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A Case of *Streptococcus thoraltensis* Bacteremia and Prosthetic Valve Endocarditis in a 68-Year-Old Vietnamese Man

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Study Design A
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Conflict of interest: None declared

Patient: Male, 68-year-old
Final Diagnosis: Infective endocarditis
Symptoms: Fever
Medication: —
Clinical Procedure: —
Specialty: Cardiology • Critical Care Medicine • Infectious Diseases

Objective: Rare disease

Background: *Streptococcus thoraltensis* is a rare cause of human disease. This report describes a patient with infective endocarditis caused by *S. thoraltensis* and complicated by ischemic stroke.

Case Report: A 68-year-old man was admitted for a 12-day duration of fever. He had a history of severe aortic valve stenosis, for which he underwent prosthetic valve replacement, and type 2 diabetes mellitus. Echocardiography revealed vegetation attached to the right coronary cusp of the prosthetic aortic valve and rupture of the sinus of Valsalva into the right ventricle. Blood cultures were positive for *S. thoraltensis*. He experienced an ischemic stroke involving the vegetation of the aortic valve and died of acute heart failure.

Conclusions: *S. thoraltensis* may be considered an emerging pathogen in patients with infective endocarditis.

MeSH Keywords: Communicable Diseases, Emerging • Endocarditis • Sepsis

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Background

Streptococcus thoraltensis is an unusual species of streptococci, originally isolated from the intestinal tract of swine [1]. Although rarely isolated from humans, *S. thoraltensis* has been identified in samples from patients with pneumonia, chorioamnionitis, and septicemia [2–4]. The role of *S. thoraltensis* as the pathogenic bacteria in humans remains poorly understood. This report describes a patient with infective endocarditis due to *S. thoraltensis*.

Case Report

A 68-year-old man with a fever for 12 consecutive days and highest body temperature of 39.5°C was admitted to our hospital in Vietnam. He had a history of type 2 diabetes mellitus and aortic valve stenosis, for which he underwent prosthetic valve replacement 2 years earlier. He did not report chest pain, shortness of breath, weight loss, or joint pain. He had not been in recent contact with pigs or rabbits and had not undergone a dental procedure or surgical intervention within 6 months before admission.

On examination, the patient's temperature was 38°C, his heart rate was 80/min, his respiratory rate was 18/min, his blood pressure was 120/70 mmHg, and his oxygen saturation was 92% in room air. A physical examination revealed normal lung sounds and a 3/6 pansystolic murmur at the lower left border of the sternum. The results of other clinical examination were unremarkable.

Initial laboratory analysis showed leukocytosis with a white blood cell (WBC) count of $13.9 \times 10^9/L$, including 92.7% neutrophils, a hemoglobin concentration of 129 g/L, thrombocytopenia with a platelet counts of $138 \times 10^9/L$, hyperglycemia with a glucose concentration of 19.1 mmol/L, and a procalcitonin concentration of 0.613 ng/ml.

Transthoracic and transesophageal echocardiography revealed a 12×8 mm vegetation attached to the right coronary cusp of the prosthetic aortic valve and rupture of the sinus of Valsalva into the right ventricle.

Blood was drawn for culturing 3 times every 12 hours and he was started on empirical antibiotic therapy with linezolid 600 mg twice daily plus levofloxacin 750 mg once daily. He was also administered insulin 30/70 of 30 UI daily for blood glucose control. The Vitek 2 automated system showed that 3 individual blood cultures were positive for *S. thoraltensis* (probability, 99%). Based on the antibiogram, he was maintained on the same antibiotic regimen (Table 1).

Table 1. Antimicrobial susceptibilities of *Streptococcus thoraltensis* isolated from a 68-year-old Vietnamese man.

