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| RESEARCH ARTICLE

Isolated Abdominal Pain as a Sole Presentation of Type B Aortic Dissection in a Young Female: A Case Report

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| ABSTRACT

Aortic dissection is a rare but life-threatening emergency that often presents with chest pain. However, atypical presentations may delay diagnosis, particularly in younger patients. We report a case of a 37-year-old hypertensive female who presented with isolated abdominal pain. Bedside ultrasound revealed a double lumen sign, and CT angiography confirmed a Stanford type B (DeBakey IIIb) aortic dissection extending to the iliac bifurcation, with involvement of visceral arteries and a renal infarction. The patient was managed conservatively with intravenous antihypertensives but declined further imaging or surgical intervention due to financial limitations and was discharged against medical advice. This case highlights the importance of clinical suspicion in atypical presentations and the utility of point-of-care ultrasound for early detection. CT angiography remains the gold standard for diagnosis. While conservative management is appropriate for uncomplicated type B dissections, ischemic complications such as renal infarction often warrant endovascular repair. Socioeconomic barriers significantly impacted this patient's care and prognosis. Aortic dissection may present atypically and requires a high index of suspicion for prompt diagnosis. Equitable access to advanced diagnostics and interventions is crucial to improving outcomes, especially in younger patients with limited resources.

| KEYWORDS

Isolated Abdominal Pain; Type B Aortic Dissection; Young Female

| ARTICLE INFORMATION

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1. Introduction

Aortic dissection (AD) is a fatal cardiovascular emergency characterized by a tear in the intimal layer of the aortic wall, causing a false lumen. This condition poses a significant challenge for clinicians to diagnose due to its variable clinical presentation and the severity of the condition if left untreated.[1] Acute aortic dissection (AAD) is a rare condition with an incidence of 3 to 6 cases per 100,000 person-years in the general population, and its incidence rises markedly with age, especially among individuals over 65 years old.[1,2] If AD patients are not treated promptly, about 24% will die within the first 24 hours of symptom onset, and 50% will die within 48 hours.[3] Type B aortic dissection is a serious medical condition that typically affects individuals with risk factors such as hypertension, trauma, or connective tissue disorders like Marfan's syndrome and Ehlers-Danlos syndrome.[4] Here, we report a rare case of a 37-year-old patient who developed type B aortic dissection associated with a renal infarction, with only chronic hypertension as a risk factor, and, due to a high index of clinical suspicion, was successfully diagnosed and managed with conservative medical treatment alone.

2. Case Presentation

A 37-year-old Thai female, with a known history of hypertension and non-adherence to medical therapy, presented to the Emergency Department of Salmaniya Medical Complex, Bahrain, in May 2025, with a one-day history of acute abdominal pain. The pain was localized to the periumbilical region and was not associated with nausea, vomiting, or any gastrointestinal or urinary symptoms.

On physical examination, the patient appeared anxious but alert. Her blood pressure was markedly elevated at 248/118 mmHg. Peripheral pulses were palpable and symmetrical. Abdominal examination revealed tenderness in the periumbilical area without guarding or rebound tenderness. The remainder of the physical exam, including cardiovascular, respiratory, and neurological assessments, was unremarkable.

