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Post-Covid-19 "Cedecea lapagei" pneumonia

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Abstract

Cedecea lapagei is a gram-negative, a sporous, and motile *Bacillus bacterium* in the Enterobacteriaceae family. It is an opportunistic pathogen in immunocompromised elderly patients with an underlying disease. In the present study, a *Cedecea lapagei*-induced pneumonia case is presented. A 76-year-old male patient, who received treatment for covid-19 2 weeks ago, applied to the pulmonary medicine outpatient clinic with fever, shortness of breath, cough, sputum, wheezing, and impaired consciousness for 2 days. He was admitted to the ward with pneumonia diagnosis. *Cedecea lapagei* was isolated in the sputum culture of the patient. *Cedecea lapagei* should be considered as an agent in post-Covid-19 pneumonia patients with advanced age and underlying diseases.

Introduction

Cedecea species were first described in the Enterobacteriaceae family. They were first identified as the enteric group 15. They were later named *Cedecea* [1]. They were first isolated in CDC laboratories [2,3]. There are 6 species in the *Cedecea* family, one being *Cedecea lapagei*. The species is a gram-negative, lactose-negative, lipase-positive, catalase-positive, facultative anaerobic, asporous, and non-motile bacilli [1]. They have been isolated in various clinical specimens, including sputum (the most common source), urine, cutaneous and oral ulcers, scrotal abscesses, peritoneal dialysis fluid, and gall bladder. It is an opportunistic pathogen, especially in immunocompromised elderly patients with underlying diseases [4]. An informed consent form was signed by the patient in the study. The study presents a case of *Cedecea lapagei*-induced post-Covid-19 pneumonia.

The Case

The 76 years old patient was treated for Covid-19 pneumonia two weeks before hospitalization and applied to the Private Batman Medical Park Hospital Pulmonary Outpatient Clinic with 2 days long complaints of fever, shortness of breath, cough, sputum, wheezing and impaired consciousness. The patient was hospitalized due to the worsening general condition. No disease other than HT and COPD was determined in the anamnesis. In laboratory examinations, WBC was 22.6 K/μL, Hb was12 g/dl, CRP was 134 mg/dl, and Na was 120 mmol/L. Other laboratory parameters were normal. Patient's thorax CT revealed prevalent non-homogeneous consolidation regions in bilateral inferior lobes. Growth was determined in the sputum culture of the patient. The agent was identified as *Cedecea lapagei* with the VITE 2 AST-N325 automated system (bioMerieux, USA). Antimicrobial susceptibility test was conducted with the automated system. The test results demonstrated that the agent was resistant to Amoxicillin/Clavulanic acid, Piperacillin/Tazobactam, Cefuroxime, Cefuroxime Acetyl, Ceftriaxone, Ceftazidime, Cefepime, Amikacin, Gentamicin, Ciprofloxacin, Tigecycline and colistin. It was found that it was moderately susceptible to Meropenem and trimethoprim/sulfamethoxazole. Empirical 1 g Meropenem iv 3*1 and moxifloxacin 400 mg iv 1×1 treatment was initiated before the culture test results. The patient was discharged after 10 days of treatment due to clinical and radiological improvement.

Discussion and conculsion

Cedecea potentially colonize the respiratory tract and intestines. However, they are not a known member of the human skin flora [5]. The disease capacity and clinical significance of these bacteria are not fully known. However, it was determined that the bacteria lead to bacteremia and pneumonia in immunosuppressed patients with an underlying disease or over 60 years old [6]. In a case report by Şen et al. [7], it was reported that *Cedecea* bacteremia developed after Tocilizumab, an immunosuppressant, administration in a Covid-19 patient. *Cedeca davisae* was isolated in blood culture in that study. Our patient was treated for Covid-19 before. *Cedecea lapagei* was isolated as the agent. However, our patient did not receive any immunosuppressive treatment. In that study, which was the first *Cedecea lapagei*-induced pneumonia case in the literature, the anamnesis revealed that the patient had COPD previously [8]. Similarly, our patient had a history of HT and COPD. Literature review revealed 4 domestic case reports on *Cedecea lapagei* that led to mortality in immunocompromised patients, despite the unclear clinical significance. Two cases were pneumonia patients [8]. Our case is the first post-Covid-19 *Cedecea lapagei* case. Furthermore, the data on the infections induced by this bacterium were based on a limited number of case series. This indicated that the agent is an opportunistic pathogen [9]. *Cedecea* species are difficult to treat since they are resistant to several antimicrobial agents [8]. In our patient, the agent was moderately sensitive only to meropenem and trimethoprim/sulfamethoxazole. It was resistant to other antimicrobial agents.

In conclusion, it should be considered in post-Covid-19 patients that *cedecea lapapei* bacteria, an opportunistic pathogen, could be the pneumonia agent.

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