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Manuscript NO: 93976

Title: A case of severe acute kidney injury due to oxalate crystal deposition induced severe interstitial nephritis: A case report and literature review

Provenance and peer review: Unsolicited Manuscript; Externally peer reviewed

Peer-review model: Single blind

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Position: Peer Reviewer

Academic degree: MD

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Reviewer’s Country/Territory: China

Author’s Country/Territory: United States

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Reviewer accepted review: 2024-03-15 09:09

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Review time: 1 Hour

Scientific quality

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<th>Grade A: Excellent</th>
<th>Grade B: Very good</th>
<th>Grade C: Good</th>
<th>Grade D: Fair</th>
<th>Grade E: Do not publish</th>
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Novelty of this manuscript

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Creativity or innovation of this manuscript

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<th>Grade A: Excellent</th>
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<th>Grade C: Fair</th>
<th>Grade D: No creativity or innovation</th>
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SPECIFIC COMMENTS TO AUTHORS
The cases provided by the authors are very important. Generally speaking, in the absence of a kidney biopsy, it is difficult for doctors to consider kidney crystals. So I think the manuscript is very instructive. I have no other questions, and the test methods and clinical data in the manuscript are sufficient. Proposed publication
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Scientific significance of the conclusion in this manuscript | [ Y ] Grade A: Excellent | [ ] Grade B: Good | [ ] Grade C: Fair | [ ] Grade D: No scientific significance
---|---|---|---|---
Language quality | [ Y ] Grade A: Priority publishing | [ ] Grade B: Minor language polishing | [ ] Grade C: A great deal of language polishing | [ ] Grade D: Rejection
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Conclusion | [ ] Accept (High priority) | [ ] Accept (General priority) | [ Y ] Minor revision | [ ] Major revision | [ ] Rejection
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Re-review | [ Y ] Yes | [ ] No
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Peer-reviewer statements | Peer-Review: [ ] Anonymous | [ Y ] Onymous | Conflicts-of-Interest: [ ] Yes | [ Y ] No

**SPECIFIC COMMENTS TO AUTHORS**
This manuscript presents a case report detailing a 71-year-old female patient with multiple comorbidities initially suspected of having a stroke but later diagnosed with severe acute kidney injury (AKI) due to acute interstitial nephritis (AIN). The patient had normal baseline kidney function and had been on hydrochlorothiazide and metoprolol succinate for hypertension management for several years. A kidney biopsy was performed due to the severity of AKI, revealing severe acute interstitial nephritis secondary to multiple intratubular oxalate crystals. The patient's renal function improved upon discontinuation of hydrochlorothiazide, volume repletion, and initiation of a prolonged prednisone taper. The study aims to provide insights into the mechanism of acute renal failure in patients with crystal nephropathy and its management. Based on the original findings of this manuscript, the study proposes several new hypotheses: crystal nephropathy may lead to acute kidney injury, which could be underestimated in clinical practice; renal biopsy can be instrumental in diagnosing acute interstitial nephritis secondary to oxalate crystal deposition. New phenomena observed through experiments include the identification of multiple intratubular oxalate crystals via
kidney biopsy, confirming the diagnosis of acute interstitial nephritis. The study also confirms the effectiveness of discontinuing the offending medication, fluid resuscitation, and prolonged steroid therapy in improving renal function. The quality and significance of this manuscript lie in its ability to: firstly, shed light on the association between crystal nephropathy and acute kidney injury, offering guidance for clinical management; secondly, propose a novel diagnostic approach utilizing renal biopsy for the precise diagnosis of oxalate crystal-induced acute interstitial nephritis, providing critical insights for similar cases; and lastly, appropriately summarize the provided data and offer unique insights into the pathogenesis and management of crystal nephropathy. However, there are several limitations to this study, including the lack of polarized light microscopy examination of the kidney biopsy specimen to ascertain the type of oxalate crystals and the absence of electron microscopy images. Additionally, the manuscript does not consider other factors contributing to oxalate crystal nephropathy, such as certain foods or excessive vitamin C intake. Future research directions could involve further exploration of the pathogenesis of crystal nephropathy, including the formation and pathogenic mechanisms of different crystal types, as well as the development of more effective treatment strategies. Authors may consider including more similar cases and conducting further comparisons of different treatment regimens to enhance understanding of the disease. The publication of this study may impact both basic science and clinical practice, aiding clinicians in better diagnosing and treating similar patients and advancing research into the mechanisms and treatment of crystal nephropathy.