

# Rare Presentation of Aortic Aneurysm: A Diagnostic Challenge

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## Abstract

This case report highlights a rare presentation of abdominal aortic aneurysm, which posed a diagnostic challenge due to its atypical clinical manifestations. The patient initially presented with vague symptoms of renal colic and underwent a comprehensive evaluation, including imaging studies, to establish the diagnosis. Through a multidisciplinary approach and careful analysis of the diagnostic findings, a rare form of aortic aneurysm was identified. This case emphasizes the importance of considering unusual presentations of aortic aneurysms and the need for thorough investigation to ensure accurate diagnosis and appropriate management.

**Keywords:** aortic aneurysm, rare presentation, diagnostic challenge, multidisciplinary approach

## Introduction

Abdominal aortic aneurysm refers to a condition characterized by abnormal enlargement or bulging of abdominal aorta, the main blood vessel supplying oxygenated blood to the lower body. This condition is often asymptomatic, until the patients experience pain when it becomes large or during rupture. Abdominal aortic aneurysm is a potentially life-threatening condition, and its diagnosis and treatment are essential to prevent complications (1).

Abdominal aortic aneurysm develops over time, with progressive expansion of arterial wall weakening. In many cases, the aneurysm remains small and poses little risk. However, when the size is enlarged, it elicits more stress on the arterial wall, and leads to complications such as rupture or dissection.

The typical clinical presentation of abdominal aortic aneurysm includes chest or back pain, but in some cases rare presentations occurs, which impose diagnostic challenges (2,3). Proper identification of these atypical manifestations is crucial to ensure timely diagnosis and appropriate management. Rupture of an abdominal aortic aneurysm is an emergency situation, which occurs during the rupture of weakened aneurysm arterial wall and causes severe internal bleeding. Abdominal aortic aneurysm rupture is a life-threatening condition which needs immediate emergency care and if not properly attended to, it leads to higher mortality rate (4).

The prompt diagnosis is done using imaging modalities such as computed tomography (CT) scan or ultrasound and also to evaluate the extent of the rupture. After diagnosis, immediate surgical approach is required to repair the rupture and to restrict the bleeding. Timely access to specialized facilities and expertise is crucial for successful treatment and optimal patient outcomes.

This case report describes a rare presentation of aortic aneurysm, highlighting the diagnostic approach and multidisciplinary efforts involved in establishing an accurate diagnosis and managing the condition.

## Case Presentation

A 70-year-old male patient presented to an emergency care facility with a history of atraumatic, progressive lower back and left flank pain radiating towards the left groin. The pain was unresponsive to patient's home oral analgesia. There was no accompanying fever or bowel symptom. The patient reported nausea, inability to pass urine and distress due to pain. Vital signs at arrival were recorded as follows, blood pressure 140/88 mm Hg, pulse 100 beats per minute, and the patient was afebrile. The renal function test was done and it was normal and the point of care urine dip test showed trace protein.

Based on the clinical presentation, the initial working diagnosis was nephrolithiasis. He received intramuscular injection of Buscopan 20mg and Diclofenac 100mg PR for pain relief. The patient was subsequently discharged, with prescriptions for oral analgesia and a urology outpatient department follow up was instructed for further imaging as per local guidelines.

After 4-5 hours after discharge, the patient experienced increased pain, and an emergency ambulance was called. A new physician attended the patient and requested further investigations. A urine test was also requested but the patient was unable to provide it in this encounter. Urolithiasis with complete obstruction and possible hydronephrosis was suspected. The pain was controlled by administering IV Paracetamol followed by incremental doses of morphine. During transport, the patient's pulse increased to 105 bpm, and he became pale, with a blood pressure of 106/70 mmHg. Due to the patients' abrupt changes in vitals, paleness, ED was again contacted and advised to shift the patient to ED immediately and not to the Urology department.

### Examination and findings at emergency department

Physical examination revealed clear lungs and a regular heart rate and rhythm. The abdomen was soft, tender, no guarding with a palpable pulsatile mass in central abdomen. Laboratory data revealed a normal haemogram, normal serum electrolytes, normal troponin-I (0.01ng/mL) and serum creatinine (1.2 mg/dl) respectively. Chest X-ray showed no abnormal findings.

An ECG was performed in the ambulance which revealed non-specific T-wave changes, raising concerns for a more severe condition.

The condition of the patient was informed to ED physician and the patient was immediately transferred to the radiology lab for a CT abdomen.

