumatoid arthritis. An abdominal computed tomography scan showed signs corresponding to non-aneurysmal infectious aortitis. The infected aorta was removed through surgical resection and anastomosis was conducted using the synthetic grafts. Broad-spectrum antibiotics were administered for a prolonged period of time. The treatment of non-aneurysmal infectious aortitis requires surgical resection immediately along with broad-spectrum antibiotics to prevent fatal complications, such as aortic rupture.

**Keywords:** Antibiotic; aortitis; infectious; resection; rupture.

Non-aneurysmal infectious aortitis is a rare clinical entity and has more non-specific clinical manifestations, compared to infected aortic aneurysms. Therefore, the diagnosis of non-aneurysmal infectious aortitis is challenging and frequently delayed.<sup>[1]</sup> Delayed treatment of non-aneurysmal infectious aortitis may result in aneurysmal changes, carrying the risk of pseudoaneurysm formation and aortic rupture.<sup>[2]</sup>

Anevrizmal olmayan enfeksiyöz aortit nadir görülmekle birlikte, spesifik olmayan semptomlar ile birlikte seyrederek. Hastalığın tedavisinin gecikmesi anevrizmal değişiklikler, psödoanevrizma oluşumu ve aort yırtılması ile sonuçlanabilir. Elli dokuz yaşında erkek hasta bel ağrısı ve karın ağrısı yakınması ile acil servise başvurdu. Hastada eşlik eden diyabet, hipertansiyon ve romatoid artrit vardı. Abdominal bilgisayarlı tomografide anevrizmal olmayan enfeksiyöz aortit ile uyumlu bulgulara rastlandı. Enfekte olmuş aort cerrahi rezeksiyon ile çıkarıldı ve sentetik greft kullanılarak anastomoz uygulandı. Uzun bir süreliğine geniş spektrumlu antibiyotik tedavisine başlandı. Anevrizmal olmayan enfeksiyöz aortitin tedavisinde acil cerrahi rezeksiyon ve aort yırtılması gibi ölümcül komplikasyonları önlemek için geniş spektrumlu antibiyotikler gereklidir.

**Anahtar sözcükler:** Antibiyotik; aortit; enfeksiyöz; rezeksiyon; yırtık.

In this article, we present a case of non-aneurysmal infectious aortitis who was treated with surgery and pharmacological therapy in the light of literature review.

### CASE REPORT

A 59-year-old male patient was admitted to the emergency department with low back pain and abdominal pain which were symptomatic for two days.



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The patient suffered from continuing stiff pain involving the back and abdomen and reported that he had not fallen down or injured himself. He had nausea on admission, but not vomiting or diarrhea. There were no signs of hematuria and dysuria. Chill and febrile sensation appeared six days before admission, however, he had no chill or febrile sensation on admission.

The patient had also been taking medications due to hypertension, diabetes, and rheumatoid arthritis (RA). Vital signs were as follows: blood pressure of 130/80 mmHg, heart rate of 90 bpm, respiratory rate of 20 bpm, and temperature of 36.4 °C. On physical examination, there was no tenderness in his abdomen, however, he had tenderness in the lower lumbar vertebrae.

Complete blood count showed a white blood cell (WBC) count of 15,700/mm<sup>3</sup>, hemoglobin at 13.1 g/dL, hematocrit of 37.5%, and platelet count of 171,000/mm<sup>3</sup>. Serum chemistry analysis showed blood urea nitrogen (BUN)/creatinine (Cr)= 28.3/0.8 mg/dL, aspartate aminotransferase (AST)/alanine aminotransferase (ALT)= 62/62 U/L, total bilirubin= 0.7 mg/dL, amylase= 17 U/L, lipase= 19U/L, and C-reactive protein (CRP)= 14.945 (0.0-0.75) mg/dL. Urine analysis showed red blood cell count= 0-1/high-power field (HPF), WBC count= 10-20/HPF. A chest and abdominal plain X-ray revealed no specific findings. A lumbar vertebrae plain X-ray showed a slight spondylolisthesis. No abnormality was found in the electrocardiography. Low back pain was considered to be one of the reasons for spondylolisthesis, however, the reason for abdominal pain remained unclear. As a result, we performed abdominal computed tomography (CT). The results

