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An unexpected duo; case report of tubulointerstitial nephritis and uveitis syndrome in systemic sclerosis

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ABSTRACT

Tubulointerstitial nephritis and uveitis (TINU) syndrome is a rare immune-mediated disorder usually affecting young individuals. Corticosteroids are considered the mainstay of therapy, although alternative immunosuppressive strategies may be required when contraindications exist. We report a 71-year-old woman with no prior kidney disease who presented with bilateral anterior uveitis and acute renal failure. Laboratory tests showed hematoproteinuria and positive antinuclear and anti-centromere antibodies. Renal biopsy revealed acute interstitial nephritis with inflammatory infiltrates and nephroangiosclerosis. Clinical and serological findings met EULAR criteria for systemic sclerosis. To avoid the risk of scleroderma renal crisis associated with corticosteroid therapy, mycophenolate mofetil (MMF) was initiated as monotherapy. Progressive renal recovery was observed, with serum creatinine (sCr) decreasing from 4.4 mg/dL to 1.3 mg/dL after six months, and stabilization at 1.1 mg/dL following MMF withdrawal. This case explains the diagnostic challenges of TINU in an elderly patient with systemic sclerosis and reports, to our knowledge, the first successful use of MMF monotherapy. MMF may represent a valuable alternative in corticosteroid-contraindicated cases, warranting further evaluation in future studies.

Case Report

Implication for health policy/practice/research/medical education:
This case highlights the diagnostic challenges of tubulointerstitial nephritis and uveitis (TINU) syndrome in elderly patients and its overlap with systemic sclerosis. It also suggests mycophenolate mofetil monotherapy as a potential alternative when corticosteroids are contraindicated, underscoring the need for further research on immunosuppressive strategies in rare oculorenal syndromes.

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Introduction

The tubulointerstitial nephritis and uveitis (TINU) syndrome is a rare inflammatory condition characterized by the co-occurrence of acute TINU. While the precise pathogenesis remains undetermined, current evidence supports an immune-mediated mechanism, with associations identified between TINU and specific HLA genotypes (1,2).

Typically, ocular and renal manifestations occur asynchronously, with nephritis preceding uveitis in approximately two-thirds of cases. Nephritis often results from infiltration of the renal interstitium by inflammatory cells, which, in severe instances, can lead to acute renal failure. Uveitis generally presents initially as anterior, acute, non-granulomatous, and unilateral, but may progress to a chronic and bilateral form over time (2).

The diagnosis of TINU syndrome is generally established after excluding alternative causes of uveitis and nephritis, especially in patients who initially present with flu-like symptoms or isolated uveitis. Corticosteroids are typically the first-line treatment, however, in resistant cases, the addition of immunosuppressive agents like azathioprine or mycophenolate mofetil has been documented to improve outcomes (1).

Case Report

A 71-year-old female with a history of diabetes mellitus, high blood pressure (well-controlled for 21 years with

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pharmacologic therapy), and dyslipidemia, presented to the emergency department in June 2023. She had no prior renal disease, with a baseline serum creatinine (sCr) of 1 mg/dL in April 2023.

The patient reported blurred vision, decreased visual acuity, and floaters, associated with headaches for three days. These symptoms were preceded by four days of nausea and postprandial vomiting, without other complaints. Additionally, she described a three-year history of recurrent distal extremity ulcers, requiring regular wound care at her local health center, and episodes of cold-induced pallor in her fingers, with skin thickening on her hands and feet, along with generalized pruritus. On examination, the patient was found to be hypotensive (blood pressure 102/67 mm Hg) with proximal sclerodactyly extending to the proximal interphalangeal joints, digital ulcers on the second and third digits of the right hand and thickened perioral skin.

Ophthalmological evaluation, including slit-lamp biomicroscopy and fundoscopic examination, led to a diagnosis of bilateral anterior uveitis. Corticosteroid therapy and ophthalmic anticholinergics were initiated.

Laboratory results (Tables 1 and 2) revealed normocytic normochromic anemia and new-onset renal insufficiency (blood urea nitrogen 125 mg/dL, sCr 4.4 mg/dL). Urinalysis showed hematoproteinuria without erythrocyte casts or dysmorphic red blood cells. Proteinuria was 1536.6 mg/g and albuminuria (172.6 mg/g). Autoimmune screening was positive for antinuclear and anti-centromere B antibodies. Renal imaging showed normal-sized kidneys with no evidence of urinary obstruction.