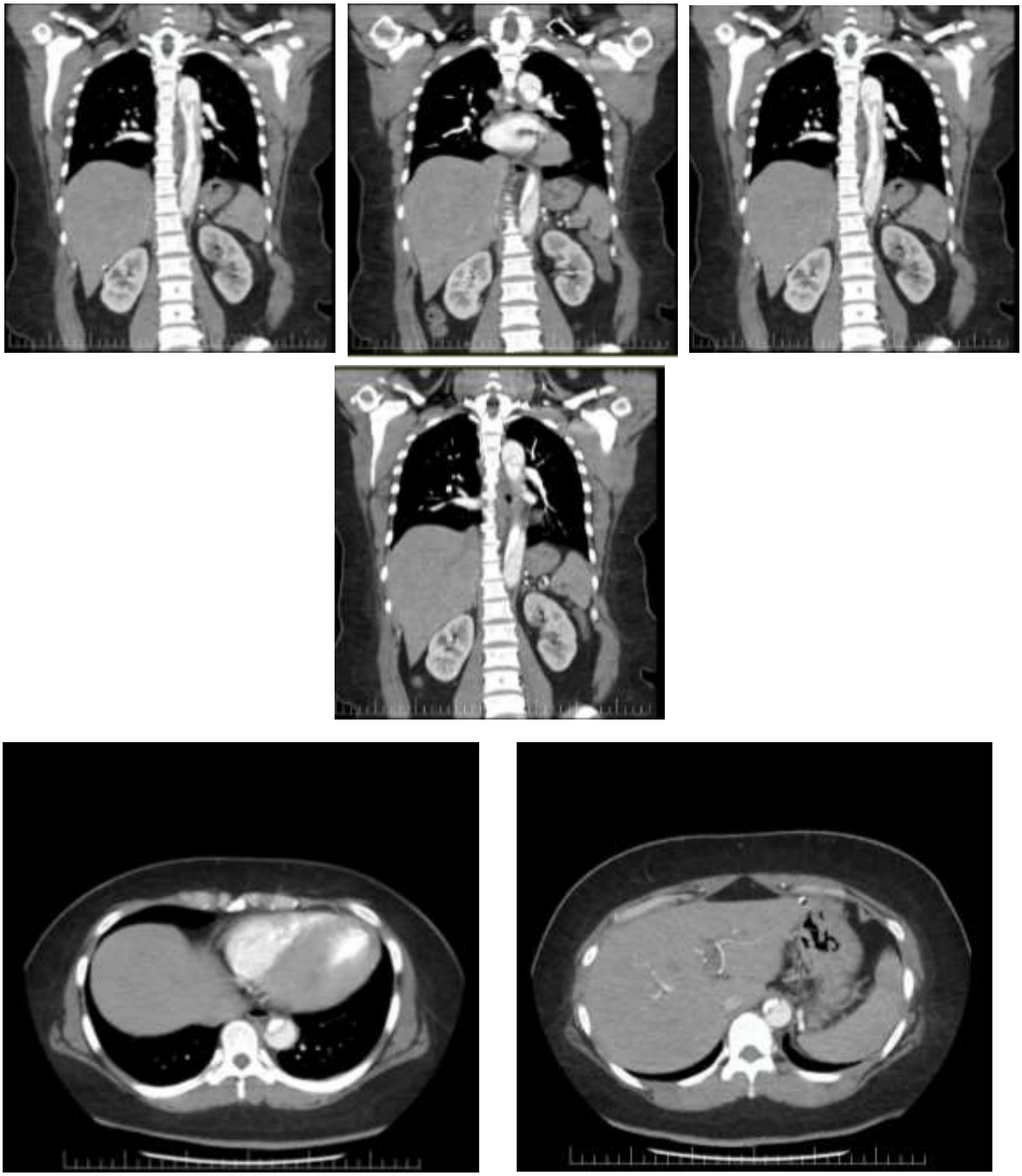
Initial laboratory investigations were notable for leukocytosis, with a white blood cell count of 14.2×10^9/L. Other hematological and biochemical parameters, including renal function, liver enzymes, and coagulation profile, were within acceptable ranges.

Given the significantly elevated blood pressure and abdominal pain, a focused bedside abdominal ultrasound was performed, revealing a double lumen sign with a visible intimal flap suggestive of an aortic dissection. To further evaluate the extent of dissection, a computed tomography (CT) angiogram of the chest and abdomen was urgently obtained. Imaging demonstrated a long-segment dissection of the descending thoracic and abdominal aorta, beginning just distal to the origin of the left subclavian artery and extending to the level of the iliac bifurcation, involving both iliac arteries—consistent with Stanford type B and DeBakey type IIIb aortic dissection. The dissection also extended to the origins of the celiac trunk, superior mesenteric artery, and left renal artery. Additionally, a wedge-shaped hypodensity in the left kidney was observed, consistent with a renal infarction secondary to compromised perfusion.

