

Staphylococcal-associated glomerulonephritis due to necrotizing Panton Valentine Leukocidin positive methicillin resistant *Staphylococcus aureus* pneumonia: A Case Report

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Post-infectious glomerulonephritis (GN) presents with acute kidney injury after bacterial infection, typically due to streptococcal infections. Recently, staphylococcal organisms have also been implicated in a glomerulonephritis syndrome, termed staphylococcal-associated GN which notably occurs *during* active infection. Most cases of staphylococcal-associated GN present secondary to endocarditis, skin, soft tissue or bone infection, with pneumonia being an uncommon cause. We discuss the case of a 39-year-old man who developed staphylococcal GN secondary to Panton Valentine Leukocidin (PVL) positive necrotizing methicillin resistant *Staphylococcus aureus* (MRSA) pneumonia.

A 39-year-old man with a past medical history intravenous heroin abuse and hypertension presented four days of nausea, vomiting, pleuritic chest pain and cough. His laboratory studies were notable for BUN of 80 mg/dL and a creatinine of 4.9 mg/dL. He also had WBC of 14,900. Urinalysis showed > 500 mg/dL of protein, large blood and >182 RBCs/hpf. A CT scan of the chest, abdomen and pelvis without intravenous contrast show bilateral cavitory pulmonary nodules concerning for septic emboli and a right middle pneumonia. A TEE showed no valvular vegetations. Blood cultures were positive for MRSA, later noted to be PVL positive. The patient's renal function continued to worsen, leading to uremia and metabolic acidosis requiring RRT. A kidney biopsy showed presence of C3 deposits by immunofluorescence and subepithelial and intramembranous electron deposits by electron microscopy. The bacteremia cleared after 2 weeks, and after 3 weeks the interdialytic creatinine was decreasing, so RRT was stopped.

This cases demonstrates the need to rapidly establish a cause of AKI and to have awareness of virulent bacterial strains, especially when blood cultures are not clearing. Post-infectious and infectious GN must also be differentiated as these conditions carry different outcomes and management of the former is mostly supportive while the latter may be intervened upon.

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