Infectious dissecting aortic aneurysm due to Streptococcus pseudopneumoniae mimicked large vessel vasculitis

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Abstract

This report highlights about an infectious dissecting aortic aneurysm caused by a rare pathogen, Streptococcus pseudopneumoniae, which had to be initially diagnosed large vessel vasculitis (LVV). Even with the availability of FDG-PET, it may be difficult to distinguish between an infectious aortic aneurysm and LVV.

Case Image:

Infectious dissecting aortic aneurysm due to *Streptococcus pseudopneumoniae* mimicked large vessel vasculitis

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Case

A 71-year-old Japanese woman. She had no medical history included in coronary risk factors and rheumatic disease. From the beginning of 2022, the patient became aware of general malaise, and in May 2022, blood sampling performed at another hospital revealed a high C-reactive protein (CRP) level of 16.11 mg/dL.

Therefore, the patient was referred to our hospital for detailed examination. Upon the presentation day, she complained of back pain and computed tomography scan revealed a thoracic aortic aneurysm associated with Stanford type B aortic dissection (Figure 1A). It was decided not to perform emergency surgery, and conservative treatment with antihypertensive drugs was performed, but the CRP level remained high. Fluorodeoxyglucose-positron emission tomography (FDG-PET) showed SUV max-8.01 accumulation in the aortic arch (Figure 1B, 1C). In addition to large vessel vasculitis (LVV), such as giant cell arteritis, a close examination was performed focusing on infectious aortic aneurysms from the beginning. Four times of blood culture upon hospitalization were negative, serum procalcitonin levels were not elevated (0.03 ng/mL; cut off 0.05 ng/mL), and since the progression was long-term (about five months), we judged the possibility of infection as low. Based on the results of FDG-PET, we diagnosed LVV[1]. Glucocorticoid therapy was started at prednisolone of 30 mg/day. Despite starting prednisolone, CRP level remained positive; therefore, the blood culture was retested and*Streptococcus pseudopneumoniae* was identified (Figure 2A, 2B). The response to penicillin G was well, and prednisolone was decreased and discontinued. Infectious aortic aneurysms are often caused by *Staphylococcus species* and *Salmonella species* [2].*Streptococcus pseudopneumoniae* is indigenous bacteria in the human oral cavity and is involved in the exacerbation of chronic obstructive pulmonary disease. To identify *Streptococcus pseudopneumoniae* , it is necessary to confirm that the pneumococcal capsule, which is a major feature of *Streptococcus pneumoniae* , is not recognized and that it is resistant to optochin in a 5% CO2 environment[3]. Fatal manifestations such as meningitis may be less frequent compared to *Streptococcus pneumoniae* . If*Streptococcus pneumoniae* or oral microbiota is suspected but the clinical course, such as severity, does not match, the possibility of*Streptococcus pseudopneumoniae* infection should be considered. Additionally, the differentiation between LVV and infectious aortic aneurysms was reconfirmed to be sometimes difficult especially when caused by rare pathogens. In order to accurately differentiation between LVV and infectious aortic aneurysms, it was considered necessary to make a comprehensive judgment by combining FDG-PET and multiple biomarkers, such as procalcitonin and presepsin, in addition to repeated blood cultures.

Declarations

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Conflicts of interest/Competing interests

The authors declare no conflicts of interest/competing interests.

Ethics approval

For Case Image, our hospital does not require formal approval by an ethics committee. The publication is in agreement with the Declaration of Helsinki, and the patient provided written consent for publication.

Consent to participate/Consent for publication

This patient gave a written informed consent for her record to be published in the present study. A copy of the statement is available to the journal.

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Figure Legends

Figure 1

Computed tomography scan revealed a thoracic aortic aneurysm associated with aortic dissection.

C) Fluorodeoxyglucose-positron emission tomography showed SUV max-8.01 accumulation in the aortic arch.

Figure 2

A) Gram-positive diplococcus without pneumococcal capsule.

B) Resistance to optochin when incubated in 5% CO2.

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