Streptococcus pneumoniae on a Peripheral Blood Smear

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A 63-year-old woman with an unremarkable medical history presented with shaking chills that had persisted for six hours. The initial examination revealed disorientation, a body temperature of 38.4°C, pulse rate of 123 beats/min and blood pressure of 88/60 mmHg. Although a diagnosis of septic shock was considered, the findings of blood tests, a urinalysis and imaging studies did not reveal any obvious foci of infection. However, the spleen was found to be very atrophic on a computed tomography scan, being apparently nonfunctional (Picture 1). We initiated treatment with fluid resuscitation and antimicrobial therapy comprising intravenous ceftriaxone and vancomycin.

Gram staining of the peripheral blood smear showed Gram-positive diplococci (Picture 2), confirming the diagnosis of overwhelming pneumococcal infection against a background of a hyposplenic state. Blood cultures were positive for Streptococcus pneumoniae within three hours. No underlying hyposplenic disorders were detected on a further investigation. Vancomycin was subsequently discontinued according to the results of a susceptibility test. The patient recovered completely after two weeks of intravenous antibiotic therapy.

Since Gram staining of peripheral blood smears can be used to detect bacteria in hyposplenic or asplenic patients with fulminant septic shock (1), this technique is useful for obtaining a rapid diagnosis and validating the proper empirical therapy.

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Reference