These findings met the diagnostic criteria for systemic sclerosis. Despite hydration, renal function stabilized at a plateau of 3.4 mg/dL. A kidney biopsy revealed acute interstitial nephritis with marked inflammatory infiltrate and nephroangiosclerosis in the blood vessels (Figures 1 and 2).

Considering the oculorenal involvement, the diagnosis of TINU as established in the context of newly diagnosed Systemic Sclerosis. To avoid systemic corticosteroids,

Table 1. Complete blood count and urinalysis performed upon patient admission

Laboratory data	Value	Reference
Hemoglobin	11.0 g/dL	11.5–15.5 g/dL
Leucocytes	5440 /L	4000–10,000 /L
Plaquette	225,000/L	150,000–400,000/L
Urea	125 mg/dL	17–43 mg/dL
Creatinine	4.4 mg/dL	3.5–5.1 mg/dL
Sodium	138 mmol/L	135–145 mmol/L
Potassium	4.4 mmol/L	3.5–5.1 mmol/L
Ionized calcium	1.18 mmol/L	1.15–1.27 mmol/L
Uric acid	4.1 mg/dL	2.6–6.0 mg/dL
Albumin	3.5 g/dL	3.5–5.2 g/dL
Total bilirubin	0.4 mg/dL	0.3–1.2 mg/dL
Total cholesterol	156 mg/dL	<190 mg/dL
Triglyceride	221 mg/dL	<150 mg/dL
Reactive C protein	0.18 ng/mL	<0.5 ng/mL
Lactate dehydrogenase	117 IU/L	0–248 IU/L
Protein/Creatinine ratio	1536.6 mg/g	
Albumin/Creatinine ratio	172.6 mg/g	
Urinary sediment	8 leukocytes/field, 1 erythrocyte/field. No erythrocyte casts or dysmorphic erythrocytes.	

Table 2. Autoimmunity and serology tests performed upon patient admission

Tests	Values
C3	83.2 mg/dL (79.0 – 152.0 mg/dL)
C4	22.7 mg/dL 16.0 – 38.0 mg/dL
Antinuclear and anticytoplasmic antibodies	Positive, 1/640
Anti-Centromere B antibody	Positive, 240 IU/mL
Anti-double stranded DNA (anti-dsDNA) antibodies, Anti-histone antibodies, Anti-Ro 52 antibodies, Anti-Ro 60 antibodies, Anti-Smith (anti-Sm) antibodies, Anti-topoisomerase I (Anti-Scl-70) antibodies, Anti-RNA polymerase III antibodies, Anti-Jo-1 antibodies, Anti-neutrophil cytoplasmic antibodies (ANCA)	Negative
Hepatitis B surface antigen (AgHBs), Hepatitis B surface antibody (Anti-HBs), Hepatitis C antibody (Anti-HCV), Human Immunodeficiency Virus antibody (Anti-HIV), Treponema pallidum antibody (T. pallidum antibody)	Negative
Serum electrophoresis and serum immunofixation	Without abnormalities

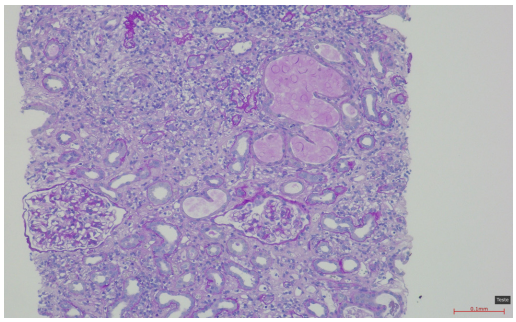

Figure 1. Light microscopy of a renal biopsy from a patient with TINU syndrome. Periodic acid–Schiff staining (magnification 100 µm).

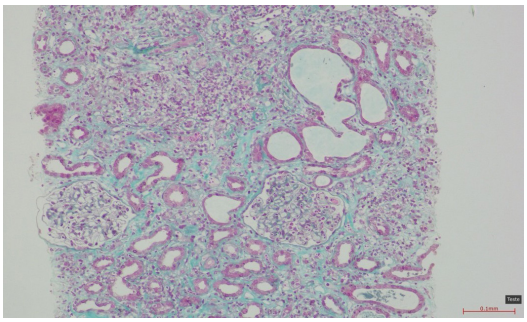

Figure 2. Light microscopy of a renal biopsy from a patient with TINU syndrome. Masson's trichrome staining (magnification 100 µm).

mycophenolate mofetil (MMF) (1000 mg/day) was initiated as monotherapy. This treatment was continued for six months, resulting in progressive improvement in azotemia (sCr 1.3 mg/dL). Following gradual discontinuation of MMF, the patient maintained stable renal function (sCr 1.1 mg/dL).

