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Bacillus Cereus Surgical Site Infections in Orthopedics: Case Report and Literature Review

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Surgical site infections (SSIs) are defined as infections occurring up to 30 days after surgery (or up to 90 days after implants surgery) and affecting either the superficial or deep tissues and organs at the operation site. Despite improvements in infection prevention, SSIs remain a significant clinical problem in orthopedics as they are associated with substantial mortality, morbidity and can drain healthcare resources. The most isolated organisms in orthopedics are *Staphylococcus aureus*, coagulase- negative *Staphylococci*, and Gram-negative bacilli. SSIs caused by *B.cereus* in orthopedic surgery is rare. The organism can be introduced into the surgical site from the environment, medical equipment, or from the patient's own endogenous flora, if proper sterile techniques are not strictly followed. This may lead to serious complications like osteomyelitis or arthritis. *B.cereus* is an aerobic Gram-positive, spore-forming rod, widely distributed in the environment. It produces several toxins, including a necrotizing enterotoxin, an emetic toxin, phospholipases, proteases, and hemolysins which are important pathogenic factors. Although most known to cause gastrointestinal infections, it can also cause localized infections, and systemic infections. *B.cereus* produces beta lactamases and hence resistant to beta lactams including third generation cephalosporins. In this context surgical prophylaxis and management of infections with antibiotics other than beta lactams must be considered. While often dismissed as a contaminant, careful consideration is needed when *B.cereus* is identified in a surgical site culture, especially from specimens collected aseptically. This presentation describes a case of an athlete who presented with *B.cereus* SSI following surgery for closed displaced mid shaft fracture of tibia and fibula sustained during a football match, and a literature review. The presentation will also highlight the microbiology, the pathogenic potential, and antimicrobial susceptibility of *B.cereus* to increase awareness regarding the potential pathogenicity of this organism and the correct therapeutic and prophylactic approach.