### Diagnosis and Management

The CT abdomen revealed an expanding abdominal aortic aneurysm near rupture, causing an infra renal compression of the urinary tract. Urgent fluid resuscitation was initiated with surgical intervention by general surgical and vascular team.

## Discussion

This present case report underscores the significance of recognizing rare presentations of aortic aneurysms, which can pose diagnostic challenges due to the absence of typical symptoms and physical examination findings. In this case, the patient's typical renal colic symptoms initially diverted attention from considering an aortic etiology. However, upon re-presentation an abdominal CT revealed an expanding abdominal aortic aneurysm near rupture, causing compression of the renal tract, requiring emergency surgical intervention.

In addition, the presence of frank haematuria or positive findings of blood in urine, point of care tests can support the diagnosis of renal or ureteric colic. However, specificity and positive predictive values are poor. In this case, the absence of haematuria does not exclude a diagnosis but should prompt consideration for other causes of pain (5).

Most of the abdominal aortic aneurysm cases are asymptomatic and they are usually detected as an incidental finding or in the routine medical screening on various imaging modalities. Further, it also overlaps with the common symptoms such as abdominal or back pain (6).

In rare instances, large abdominal aortic aneurysms (5-5.4cms) can compress or obstruct adjacent structures, including the ureters (7). Ureteral obstruction due to abdominal aortic aneurysms can cause symptoms such as flank pain, urinary tract infections, hydronephrosis, urinary retention or even acute kidney injury. However, aneurysmal rupture is notorious due to the atypical presentation and it is crucial to avoid misdiagnosis and ensure appropriate management (7). In our case, the patient's symptoms, clinical course, and initial response to analgesics contributed to the diagnostic delay. The subsequent deterioration and imaging findings highlighted the importance of considering abdominal aortic aneurysm early in the differential diagnosis of acute abdominal pain, even in the absence of typical risk factors or symptoms. Diagnostic delay in the management of abdominal aortic aneurysm can occur due to various factors and can have significant implications for patient outcomes (8). Atypical symptoms or presentations, such as referred pain to the groin, thigh, or testicles, may be misinterpreted as musculoskeletal or urological issues, leading to delays in considering abdominal aortic aneurysm as a potential diagnosis (8). In addition, more awareness must be created among the healthcare professionals about abdominal aortic aneurysm, and its risk factors, symptoms, and screening for early detection. Meanwhile, robust access to imaging analysis, clear communication of results, and streamlining the referral and consultation processes might prevent the delay in diagnosis and appropriate management (9).

Abdominal aortic aneurysm has been often misdiagnosed as renal colic in 10% of the cases (10, 11). The pain caused by an abdominal aortic aneurysm can radiate to the back and flank region, resembling the pain experienced in

renal colic. This similarity in pain presentation can lead to initial confusion between the two conditions. It is crucial to consider abdominal aortic aneurysm in the differential diagnosis of flank pain, particularly in high-risk individuals or those with atypical features.

Abdominal CT is the gold-standard diagnostic modality to investigate the possibility of abdominal aortic aneurysm as a cause for renal colic. Abdominal CT displays good diagnostic accuracy and accurately visualizes the abdominal aorta and detects the presence of an abdominal aortic aneurysm. It provides detailed information about the size, location, and characteristics of the aneurysm, and thus helps in diagnosis and management (12). While renal colic and abdominal aortic aneurysm can present with similar flank pain, CT imaging plays a crucial role in distinguishing between the two conditions. CT scans can accurately identify the presence of an abdominal aortic aneurysm, whereas in renal colic, additional findings such as urinary stones or obstruction may be present. Often unsuspected findings unrelated to renal stone have been reported in the evaluation of flank pain (13, 14).

Prompt recognition of rare presentations of aortic aneurysms is vital to ensure timely intervention. Maintaining a high index of suspicion and considering aortic aneurysms as a potential diagnosis in patients with relevant risk factors can facilitate early recognition. Utilizing appropriate diagnostic tools such as imaging studies and considering the clinical context can aid in establishing an accurate diagnosis.

Therefore, timely recognition, accurate diagnosis, and appropriate management are crucial for optimizing patient outcomes in cases of rare presentations of aortic aneurysms (15, 16).

## Conclusion

This case report highlights the importance of considering unusual presentations of aortic aneurysms and the need for a comprehensive diagnostic evaluation. Clinicians should maintain a high index of suspicion for aortic pathology, even in the absence of typical symptoms or physical examination findings.

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