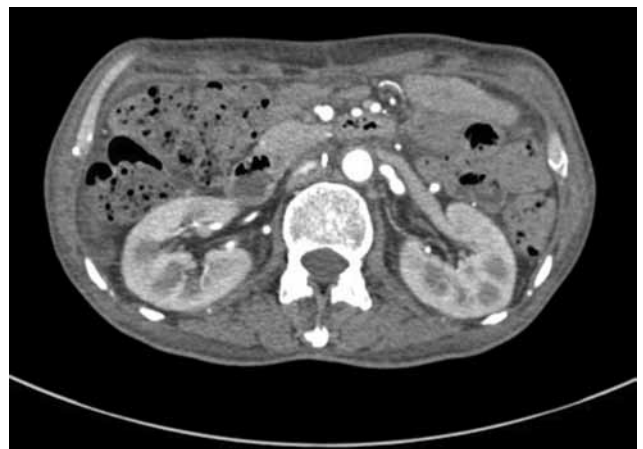
of the abdominal CT showed a small ulceration in the abdominal aorta (infrarenal portion) and intramural and periaortic hematoma formation with surrounding inflammatory reactions and multiple small air densities in the lesion (Figure 1). Based on the suspicion of infectious aortitis, we initiated antibiotherapy with ceftriaxone and metronidazole. Two days later, WBC count and CRP level elevated along with worsened clinical manifestations. Therefore, the patient was scheduled for aortic surgery. During surgery, we observed the followings: aorta wall was thick and atherosclerotic. There was penetrating aortic ulcer in the infrarenal left posterolateral side. There was an air pocket around the infrarenal aorta. There was a clear, thick, and gray turbid fluid collection around the infrarenal aorta. Based on these findings, we resected the infected area of the aorta and washed the surrounding area using an antibiotic solution containing isepamicin sulfate and normal saline.

Anastomosis was performed using a synthetic graft. Dacron (16 mm) graft was anastomosed with proximal aorta (infra renal) in end-to-end fashion. In the blood culture test, group D *salmonella* and *staphylococcus hominis* were cultured. In the culture test for the tissue of the infected aorta, group D *salmonellae* were cultivated. After surgery, a broad range of antibiotics were administered for a long period of time except ceftriaxone and metronidazole which were administered for a shorter period postoperatively. Based on the confirmed blood culture test results, we administered ceftriaxone and vancomycin.

There were no specific complications in the resected area, however, various complications such as pneumonia, voiding difficulty, bed sore and psychiatric



**Figure 1.** Abdominal computed tomography slice showing air in the aortic wall.



**Figure 2.** Abdominal computed tomography slice showing aorta after surgical resection.

problems developed. The patient was discharged from the hospital at 150 days postoperatively without any resection-related complications (Figure 2).

## DISCUSSION

In the literature, cases of infectious aortitis without aneurysm or rupture were rarely reported. Therefore, the incidence of non-aneurysmal infectious aortitis is exactly unknown.<sup>[3]</sup>

Mostly, it was found in the form of an infected aortic aneurysm. *Salmonellae* or *Staphylococcus spp* are usually associated with infected aortic aneurysms.<sup>[4]</sup> In particular, *Salmonellae* were discovered in 70% of infected aortic aneurysms in the study of Hsu et al.<sup>[5]</sup> The cases in which infectious aortitis developed had are underlying diseases including atherosclerosis, diabetes mellitus, achlorhydria, cirrhosis, acquired immunodeficiency syndrome, renal transplantation, systemic lupus erythematosus, and chronic lymphocytic leukemia.<sup>[6]</sup> Infectious aortitis in non-aneurysmal aorta primarily develops in immunocompromised elderly. If left untreated, it may progress to mycotic aneurysm with increased risk of rupture.<sup>[2]</sup>

Patients with an infected aortic aneurysm usually present with fever, back pain, abdominal pain, and abdominal mass.<sup>[6]</sup> For non-aneurysmal infectious aortitis, the incidence of non-specific symptoms is higher.<sup>[1]</sup> In the presence of penetrating injury or trauma in aortic walls, bacterial inoculation is made. Also, bacterial inoculation may occur on an atherosclerotic plaque or a pre-existing aneurysm.<sup>[7]</sup> Aortitis may be due to bacteremia or its infection foci.<sup>[8]</sup>

In our case, the patient had several risk factors of infectious aortitis including diabetes, hypertension, and RA. The patient had no aneurysmal changes, however, he had a small ulceration in his aortic wall, which indicated that the small ulceration resulted from the early development of the infectious aortitis. Although *Salmonellae* and *Staphylococci* were found in the blood cultures of the patient, the exact cause of the bacteremia still remains to be elucidated.

As non-aneurysmal infectious aortitis can be ruptured without aneurysmal changes, the infected area should be immediately removed as soon as the definite diagnosis is made.<sup>[9]</sup> Although several papers reporting the effectiveness of endovascular aortic repair through the use of stents, the gold standard of treatment is aggressive resection of infected aorta, debridement of infected peri-aortic tissue, or reconstruction.<sup>[10]</sup>

Furthermore, our case had typical symptoms of back pain and abdominal pain manifesting from

an infected aortic aneurysm, although he had non-aneurysmal infectious aortitis. Fortunately, he was successfully treated with reconstruction using surgical resection and synthetic grafts as well as broad-spectrum antibiotics immediately after he was diagnosed.

In conclusion, the risk for atherosclerotic changes or vascular defects may be higher in elderly and those with diabetes, hypertension, and RA. Therefore, these patients are more likely to have infectious aortitis without an aortic aneurysm. Non-aneurysmal infectious aortitis may progress to rupture without aneurysm formation. Once an infectious aortitis is discovered, immediate surgical resection along with broad-spectrum antibiotics is helpful to prevent fatal complications including aortic rupture.

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