Atypical Hemolytic Uremic Syndrome in a Postoperative Patient: Diagnostic Challenges and Therapeutic Strategies

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Introduction: Atypical Hemolytic Uremic Syndrome (aHUS) is a rare, life-threatening condition characterized by microangiopathic hemolytic anemia, thrombocytopenia, and acute renal failure. This case report highlights a rare instance of aHUS triggered by a recent surgery.

Case Presentation: A 67-year-old female with history of chronic kidney disease (CKD) and recent total knee replacement surgery presented to the hospital with poor appetite, cough, fever, chills, and malaise. Her white blood cell count (WBC) was elevated, and her chest X-ray showed consolidation of the left lower lobe. She was initially diagnosed with sepsis secondary to pneumonia. Laboratory results also revealed a creatinine level of 5.70 mg/dL, compatible with acute kidney injury (AKI) on CKD. Despite broad-spectrum antibiotic therapy, the patient's condition deteriorated with worsening renal function. Additional tests showed elevated lactate dehydrogenase (LDH) and a significant drop in hemoglobin and platelet counts. Coagulation factors and fibrinogen levels were within normal limits. The patient's blood cultures remained negative and her procalcitonin levels were not significantly elevated, making sepsis unlikely. The patient underwent a renal biopsy to investigate the cause of AKI, which confirmed the presence of thrombotic microangiopathy (TMA) consistent with a diagnosis of aHUS. The patient didn't have any diarrhea or abdominal pain, making Shiga toxin-associated HUS unlikely. Her negative blood cultures and low procalcitonin level were also against an infectious etiology. However, the onset of the

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patient's symptoms shortly after her total knee replacement surgery strongly pointed to the surgery as the most likely trigger for aHUS. The patient was treated with eculizumab, a monoclonal antibody targeting complement protein C5. Her condition started to improve after receiving eculizumab, supporting the complement dysregulation as the primary driver of her condition.

Conclusion: aHUS can be triggered by surgery in elderly patients. Prompt diagnosis and early intervention with complement inhibitors like eculizumab could be lifesaving.

Keywords: Thrombotic Microangiopathy, Hemolytic Uremic Syndrome, Complement

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