

Peripheral intraneutrophil diplococci in a case of meningococemia

Haematologica 2004; 89:(3)e41

We report a case of meningococemia in a 49-year old woman, who was admitted to the Second Department of Anesthesia and Intensive Care of the IRCCS Policlinico San Matteo of Pavia (Italy) because of an altered mental status and widespread petechiae.

The day before she felt sleepy and dizzy; in the following hours she experienced a severe clinical deterioration with fever, general pain, confusion and purpura.

At the admission, laboratory tests revealed low platelet count (PLT 16000/uL), prolongation of clotting times (prothrombin time and activated partial thromboplastin time not detectable), fibrin degradation products (FDP) >40 ug/mL, increased levels of D-dimer (5,47 ug/mL) and low levels of antithrombin III (18%).

Subsequently the patient developed a multi-organ failure with skin bleeding, renal and liver dysfunction (creatinine 2,1 mg/dl, K⁺ 6,6 mEq/L, plasma protein 2,5 g/dL), pulmonary failure, and shock (blood pressure 70/40 mmHg).

Although she received antibiotics (ceftriaxone and vancomycin) and amine, death occurred the same day preceded by coma and irreversible hypotension.

In this case the occurrence of a high bacterial concentration allowed the observation in the peripheral blood smear of an elevated number of neutrophils with intracellular diplococci (Figures 1 and 2).

The definitive diagnosis was made post-mortem with peripheral blood culture and Gram's staining of cerebrospinal fluid, both positive for *Neisseria Meningitidis*.

Infectious disease, in particular septicemia, is the most common clinical condition associated with disseminated intravascular coagulation. Gram negative bacterial infection is most frequently related to the development of the syndrome. Meningococcal sepsis, which is called meningococemia, occurs in only 5 to 20 percent of patients. Clinical features of meningococemia include a sudden onset of fever and a petechial rash, which may progress to purpura fulminans, and is often associated with the rapid occurrence of hypotension, acute adrenal haemorrhage (the Waterhouse-Friderichsen syndrome), and multi-organ failure. The presence of a rash in meningococcal infections indicates that there is a high likelihood of a fatal outcome.

Figure 1.

Figure 2.

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