

CASE REPORT: POST-RENAL ACUTE KIDNEY INJURY DUE TO VOLUMINOUS INGUINOSCROTAL HERNIA

Relato de Caso: Lesão Renal Aguda Pós-Renal Decorrente de Hérnia Inguinoescrotal Volumosa

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Abstract

Introduction: This case report describes a rare presentation of post-renal acute kidney injury caused by extrinsic compression of the urinary tract by a voluminous inguinoscrotal hernia in an elderly patient. The case is unique due to its unusual etiology and successful conservative management, adding to the medical literature the importance of considering this condition in the differential diagnosis of acute kidney injury. **Case Presentation:** An 81-year-old male patient with a history of bilateral inguinoscrotal hernia since childhood, without previous treatment. Admitted with acute heart failure and progressive enlargement of the right hernia. During hospitalization, he developed acute kidney injury (KDIGO III) of post-renal etiology, confirmed by imaging studies that showed bilateral renal collecting system dilation and bladder distension, without significant prostatic changes. Management included indwelling urinary catheterization, resulting in progressive improvement of renal function. The patient refused surgical intervention and was discharged with conservative management. **Conclusion:** This case highlights the importance of early diagnosis and multidisciplinary evaluation in atypical situations of post-renal acute kidney injury. Clinical resolution with conservative management, even in the presence of a voluminous hernia, offers a valuable lesson on individualized treatment and the need to consider uncommon etiologies.

Keywords: Inguinal hernia, Acute kidney injury, Urinary obstruction

Resumo

Introdução: Este relato de caso descreve uma apresentação rara de lesão renal aguda (LRA) pós-renal causada por compressão extrínseca do trato urinário por uma hérnia inguinoescrotal volumosa em um paciente idoso. O caso é único devido à sua etiologia incomum e ao sucesso do manejo conservador, acrescentando à literatura médica a importância de considerar essa condição no diagnóstico diferencial da lesão renal aguda. **Apresentação do Caso:** Paciente masculino de 81 anos, com histórico de hérnia inguinoescrotal bilateral desde a infância, sem tratamento prévio. Deu entrada com insuficiência cardíaca aguda e aumento progressivo da hérnia direita. Durante a internação, desenvolveu lesão renal aguda (KDIGO III) de etiologia pós-renal, confirmada por exames de imagem que mostraram dilatação bilateral do sistema coletor renal e distensão vesical, sem alterações prostáticas significativas. O manejo incluiu cateterismo vesical de demora, resultando em melhora progressiva da função renal. O paciente recusou intervenção cirúrgica e recebeu alta com condução conservadora.

Conclusão: Este caso destaca a importância do diagnóstico precoce e da avaliação multidisciplinar em situações atípicas de lesão renal aguda pós-renal. A resolução clínica com manejo conservador, mesmo na presença de uma hérnia volumosa, oferece uma lição valiosa sobre tratamento individualizado e a necessidade de considerar etiologias incomuns.

Palavras-chave: Hérnia inguinal; Lesão renal aguda; Obstrução urinária.



Introduction

Inguinoscrotal hernia is a common condition, with a significant prevalence in the male population, especially in the elderly [1]. Although often asymptomatic or associated with mild symptoms, voluminous hernias can, on rare occasions, lead to serious and unusual complications, such as extrinsic compression of the urinary tract. Post-renal acute kidney injury (AKI), which represents a portion of acute kidney injury cases, is typically associated with obstructions at the ureterovesical junction or in the bladder, with benign prostatic hyperplasia, calculi, and neoplasms being the most frequent causes [2].

However, compression by voluminous inguinoscrotal hernias, although rare, should be considered in the differential diagnosis of post-renal AKI, particularly when more common urological causes are excluded by imaging studies [3]. This case report presents an atypical manifestation of post-renal acute kidney injury, resulting from extrinsic ureterovesical compression in a patient with a large inguinoscrotal hernia. Conservative management, with clinical resolution of the condition, emphasizes the importance of early diagnosis and a multidisciplinary approach in complex and uncommon clinical scenarios.

Patient Information

A male patient, 81 years old, with a history of bilateral inguinoscrotal hernia since childhood, with no record of previous surgical treatment or regular medical follow-up for this condition. The patient had no other relevant comorbidities or family history of genetic diseases that could predispose to the current condition. Relevant past interventions include the management of chronic conditions common to age, with no specific details provided in the original report that directly impact the current case.

