

CASE IMAGE

Neisseria meningitidis in peripheral blood smear

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A 21-year-old African woman without relevant medical history, notably no functional or anatomical asplenia, or any epidemiological risk factors for encapsulated bacteria, presented with a 2-day

history of weakness, high-grade fever, headaches, and new purpuric skin lesions. She rapidly deteriorated into septic shock with depressed mental status requiring orotracheal intubation. The initial

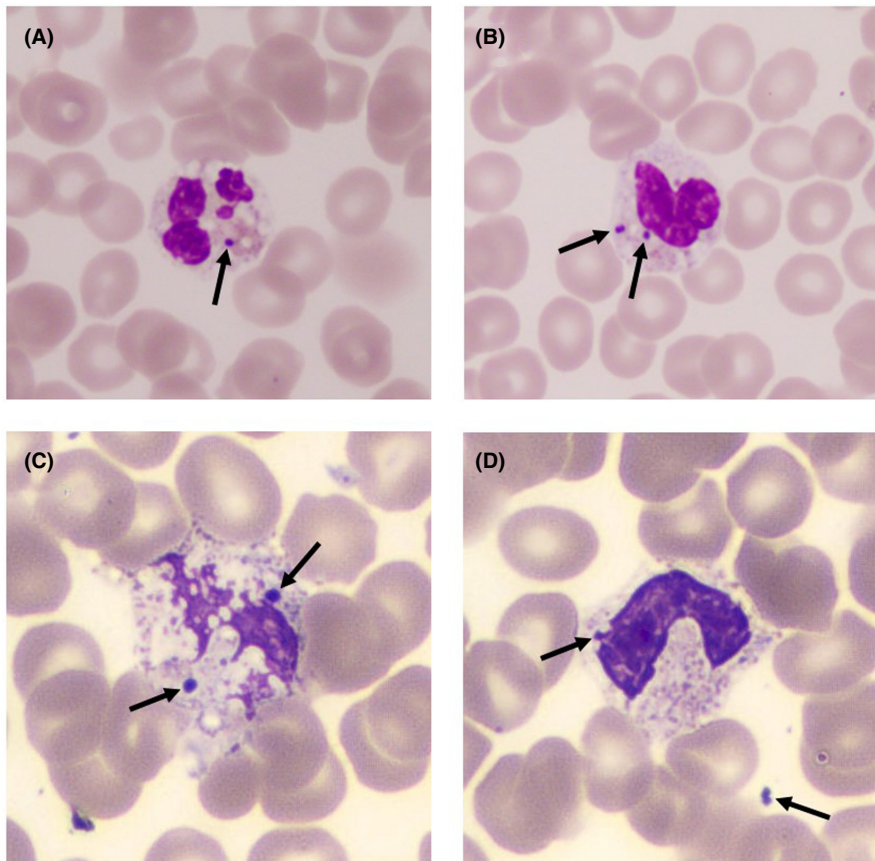


FIGURE 1 Neutrophil granulocytes with toxic signs (vacuoles) and containing basophilic inclusions, later identified as Gram-negative bacteria (black arrow). May-Grunwald-Giemsa staining, $\times 100$ magnification (A, B) and Sysmex XN[®] automate (C, D)

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blood sample showed marked thrombocytopenia ($20 \times 10^9/L$) with an immeasurable fibrinogen, consistent with severe disseminated intravascular coagulation (DIC). The peripheral blood smear (figure 1: (A, B) May-Grunwald-Giemsa staining, $\times 100$ magnification and (C, D) Sysmex XN[®] automate) taken on admission showed neutrophil granulocytes with toxic signs (vacuoles) and containing basophilic inclusions, probably being diplococci. These were later identified as Gram-negative bacteria (black arrow). A lumbar puncture was not performed because of the DIC, but blood cultures were subsequently positive for *Neisseria meningitidis* serogroup Y, confirming the diagnosis of meningococcal meningitis. The patient was rapidly treated with a second-generation cephalosporin and dexamethasone because of the highly suspicious peripheral blood smear in the context of the clinical presentation, and for DIC with fresh frozen plasma, protein C, and antithrombin III infusions. The clinical course was slowly favorable, allowing for extubation later on.

Rapid identification of acute bacterial meningitis is crucial to the outcome, the estimated mortality rate is 20%¹ and antibiotic administration without delay is the key to lessen mortality and morbidity rates.² As in this case, although not recommended by guidelines, the peripheral blood smear in addition to blood counts and coagulation testing can help to rapidly orient the diagnosis and start a prompt treatment while waiting for results of the blood cultures.

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CONFLICT OF INTEREST

The authors have no competing interests.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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