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CASE REPORT

Unruptured Infrarenal AAA Dissection with Hypotension

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ABSTRACT

Introduction: Abdominal aortic aneurysm (AAA) dissection is an exceedingly rare clinical entity, distinct from the more common thoracic aortic dissection or ruptured AAA. Aortic aneurysms, often present with symptoms such as chest pain, back pain, or syncope. However, in some rare cases, the clinical presentation can be atypical, including the presentation of hypotension without the typical signs of rupture or acute dissection. This report discusses an unusual presentation of an unruptured aortic aneurysm dissection, which presented primarily with hypotension and mild abdominal discomfort, in a patient without the classic symptoms of chest pain or back pain.

Case report: A 68-year-old female who presented to the emergency department with complaints of gradually worsening pain abdomen for 3 days; associated with fever, vomiting and vertigo. She was found unconscious on the floor. On arrival to ER, the patient's blood pressure was non-recordable; per abdomen examination revealed aortic pulsations palpable on left side of umbilicus. CT Aortogram showed two segments of aortic dissection in descending thoracic aorta and infrarenal abdominal aorta respectively. Following CTVS consultation, the patient was managed conservatively and discharged in a stable condition.

Conclusion: This case underscores the importance of considering AAA dissection in atypical presentations of abdominal pain and the need for tailored management strategies. We review the pathophysiology, diagnostic modalities, and therapeutic options, emphasizing the rarity of unruptured AAA dissection and its implications in clinical practice.

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KEYWORDS

• Abdominal aortic aneurysm • Unruptured aortic dissection • Emergency department • Pain abdomen • Pulsatile mass

Key Message: Abdominal aortic aneurysm can present with abdominal or lower back pain.

Diagnosis can be made from a physical exam in some cases. CT Aortogram is the investigation of choice for diagnosis.

INTRODUCTION

An abdominal aortic aneurysm (AAA) is a permanent, abnormal focal dilation of the abdominal aorta, at least 150% compared to the relatively normal anteroposterior diameter of the artery. This life-threatening condition requires monitoring or treatment

Aneurysms can occur in any segment of the aorta, but they are most commonly found in the abdominal aorta (abdominal aortic aneurysm, AAA) or the thoracic aorta (thoracic aortic aneurysm, TAA). Aneurysms may remain stable for years, but their presence increases the risk of rupture or dissection, both of which are medical emergencies and thus require monitoring and treatment depending on the size of the aneurysm and associated symptoms.[1]

Risk factors for AAAs include atherosclerosis (the most common), smoking, advanced age, male sex, family history of AAA, hypertension, hypercholesterolemia and connective tissue disorders.

Enlargement of the aneurysm can occur in a step-wise manner, with size remaining stable for some time before experiencing a rapid enlargement.[1]

While rupture remains the most feared complication, dissection of an AAA presence of an intimal tear within an aneurysmal segment of the abdominal aorta, leading to the formation of a false lumen or intramural hematoma, without rupture into the peritoneal or retroperitoneal space is exceptionally rare. This is a critical distinction, as rupture dramatically worsens prognosis.

Unlike thoracic aortic dissection, which is associated with conditions like Marfan syndrome or hypertension, AAA dissection lacks a clear etiological profile, with sparse reports in the literature.[2] Thoracic aortic dissectionsare classified by Stanford or DeBakey systems. However, AAA dissections lack standardized nomenclature due to their infrequency.

The unruptured state further complicates diagnosis, as patients may present with nonspecific symptoms, delaying intervention. The incidence of AAA is approximately 4-8% in men over 65, but dissection within an AAA is documented in less than 0.1% of cases. This case report presents a rare instance of unruptured AAA dissection highlighting diagnostic challenges, imaging findings, and management considerations. We aim to contribute to the limited body of knowledge on this condition and discuss its implications for vascular surgery and patient outcomes.

CASE REPORT

Patient Information: A 68-year-old female who presented to the emergency department with complaints of gradually worsening pain abdomen for 3 days; associated with fever, vomiting and vertigo. She was found unconscious on the floor.