Clinical Findings

The patient was admitted to the emergency room complaining of dyspnea and lower limb edema, and was diagnosed with acute heart failure profile B. He also reported progressive enlargement of the inguinoscrotal hernia, especially on the right, in the three weeks prior to admission. During hospitalization, after the resolution of the congestive heart failure, the patient developed a significant elevation in serum creatinine levels, suggesting acute kidney injury. No other relevant physical examination findings were described beyond those related to heart failure and the voluminous hernia.

Timeline

Event	Date/Period	Details
Bilateral inguinoscrotal hernia	Since childhood	No surgical treatment or medical follow-up.
Progressive enlargement of right hernia	3 weeks pre-admission	Worsening of hernia condition.
Hospital admission	Day 0	Complaint of dyspnea and lower limb edema. Diagnosis of acute heart failure profile B.
Creatinine elevation	2 days after admission	Serum creatinine of 12.57 mg/dL (baseline: 0.81 mg/dL).
Computed Tomography	2 days after admission	Voluminous bilateral inguinoscrotal hernia on the right, bilateral collecting system dilation, bladder distension.
Indwelling urinary catheterization	After creatinine elevation	Procedure for urinary decompression.
Improvement of renal function	Post-catheterization	Serum creatinine of 5.31 mg/dL.
Continued improvement of renal function	2 days after catheterization	Serum creatinine of 1.57 mg/dL.



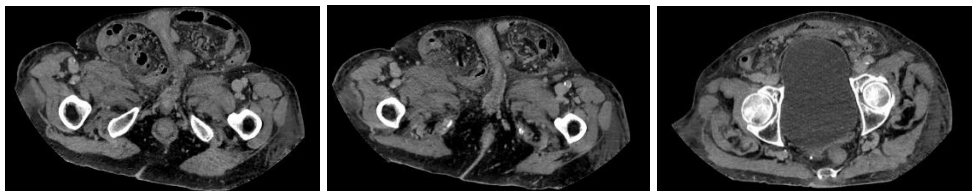
Kidney and urinary tract ultrasound	After urinary catheterization	Topical kidneys with preserved morphology, bilateral pyelocaliceal dilation, prostate without significant hypertrophy.
Hospital discharge	At discharge	Serum creatinine of 0.63 mg/dL, patient with indwelling catheter, no additional complications.
Refusal of surgical approach	During hospitalization	Patient opts for conservative management.
Outpatient follow-up	Post-discharge	With indwelling catheter, no new complications.

Diagnostic Assessment

The diagnosis of acute kidney injury was initially suggested by the progressive elevation of serum creatinine levels. The values were: 0.81 mg/dL (baseline), 12.57 mg/dL (2 days after admission), 5.31 mg/dL (post-catheterization), 1.57 mg/dL (2 days after catheterization), and 0.63 mg/dL (at hospital discharge), still with an indwelling urinary catheter.

To elucidate the etiology, imaging exams were performed:

- Computed Tomography of the abdomen and pelvis (2 days after admission): Showed a voluminous bilateral inguinoscrotal hernia, larger on the right, containing intestinal loops and mesenteric fat. Bilateral collecting system dilation was observed, worse on the right, in addition to bladder distension. A small bilateral hydrocele was noted, with no signs of intestinal obstruction or bowel suffering.



- Kidney and urinary tract ultrasound (after urinary catheterization): Revealed topical kidneys with preserved morphology and bilateral pyelocaliceal dilation (renal pelvis: 1.8 cm on the right and 1.4 cm on the left), with no images suggestive of lithiasis. The prostate had an estimated volume of 35 g, without significant hypertrophy.

Based on clinical and imaging findings, the diagnostic hypothesis of post-renal acute kidney injury secondary to extrinsic compression of the urinary tract by the voluminous inguinoscrotal hernia was corroborated by the general surgery and urology teams. More common causes of urinary obstruction, such as benign prostatic hyperplasia and urolithiasis, were considered and excluded by imaging exams, reinforcing the atypical etiology of the case.

Therapeutic Intervention

The initial management for acute kidney injury consisted of indwelling urinary catheterization, recommended by the general surgery and urology teams as a decompressive measure. After the procedure, there was a progressive regression of the acute kidney injury, evidenced by the normalization of serum creatinine levels. The patient refused definitive



surgical approach for the hernia, opting for conservative management. He was maintained with an indwelling catheter for outpatient follow-up, with no new complications.

