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Post-Traumatic Infected Renal Hematoma Mimicking Complicated Urinary Tract Infection in An Elderly Patient: A Case Report

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1.1. Background

Complicated urinary tract infections are common in elderly patients and are often associated with underlying structural abnormalities. However, in some cases, the source of infection may not originate from the urinary tract itself, making diagnosis more challenging.

1.2. Case Presentation

We report the case of a 90-year-old woman who presented with fever and macroscopic hematuria, one month after sustaining blunt abdominal trauma. Initial imaging had revealed a left renal hematoma. On admission, laboratory findings were suggestive of severe infection, and urine cultures were positive for Escherichia coli and Enterococcus faecium, leading to an initial diagnosis of complicated urinary tract infection. Despite appropriate antibiotic therapy, the patient remained febrile. Further imaging demonstrated a persistent renal collection with features suggestive of abscess formation. Percutaneous drainage was performed, and cultures from the collection grew Escherichia coli, confirming infection of the hematoma. The patient showed clinical improvement only after drainage, in combination with intravenous antibiotic therapy.

1.3. Conclusion

Infected renal hematoma is a rare complication of blunt renal trauma that may mimic complicated urinary tract infection, particularly in elderly patients. Lack of response to antibiotic therapy should prompt reconsideration of the diagnosis and further imaging. Early recognition and appropriate source control are essential for favorable outcomes.

2. Introduction

Complicated urinary tract infections are very common in everyday clinical practice, especially in elderly patients. In most cases, they are related to factors such as urinary obstruction, stones, or impaired urinary drainage. These patients often present with fever and laboratory findings of infection, and the diagnosis seems straightforward.

However, not all cases that initially look like a complicated urinary tract infection originate from the urinary tract. In some situations, the source of infection may be a renal or perirenal collection. This can make the diagnosis less obvious, particularly in elderly patients where symptoms may be nonspecific.

Blunt renal trauma may lead to hematoma formation, which in most cases resolves spontaneously without intervention. In rare cases, though, these collections may become infected. When this happens, the clinical picture may resemble a complicated urinary tract infection, especially if there is also a positive urine culture.

In this report, we describe such a case.

3. Case Presentation

A 90-year-old woman was admitted to our emergency department because of fever. She also reported intermittent macroscopic hematuria.

One month before admission, she had sustained a fall. After that, she noticed episodes of gross hematuria. Imaging at another hospital had shown a left renal hematoma, and she was referred for further evaluation.

On admission, she was febrile and in poor general condition. Laboratory tests showed marked leukocytosis (WBC 33,000/μL) with neutrophil predominance, elevated CRP (15.27 mg/dL), and very high procalcitonin (53 ng/mL). Renal function was impaired (urea 141 mg/dL, creatinine 2.0 mg/dL). Troponin was also elevated, and she was diagnosed with NSTEMI after cardiology assessment.

Urine cultures were positive for Escherichia coli and Enterococ-

cus faecium. At that point, the clinical picture was considered compatible with complicated urinary tract infection. Despite antibiotic treatment, the patient remained febrile. Given the lack of clinical improvement, further imaging was performed. CT scan showed an enlarged left kidney, with a persistent subcapsular hematoma and associated perirenal collections (Figure 1). A cystic lesion of approximately 6 cm at the upper pole was also noted, raising suspicion of abscess formation. Nephrolithiasis was present. At that point, an infected collection was suspected, and a percutaneous drainage was performed. The drained fluid was purulent, and culture grew Escherichia coli. This confirmed that the renal collection was infected.

The patient received intravenous antibiotics (meropenem) and continued drainage.

During hospitalization, she also developed acute cholangitis and underwent ERCP with biliary stent placement.

Gradually, her clinical condition improved. Fever resolved, inflammatory markers decreased, and renal function stabilized. She was eventually discharged in stable condition.

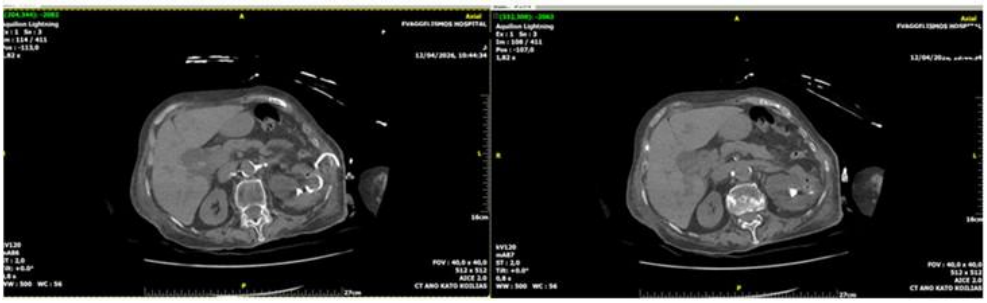

Figure 1: CT scan shows left renal subcapsular hematoma and perirenal collection. The drainage catheter is visible following percutaneous drainage.

4. Discussion

Renal hematomas after blunt trauma are usually managed without intervention. Most of them resolve over time and do not cause problems. Secondary infection of a post-traumatic renal hematoma is an uncommon, but recognized complication of blunt renal trauma, particularly in patients with predisposing factors. [1]

In this case, the patient had a positive urine culture, which initially supported the diagnosis of complicated urinary tract infection. However, the clinical course was not typical. The patient remained febrile despite antibiotic treatment. Similar patterns have been described in previous reports. [2]

This raised the suspicion that there might be another source of infection. In daily practice, the presence of bacteriuria may lead to premature attribution of fever to the urinary tract, especially in elderly patients. However, this assumption may be misleading. [3]

Imaging played an important role here. The CT findings suggested not only a hematoma, but also a possible abscess. In such situations, imaging is essential in identifying deeper or alternative sources of infection and guiding further management. [2]

The coexistence of urinary tract infection and an infected renal collection can complicate the diagnostic process. A positive urine culture does not necessarily mean that the urinary tract is the only source of infection. This has been highlighted in previous reports, where renal or perirenal abscesses were initially misinterpreted as complicated urinary tract infections. [4]

The exact mechanism of infection of a hematoma is not always clear. In this patient, an ascending infection from the urinary tract is a reasonable explanation, given the presence of nephrolithiasis and the isolation of E. coli in both urine and drainage cultures. Similar mechanisms have been proposed in the literature. [4]

Treatment in such cases differs from the standard management of complicated urinary tract infection. Antibiotic therapy alone may not be sufficient when an infected collection is present. Several studies emphasize the importance of drainage for adequate source control. [2,5]

In our patient, clinical improvement was observed only after drainage of the collection, which supports this approach.

Another important point is the overall clinical context. This was a very elderly patient with multiple comorbidities, including NSTEMI and cholangitis. This made the clinical picture more complex and required repeated reassessment during hospitalization.

This case also underlines the importance of reconsidering the initial diagnosis when the clinical course does not evolve as expected.

5. Conclusion

Infected renal hematoma is an uncommon complication after blunt renal trauma, but it should be kept in mind in patients who do not improve as expected.

Even in the presence of a positive urine culture, another source of infection may exist.

Imaging and timely drainage are important for appropriate management.

6. Consent for Publication

Written informed consent was obtained from the patient's legal representative for publication of this case report and accompanying image.

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