Post Infectious Glomerulonephritis in the Adult Patient
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Introduction
- Acute kidney injury associated with bacterial infections is not uncommon and determining the etiology of kidney injury is imperative to determine further patient management
- Acute post-infectious glomerulonephritis (PIGN) was once common worldwide but has seen a decline in incidence in developed countries over the last three decades
- While classically associated with streptococcal infections, it is also known to occur with staphylococcal infections particularly in the setting of bacteraemia

Hospital Course
HPI
53-year-old female presented to the emergency department with painful sore throat and initially discharged with pain control. On return visit she was noted to have a retropharyngeal phlegmon and a small retropharyngeal abscess.

Management
The abscess was not drainable and she was treated with a dexamethasone burst, fluids, and IV antibiotics. She was also noted to have methicillin sensitive Staphylococcus aureus (MSSA) bacteraemia and remained hospitalized for multiple issues including pain control, delayed clearance of her bacteraemia, and hyponatremia.

Complication
- On hospital day 8 she developed acute kidney injury (AKI) with creatinine increase from 0.7 mg/dL to 2.04 mg/dL, peaking at 6.98 mg/dL. She became anuric requiring temporary hemodialysis.
- Initial urine microscopy and urine electrolytes implied pre-renal etiology but further testing noted low complement levels and renal biopsy confirmed suspicions for PIGN and rapidly progressive glomerulonephritis (RPGN).

Outcome
- She was treated supportively and at one-month follow-up, she completed her IV antibiotic course with repeat imaging showing improvement of her retropharyngeal infection. She sustained moderate chronic kidney disease with a creatinine of 1.28 mg/dL.

Pathophysiology
- Antigens thought to induce PIGN have been noted to:
  1. Activate the alternative pathway of the complement system
  2. Localizes with complement deposits and within subepithelial electron-dense deposits (humps)
  3. Staphylococcus associated PIGN are characterized by glomerular IgA deposits and biopsy findings can mimic idiopathic IgA nephropathy

Treatment
- Prevention with early antibiotics helps prevent the spread of nephritis-associated infection
- The use of corticosteroids is controversial as there is a theoretical increased risk of relapse and case reports have demonstrated resolution of PIGN with and without steroid doses

Prognosis
- Children who develop PIGN have an excellent prognosis with a mortality of 0.5% and < 2% progressing to end-stage renal failure while
- Adults and the elderly have a higher likelihood of up to 41% in developing azotemia and chronic kidney disease.

References

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