Bladder Involvement in Systemic AL Amyloidosis Associated with Multiple Myeloma: A case Report of a rare and Challenging Presentation

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- Systemic AL amyloidosis is a rare plasma cell dyscrasia caused by the extracellular deposition of misfolded immunoglobulin light chains. It most frequently affects the heart, kidneys, and gastrointestinal tract and often results in multiorgan dysfunction (1,2).
- AL amyloidosis may coexist with multiple myeloma (MM), but the clinical association and prognosis of this overlap syndrome remain complex and poorly defined (3).
- Bladder involvement in AL amyloidosis is exceptionally rare, with most data limited to isolated case reports. It can mimic urothelial carcinoma, making diagnosis and management challenging (4,5).
- This report describes an elderly, frail patient with lambda light chain MM and systemic AL amyloidosis who developed symptomatic bladder involvement, illustrating the diagnostic and therapeutic difficulties in this setting

Case presentation

Male in his 70s with a background of MM with lambda light chain restriction and systemic AL amyloidosis.

Clinical presentation: Fatigue, weight loss, and congestive heart failure. Laboratory workup confirmed elevated free λ chains and amyloid cardiomyopathy, indicating advanced systemic involvement.

Condition at admission: Severe frailty, cognitive impairment, dependency in daily activities.

Bladder findings

Imaging revealed abnormal bladder wall thickening.
Transurethral resection performed.
Histopathology: Perivascular amyloid deposition, consistent with localized bladder amyloidosis.
Immunohistochemistry: κ/λ inconclusive.
Urinary cytology: Negative for urothelial carcinoma.

Management

Standard therapy (lenalidomide) contraindicated due to frailty and cardiomyopathy.
Initiated Daratumumab–Bortezomib–Dexamethasone (D-VD) regimen.
Early treatment was tolerated, but clinical decisions were limited by advanced organ dysfunction and poor prognosis

DISCUSSION

This case emphasizes the rarity of bladder involvement in systemic AL amyloidosis. Most commonly, AL amyloidosis affects the heart, kidneys, or gut; vesical localization is scarcely described (4,6).

Clinical presentation may mimic urothelial carcinoma, and accurate diagnosis depends on histologic confirmation with Congo red staining and amyloid typing. Immunohistochemistry may be inconclusive, requiring correlation with systemic findings (2,5,6).

In frail patients with advanced amyloid cardiomyopathy, therapeutic decisions must balance efficacy and tolerability. Aggressive regimens are often not feasible. Daratumumab-based combinations are increasingly

Bladder amyloidosis should be recognized as a potential cause of urinary symptoms in patients with known plasma cell disorders, to prevent misdiagnosis and avoid unnecessary interventions such as radical cystectomy.

This case demonstrates the need for individualized management guided by organ function, performance status, and life expectancy

CONCLUSION

- Bladder involvement in systemic AL amyloidosis is an extremely rare manifestation, particularly when coexisting with MM.
- Histologic confirmation is essential to distinguish it from urothelial carcinoma.
- In frail patients with advanced systemic disease, therapy should be personalized, balancing potential benefits with treatment risks.
- Recognition of atypical presentations is critical to guide care, avoid unnecessary procedures, and improve patient outcomes.

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