Discussion

The diagnosis of TINU requires a thorough exclusion of alternative diagnoses; in this case, non-treponemal serologies and ACE levels were negative, supporting these diagnosis mor probable. Notably, TINU predominantly affects younger individuals, whereas our patient is of advanced age, adding a layer of atypicality to this case and further emphasizing the diagnostic challenge.

The presence of skin thickening on the fingers of both hands, along with digital tip ulcers, Raynaud's phenomenon, and positive anti-centromere antibodies, scores 14 points according to the EULAR diagnostic criteria, establishing an initial diagnosis of systemic sclerosis (3). A scleroderma renal crisis was considered as a differential diagnosis; however, the absence of hypertension, preserved diuresis, and isolated antibody positivity made this diagnosis unlikely (4). As noted in the literature, corticosteroid therapy in systemic sclerosis is associated with an increased risk of renal crisis, prompting an effort to avoid corticosteroid use in this patient (4).

Corticosteroids are the primary treatment choice for TINU syndrome, with resistant cases warranting adjunct therapy with mycophenolate mofetil (MMF) or azathioprine (AZA) (1). To the best of our knowledge, MMF monotherapy for TINU has not been previously documented, presenting this case as a novel therapeutic approach. Our patient demonstrated progressive and sustained improvement in renal function, emphasizing the need for future randomized studies to evaluate the role of MMF monotherapy in TINU treatment.

Conclusion

To our knowledge, this is the first reported case of TINU syndrome successfully treated with mycophenolate mofetil monotherapy. The patient achieved progressive and sustained renal recovery, with sCr improving from 4.4 mg/dL at presentation to 1.1 mg/dL after therapy withdrawal. This outcome underscores the potential of MMF as a safe and effective alternative when corticosteroids are contraindicated, particularly in patients with concomitant systemic sclerosis.

This case contributes to the limited literature on TINU, highlights the diagnostic and therapeutic challenges in atypical age groups and comorbid autoimmune diseases, and emphasizes the necessity for further prospective investigations to define the role of MMF in the management of this rare oculorenal syndrome.

Authors' contribution

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Data curation: Ana Rita Ramos, Filipa Trigo, Marisa Roldão, Cátia Figueiredo, Inês Duarte, Rita Valério Alves, Ivan Luz, Paulo Santos

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Conflicts of interest

The authors declare that they have no conflicts of interest relevant to the subject matter of this manuscript. No financial or personal relationships have inappropriately influenced the preparation or submission of this work.

Ethical issues

This case report was performed in full accordance with the ethical principles outlined in the World Medical Association Declaration of Helsinki. The patient provided written informed consent for the use of her clinical data, laboratory results, and histological images for the purpose of scientific publication. Confidentiality and anonymity have been strictly preserved. All ethical principles have been thoroughly respected by the authors. Issues related to plagiarism, data fabrication, falsification, redundant or duplicate publication, and research misconduct have been completely avoided in the preparation of this manuscript.

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References

1. Kim JE, Park SJ, Oh JY, Jeong HJ, Kim JH, Shin JI. Successful treatment of tubulointerstitial nephritis and uveitis with steroid and azathioprine in a 12-year-old boy. Korean J Pediatr. 2016;59:S99. doi:10.3345/kjp.2016.59.11.S99.
2. Sanchez-Quiros J, Giralt L, Fonollosa A, Robles I, Carreño E. Diagnostic and management strategies of tubulointerstitial nephritis and uveitis syndrome (TINU): current perspectives. Clin Ophthalmol. 2023;17:2625–30. doi:10.2147/OPTH.S404644.
3. Van Den Hoogen F, Khanna D, Fransen J, Johnson SR, Baron M, Tyndall A, et al. 2013 classification criteria for systemic sclerosis: an American College of Rheumatology/European League Against Rheumatism collaborative initiative. Ann Rheum Dis. 2013;65:2737–47. doi:10.1136/annrheumdis-2013-204424.
4. Teixeira L, Mouthon L, Mahr A, Berezné A, Agard C, Mehrenberger M, et al. Mortality and risk factors of scleroderma renal crisis: a French retrospective study of 50 patients. Annals of the Rheumatic Diseases. 2008;67(1):110–116. doi:10.1136/ard.2007.070458.