Her medical history included hypertension, dyslipidaemia and smoking with no known connective tissue disorders or family history of aortic pathology. His regular medications included Tab.

Telmisartan 40mg OD and Tab. Rosuvastatin 20mg OD.

Clinical Findings: On examination, the patient was hemodynamically unstable with a non-recordable blood pressure and a heart rate of 134 beats/minute.

Abdominal examination revealed mild tenderness in the epigastrium with a pulsatile mass palpable in the left lumbar region.

Peripheral pulses were intact, and no bruits were auscultated. Cardiac and respiratory examinations were unremarkable. No neurological deficits were noted.

Venous blood gas:

Ph-7.38

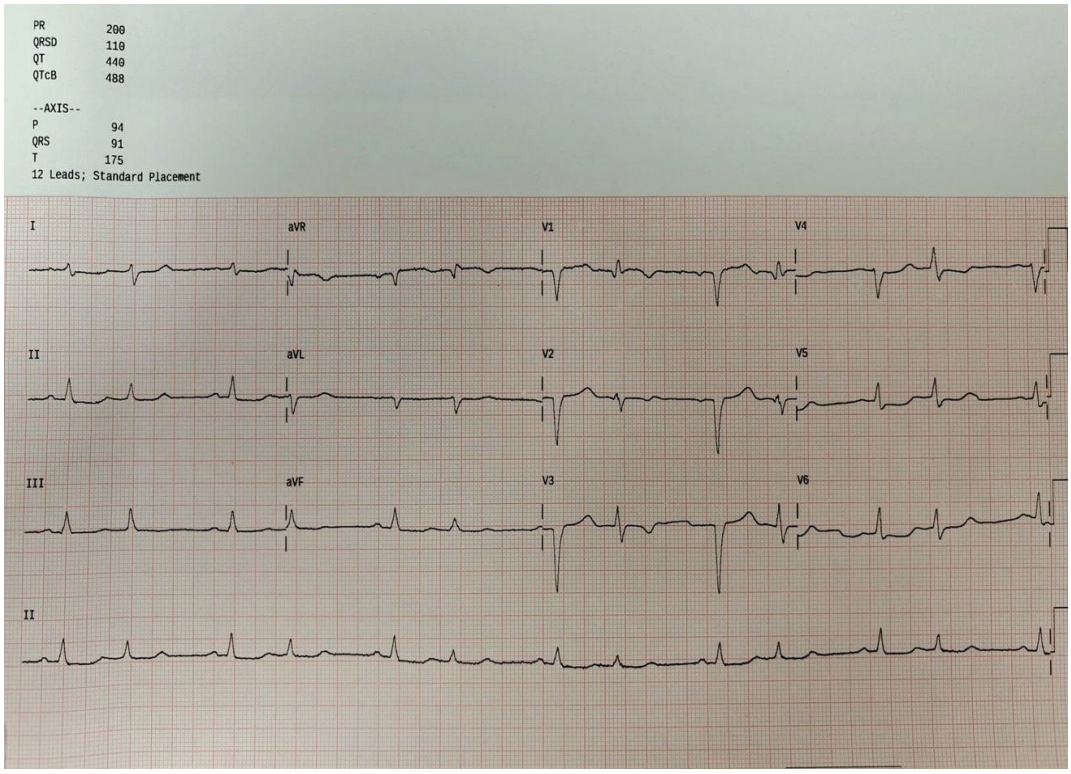
pCO2-39.8

Na-134

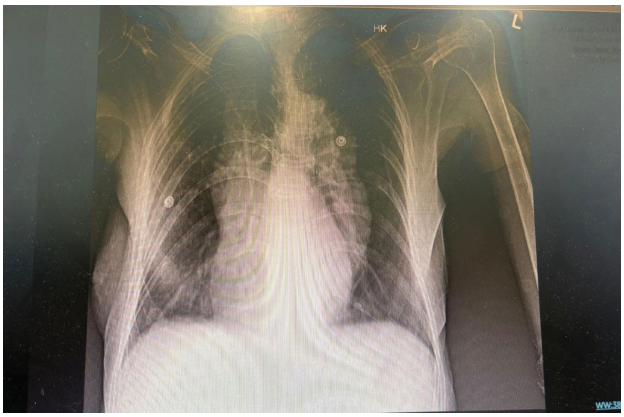
K-3.2 Glu-178 Lac-7.5 Hb-13.5

HCO3-22.3

Initial laboratory tests showed normal haemoglobin (13.5 g/dL), creatinine (1.0 mg/dL), and D-dimer (300 ng/mL)].



Electrocardiogram was unremarkable; cardiac markers were negative and 2D ECHO was suggestive of a normal study, ruling out acute coronary syndrome.





Chest X-ray s/o Mediastinal widening vascular (unfolding of Aorta-as shown in above picture)

CT Aortogram: Two segments of aortic dissection noted in the descending aorta and infra-renal abdominal aorta respectively. Partially thrombosed false lumen seen in both segments of aortic dissection. Infra-renal abdominal dissection extending into the right common iliac artery and right external iliac artery.

Diagnosis: The final diagnosis was an unruptured infrarenal AAA with dissection, a

hypertension likely contributed, though the absence of connective tissue disorders is notable.

Diagnostic Challenges: Unruptured AAA dissection presents diagnostic difficulties due to nonspecific symptoms. Abdominal pain, as in this case, may mimic gastrointestinal or musculoskeletal conditions. CTA remains the gold standard, offering high-resolution visualization of the dissection flap and aneurysm morphology. Ultrasound may identify the aneurysm but often misses dissection. D-dimer, while sensitive for dissection, lacks specificity in unruptured cases.

