

## Case Report

# *Neisseria meningitidis* serogroup C bacteremia causes of single petechiae in a immunocompetent patient

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**ABSTRACT:** *Neisseria meningitidis* is a global cause of morbidity and mortality, both in children and young adults, through sepsis and/or purulent meningitis. Humans are the only known reservoir. In order to decrease the burden of meningococcal related permanent sequelae and fatalities, a high level of clinical suspicion and prompt effective antibiotic treatment are mandatory. Here we present a case of a 36-year-old man admitted to our hospital for fever and a single petechial lesion due to *Neisseria meningitidis*.

— **Keywords:** *Neisseria meningitidis*, Petechiae, Immunocompetent patient.

### CASE REPORT

A 36-year-old male was admitted to the emergency department (ED) with a 4-day history of fever (38°C maximum) and single petechiae of the right foot without palm and sole involvement. Previous Medical history was remarkable only for dental procedures two weeks prior to admission. Physical examination revealed a single petechiae surrounded by a peripheral erythematous halo on the right foot (Figure 1, Panel A). Laboratory testing showed a white-cell count of 13,140 mm<sup>3</sup> (normal values: 4,500-9,000 mm<sup>3</sup>) with 81.4% neutrophils and C-reactive protein level of 60.2 mg/L (normal values <5 mg/l). Blood cultures were performed and hospitalization was proposed for further investigation, but rejected by the patient. Therefore, he was referred to the Infectious Disease Outpatient Clinic the following day.

On the next day, without any other sign and symptoms except for fever and a single petechiae, empirical antibiotic therapy was started, with amoxicillin-clavulanate acid 875/125 mg per os tid for 7 days on suspi-

cion of a skin infection. After five days of antibiotic treatment, prompt resolution of the fever and rash was observed (Figure 1, Panel B). After seven days of treatment, the blood cultures drawn at the ED tested positive for *Neisseria meningitidis* susceptible to penicillin, ciprofloxacin, tetracycline and rifampin. Using a multiplex PCR to serotype<sup>1</sup>, the meningococcal strain was assigned to serogroup C.

Treatment was then prolonged until day 10, and control blood cultures were performed but tested negative.

### DISCUSSION

Meningococcal infection can range from asymptomatic bacteraemia to fulminant sepsis with multi-organ failure and death<sup>1</sup>. Usually meningococemia yields gross morbidity and mortality; however, an unusual presentation with mild symptoms and without diffuse petechial rash has been reported in young patients<sup>3,4</sup>. Due to the possible severity of meningococcal infection, a

Panel A



Panel B



**Figure 1. Panel A:** Patient's right foot with a single petechiae at the presentation at the Infectious Diseases Outpatient Department; **Panel B:** Patient's right foot after 10 days of antibiotic treatment with amoxicillin-clavulanate acid 875/125 mg per os tid.

high level of suspicion and prompt effective antibiotic treatment are necessary to avoid long-term sequelae<sup>5</sup>. In Italy has been reported the lowest incidence rate in comparison with other European country, equal to 0.25 case per 100,000 inhabitants in 2014<sup>6</sup>. During the period between 2006-2012 in Italy the principal cause of invasive meningococcal disease was the serogroup B *Neisseria meningitidis*<sup>7</sup>. The incidence of the serogroup C has progressively decreased<sup>6,7</sup>, since vaccination with MenC conjugated vaccine has been improved. But even if we assist to a general decrease, invasive meningococcal disease due to serogroup C is still a relevant problem in young adults, between 25 and 44 years<sup>8</sup>, as in our case.

In order to decrease the burden of meningococcal related permanent sequelae and fatalities, a high level of clinical suspicion and prompt effective antibiotic treatment are mandatory.

#### CONFLICT OF INTEREST:

The Authors declare that they have no conflict of interests.

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