Bacterial Structures and the Manifestation of Disease Case Study

A 15-year-old girl wasadmitted to the hospital after presenting at the emergency room (ER) in a semiconscious state. Feeling ill was nothing new for this patient —she had a 9-year history of systemic lupus erythematosus (SLE), a condition the ER physicians took into account as they examined her. SLE, sometimes called “lupus,” is an autoimmune disease in which the body produces antibodies against many of its own tissues; some organs eventually become damaged or fail to function. The specific symptoms of SLE differ, depending on which organs are affected, but kidney failure, heart problems, lung inflammation, and blood abnormalities are common. The cause of SLE is unknown.

The patient’s initial workup revealed abnormally rapid breathing, fever, and low blood pressure. Additionally, her fingers and toes were cold, and she was producing no urine. The ER staff took samples of her blood and cerebrospinal fluid (CSF) and found bacteria in both. Because of the patient’s history of SLE, magnetic resonance imaging (MRI) of the abdomen was performed to assess the condition of her organs. The MRI revealed that the lupus had led to the complete destruction of the patient’s spleen, a complication called “autosplenectomy” that occurs in approximately 5% of SLE cases.

* The presence of bacteria in the blood and the cerebrospinal fluid is considered a serious sign. Why?