Follow-up and Outcomes

After indwelling urinary catheterization, the patient's renal function showed progressive and significant improvement, with serum creatinine levels returning to near-baseline values at the time of hospital discharge (0.63 mg/dL). The patient was discharged without additional complications, maintaining the indwelling urinary catheter for outpatient follow-up. Adherence to conservative treatment was evaluated by clinical and laboratory improvement. No adverse or unanticipated events related to the adopted conduct were reported. Outpatient follow-up showed no new complications until the time of writing this report.

Discussion

This case report illustrates a rare complication of voluminous inguinoscrotal hernia: post-renal acute kidney injury due to extrinsic compression of the urinary tract. The strength of this report lies in the detailed documentation of an atypical case, where the exclusion of more common causes of urinary obstruction, such as benign prostatic hyperplasia and urolithiasis, directed the diagnosis to hernia compression. The immediate therapeutic response to urinary catheterization reinforces the extrinsic obstructive etiology.

In the literature, similar cases are scarce. Vaos et al. (2007) described a case of bilateral hydroureteronephrosis and renal insufficiency in an elderly patient due to inguinoscrotal hernia with bladder involvement, surgically resolved [5]. Patel et al. (2018) reported a case of AKI due to a giant hernia involving the bladder and distal ureter, reversed with decompression by catheterization and subsequent herniorrhaphy [6]. Our case aligns with these reports by demonstrating the possibility of AKI from this etiology, but differs in the successful conservative approach, respecting the patient's refusal of surgery. This highlights the importance of individualized treatment and multidisciplinary evaluation.

The main limitation of the case is the patient's refusal of definitive surgical correction of the hernia, which prevents the complete resolution of the underlying cause and maintains the need for management with an indwelling urinary catheter. However, this patient's decision, duly documented and respected, offers a valuable perspective on patient autonomy and the effectiveness of conservative approaches in specific contexts.

Primary lessons from this case are: 1) voluminous inguinoscrotal hernia should be considered in the differential diagnosis of post-renal acute kidney injury, especially in the absence of more common urological causes; 2) imaging evaluation is crucial to identify extrinsic compression; and 3) conservative management with urinary catheterization can be an effective option for urinary decompression, even in cases of voluminous hernias, when surgery is not feasible or is refused by the patient. A multidisciplinary approach is fundamental for successful diagnosis and treatment.

Patient Perspective

The patient formally authorized the publication of this case report, having signed the Free and Informed Consent Form (FICF), in accordance with the ethical principles of research involving human beings, and ensuring anonymity regarding his identity. Although the original



report does not detail the patient's perspective on the received treatment, his refusal of surgical intervention and acceptance of conservative management with an indwelling urinary catheter indicate a preference for less invasive approaches and an understanding of the implications of his decision.

Informed Consent

The patient provided written informed consent for the publication of this case report, after being duly informed about the purpose and confidentiality of his information. The patient's anonymity was strictly ensured.

References

1. Abebe MS, Tareke AA, Alem A, Debebe W, Beyene A. Worldwide magnitude of inguinal hernia: Systematic review and meta-analysis of population-based studies. *Hernia*. 2022;26(6):1515-1525. doi:10.1007/s10029-022-02565-7.
2. Mehta RL, et al. International Society of Nephrology's Oby25 initiative: Diagnosis and treatment of acute kidney injury in low-resource settings. *Kidney Int Suppl*. 2015;5(1):17-27.
3. HerniaSurge Group. International guidelines for groin hernia management. *Hernia*. 2018;22(1):1-165. doi:10.1007/s10029-017-1702-4.
4. Levine B, Rosh J. Urinary bladder hernias: Clinical and imaging spectrum. *Radiographics*. 2021;41(3):879-896. doi:10.1148/rg.2021200154.
5. Vaos G, Zavras N. Inguinoscrotal bladder herniation causing bilateral hydroureteronephrosis and renal insufficiency: A rare case report. *Urol Int*. 2007;79(1):84-86. doi:10.1159/000104759.
6. Patel K, Suh H, Patel R. Massive inguinoscrotal hernia with ureteral involvement causing obstructive uropathy. *Cureus*. 2018;10(7):e2994. doi:10.7759/cureus.2994.