Antibiotics	Results
Ceftazidime	Sensitive
Chloramphenicol	Sensitive
Ceftriaxone	Sensitive
Vancomycin	Intermediate
Cefepime	Sensitive
Linezolid	Sensitive
Amoxicillin/Clavulanic acid	Sensitive
Penicillin G	Sensitive
Erythromycin	Sensitive
Ciprofloxacin	Resistant
Levofloxacin	Sensitive
Ofloxacin	Sensitive
Clindamycin	Sensitive

Seven day later, he experienced sudden left hemiparesis and left facial palsy, with a Glasgow score of 12. Urgent computed tomography of the brain revealed an acute ischemic stroke due to middle cerebral artery M1 occlusion. The patient underwent mechanical thrombectomy successfully. On day 15, he was no longer febrile, his WBC count was $9.9 \times 10^9/L$, with 75.9% neutrophils, and his blood culture was negative.

On day 27, he presented with severe dyspnea, tachycardia, and hypotension. Endotracheal intubation was performed, and he was treated with inotropic agents and diuretics. However, he experienced a sudden cardiac arrest and died on day 30.

Discussion

S. thoraltensis is a gram-positive coccus first isolated from the intestinal tracts of swine in 1997 [1]. Although this rare streptococcal species had been detected in human specimens [5,6], its pathogenic role in humans is uncertain.

The first reported human infection with *S. thoraltensis* was in 2015, in a patient with chorioamnionitis who had a father with a history of occupational exposure to pigs [2]. A patient with pneumonia and bacteremia caused by *S. thoraltensis* was reported in 2019 [3], as was a patient with sepsis caused by *S. thoraltensis* [4].

The vegetation in the prosthetic aortic valve of our patient was large, measuring (12×8 mm). Vegetations larger than 10 mm have been reported to increase the risk of embolism, suggesting that a large vegetation is a risk factor for embolic events [7].

S. thoralensis is susceptible to chloramphenicol, clindamycin, erythromycin, levofloxacin, tigecycline, and vancomycin, but resistant to ampicillin, oxacillin, cefotaxime, ceftriaxone, and gentamicin [8,9].

References:

1. Devriese LA, Pot B, Vandamme P et al: *Streptococcus hyovaginalis* sp. nov. and *Streptococcus thoralensis* sp. nov., from the genital tract of sows. *Int J Syst Bacteriol*, 1997; 47(4): 1073–77
2. Vukonich M, Moline H, Chaussee M et al: Case report: Chorioamnionitis attributed to *Streptococcus thoralensis*. *S D Med*, 2015; 68(7): 298–99
3. Wazir M, Grewal M, Jain AG, Everett G: *Streptococcus thoralensis* bacteremia: A case of pneumonia in a postpartum patient. *Cureus*, 2019; 11(9): e5659
4. Petridis N, Apsemidou A, Kalopitas G et al: *Streptococcus thoralensis* bacteremia: First described case as a fever of unknown origin in human. *Case Rep Infect Dis*, 2018; 2018: 7956890
5. AlWakeel SS: Microbiological and molecular identification of bacterial species isolated from nasal and oropharyngeal mucosa of fuel workers in Riyadh, Saudi Arabia. *Saudi J Biol Sci*, 2017; 24(6): 1281–87
6. Al-Tamimi M, Himsawi N, Abu-Raideh J et al: Isolation of fully vancomycin-resistant *Streptococcus thoralensis* from the nasal cavity of a healthy young adult. *Microb Drug Resist*, 2019; 25(3): 421–26
7. Mohananey D, Mohadjer A, Pettersson G et al: Association of vegetation size with embolic risk in patients with infective endocarditis: A systematic review and meta-analysis. *JAMA Intern Med*, 2018; 178(4): 502–10
8. Dhotre S, Suryawanshi N, Nagoba B: Isolation of *Streptococcus thoralensis* from human oral cavity. *Indian J Dent*, 2014; 5(Suppl.): 140–41
9. Bustami N, Mismar A, Obeidat F: Isolation of *Streptococcus thoralensis* from an abdominal wall abscess in a young female: A case report. *J Clin Case Rep*, 2019; 9(2): 1212

Conclusions

S. thoralensis is an animal pathogen rarely seen in humans. *S. thoralensis* should be considered a rare emerging pathogen that can cause infective endocarditis in humans.