中文題目：*Neisseria macacae* 導致之菌血性肺炎：病例分享及文獻回顧

英文題目：Bacteremic pneumonia caused by *Neisseria macacae*: case report and literature review

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Introduction: *Neisseria macacae* is a Gram-negative diplococcus that was first discovered in the oropharynx of rhesus monkeys in 1983. Past reports have shown *N. macacae* to be a commensal bacterium of the human oral cavity and respiratory tract. However, human infections of *N. macacae* are extremely rare. Its route and mechanism of infection have not yet been identified. Here, we present the first known case of bacteremic pneumonia caused by *N. macacae*.

Case presentation: An 80-year-old female nursing home resident with the history of ischemic stroke, diabetes mellitus, hypertension, and paroxysmal atrial fibrillation was presented with dyspnea and increased production of whitish sputum for 1 day. The patient had been bedridden with long-term indwelling urinary catheter and nasogastric tube since her recent admission just 3 weeks ago for acute ischemic stroke of left middle cerebral artery territory with hemorrhagic transformation, complicated by hospital-acquired pneumonia. The laboratory examination on this admission showed a white blood cell count of 12850/uL with 74.5% segmented neutrophils and elevated C-reactive protein (CRP) level of 128 mg/L. The chest X-ray revealed bilateral lower lung infiltrations, suspect bilateral lower lung pneumonia. She was admitted to the intensive care unit under the impression of acute respiratory failure related to healthcare-associated pneumonia. The patient was initially treated with ertapenem, but later escalated to imipenem-cilastatin on day 4 of hospitalization due to persistent fever, though serial improvement of the CRP levels was noted. On the fifth day of admission, the blood cultures reported the growth of *Neisseria macacae* (identification confirmed by MALDI-TOF MS). The follow-up blood cultures did not show any further growth of *N. macacae*. Unfortunately, no good quality sputum could be obtained during this hospitalization. Transthoracic echocardiography was also not performed. Follow-up chest radiograph showed notable improvement of the lower lung infiltrations. The total antibiotic treatment period was 21 days. She was discharged and followed up in an outpatient setting one week later, with no recurrence.

Discussion: The *Neisseria* species, except *N. gonorrhoeae* and *N. meningitidis*, normally comprise part of our oropharyngeal commensal bacterial flora, may act as opportunistic pathogens. There have only been few reported cases of human *N. macacae* infections, including two cases of infective endocarditis, one peritoneal dialysis peritonitis, and three reports of bacteremia of undetermined portal of entry. To our knowledge, our present case was the first known case of bacteremic pneumonia caused by *N. macacae*. A previous study had reported the finding that among patients

who were exposed to antibiotic within a month, *N. macacae* would account for 4.5% of the colonized *Neisseria* species in the oral cavity. Our patient was treated with antibiotics within 1 month of admission. Given her underlying condition of a recent stroke that resulted in dysphagia, requiring nasogastric tube for feeding, further predisposes the patient to microaspirations. At present, there are no clearly defined *N. macacae* identification method, susceptibility testing criteria, nor treatment recommendation. Therefore, further research is warranted.

Conclusion: *Neisseria macacae* infection is a very rare disease. Here, we present the first known case of bacteremic pneumonia caused by *N. macacae*.