Management Considerations: Management of unruptured AAA dissection is not well-standardized due to its rarity. For typical AAAs, repair is considered at diameters >5.5 cm or with rapid expansion. In dissection, the risk of progression to rupture or visceral ischemia must be weighed against surgical risks. Endovascular aneurysm repair (EVAR) is preferred for complicated cases, but conservative management, as chosen here, is reasonable for stable, asymptomatic patients. Beta-blockers reduce aortic wall stress, and smoking cessation is critical to halt disease progression.

Case reports suggest variable outcomes, with some dissections progressing to rupture and others remaining stable. A 2019 study (Journal of Vascular Surgery) reported successful conservative management in 60% of unruptured AAA dissections <5 cm, aligning with this case. However, predictors of progression are unclear, necessitating close follow-up.

Implications: This case highlights the importance of considering rare vascular pathologies in atypical presentations. Early imaging and multidisciplinary input are crucial. Future research should focus on defining risk stratification and optimal management protocols for unruptured AAA dissection.

CONCLUSION

- This case underscores the importance of considering AAA dissection in atypical presentations of abdominal pain and the need for tailored management strategies. We review the pathophysiology, diagnostic modalities, and therapeutic options, emphasizing the rarity of unruptured AAA dissection and its implications in clinical practice.
- Unruptured abdominal aortic aneurysm dissection is a rare and poorly understood condition that poses diagnostic and therapeutic challenges.
- This case of a 68-year-oldmale with an unruptured AAA dissection illustrates the importance of maintaining a high index of suspicion for atypical vascular pathologies in patients with risk factors such as smoking and hypertension. CTA was pivotal in confirming the diagnosis, and conservative management proved effective.
- The rarity of this condition necessitates further research to establish guidelines for diagnosis and treatment. Future research should focus on defining rupture risk and optimizing surveillance protocols to guide therapy. Clinicians should consider AAA dissection in the differential for unexplained abdominal pain, particularly in at-risk populations, and pursue prompt imaging to guide management. This case adds to the limited literature and emphasizes the value of tailored, multidisciplinary care in achieving favourable outcomes in complex vascular diseases.

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