

AUTOIMMUNITY OR INFECTION? A CASE OF MSSA ASSOCIATED LEUKOCYTOCLASTIC VASCULITIS AFTER REPAIR OF ANTERIOR ABDOMINAL HERNIA WITH RETRORECTUS PLACEMENT OF A BIOLOGIC MESH

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Background

Abdominal hernia repair is one of the most frequently performed surgeries in the United States, with over one million procedures annually. Implantation of surgical mesh has become the standard of care in most instances, significantly reducing recurrence rates compared to mesh-free repairs. However, mesh implantation can lead to complications such as infection, recurrence, erosion into underlying visceral organs, and, more recently proposed, autoimmune manifestations categorized under Autoimmune/Inflammatory Syndrome Induced by Adjuvants (ASIA). We present a case of systemic immune reaction following retro-rectus hernia repair using a hybrid synthetic/biologic mesh, ultimately diagnosed as leukocytoclastic vasculitis secondary to *Staphylococcus aureus* infection.



Case

A 53-year-old male with a history of smoking, coronary artery disease, obesity, and prior abdominal trauma presented with a recurrent ventral hernia 17 years after his initial repair. He underwent pre-operative optimization, including smoking cessation and a 30-pound weight loss. He had no prior autoimmune or allergic conditions and underwent uncomplicated hernia repair with placement of a hybrid biologic mesh. The mesh was placed without visceral organ exposure, and the patient was discharged without incident.

Three weeks post-operatively, he developed sharp abdominal pain, a peri-mesh fluid collection, petechial rash (pictured below) on the palms of his hands, soles of his feet, extremities, trunk, and migratory arthralgias. Laboratory findings showed leukocytosis, acute kidney injury, positive ANA and anti-RNP antibodies, and negative ANCA. Fluid aspirated from the mesh site grew methicillin-sensitive *Staphylococcus aureus* (MSSA), and a skin biopsy confirmed leukocytoclastic vasculitis. The patient was treated with antibiotics and a six-week steroid taper, resulting in complete resolution of symptoms.

Discussion

Despite meeting 5 of 6 major ASIA criteria—suggesting a possible need for mesh explantation—the identification of MSSA colonization proved crucial to his proper treatment. Current murine studies have shown that phenol-soluble modulins from *S. aureus* biofilms can stimulate autoantibody production, mimicking autoimmune syndromes, however this is the first known human case suggesting that bacterial biofilm on surgical mesh may trigger autoimmune-like responses through this mechanism. This case highlights a rare but significant complication following ventral hernia repair with biologic mesh. It underscores the importance of a multidisciplinary diagnostic approach to distinguish between autoimmune syndromes and infection-driven immune responses, which can inform appropriate treatment and avoid unnecessary mesh removal.