The patient was admitted to the Coronary Care Unit (CCU) due to the unavailability of intensive care unit (ICU) beds. Medical management was initiated with intravenous labetalol boluses followed by continuous infusion. Adequate analgesia was provided, and the patient's blood pressure stabilized within target parameters over the next 24 hours.

The vascular surgery team was consulted, and the patient was advised to undergo a repeat CT angiogram to assess for progression and to consider surgical or endovascular intervention. However, the patient declined further imaging and intervention due to financial constraints. Despite medical recommendations, she chose to leave the hospital and was discharged against medical advice after one week of inpatient care. She was prescribed a multi-drug antihypertensive regimen upon discharge, including Exforge (amlodipine/valsartan) 10/160 mg once daily, Diovan (valsartan) 60 mg once daily, hydralazine 50 mg three times daily, carvedilol 25 mg twice daily, and methyldopa 250 mg three times daily. Images of the initial computed tomography angiogram are found in Image 1.

Image 1: Computed Tomography Angiogram of the Chest and Abdomen at the Initial Presentation.



3. Discussion

Aortic dissection is a life-threatening, often fatal medical emergency characterized by a tear in the intimal layer of the aorta, where blood oozes and separates the aortic layers apart. It is classified anatomically by the Stanford system into type A (involving the ascending aorta) and type B (descending aorta distal to the left subclavian artery) dissections. Accordingly, our patient presented with a type B (DeBakey IIIB) dissecting that extended from the distal thoracic aorta to the iliac bifurcation. In addition, it had a renal artery involvement along with an infarction. This case underscores important clinical considerations regarding aortic dissection.

4. Atypical Presentation and Diagnostic Challenges

Despite chest pain being the classic symptom of aortic dissection, studies show that up to 27% of patients may present with nonspecific symptoms, which may pose a challenge in diagnosis. For example, isolated abdominal pain, as seen in our patient, is one of the less commonly documented presentations. Other symptoms include back pain and neurological symptoms without chest pain [5-8]. Aligning with growing data demonstrating the value of point-of-care ultrasound (POCUS) in the rapid diagnosis of aortic dissection, particularly in emergencies, bedside ultrasound was crucial in the early identification of the intimal flap [5]. Nonetheless, CT angiography remains the gold standard in diagnosing and delineating the extent of the dissection, as demonstrated in our case [6].

5. Management Considerations and Socioeconomic Impact

Prompt and aggressive medical treatment remains the cornerstone of treatment in uncomplicated Type B dissections. Strict blood pressure and heart rate control prevent further vascular wall disruption due to the shear stress imposed upon it [7-12]. Our patient was commenced on intravenous Labetalol bolus followed by continuous infusions along with adequate analgesia. However, the involvement of the left renal artery, complicated with infarction, is an indication of surgical or endovascular intervention (TEVAR). TEVAR is the method of choice in complex type B dissections due to lower morbidity rates compared to open surgery.

In this case, the patient's decision to forgo additional imaging tests to further decide on a management plan due to financial constraints reflects a real-life challenge. This highlights an ongoing issue in clinical practice where socioeconomic status directly influences clinical plans and outcomes. Evidence from several studies linked low socioeconomic status and financial constraints with diagnostic delays, limited access to proper therapies, increased mortality, and worsened prognosis in patients with aortic dissection [9]. Therefore, healthcare systems must address such disparities.

6. Tackling Possible Etiologies

In young patients with aortic dissections, connective tissue diseases, like Marfan syndrome and Ehlers-Danlos syndrome, should be considered. However, due to the patient's financial limitations, further investigations were not done. Uncontrolled hypertension, a well-established and predominant modifiable risk factor, was reported by the International Registry of Acute Aortic Dissection (IRAD) in approximately 72% of aortic dissection cases [10-11-13]. Although connective tissue disease involvement cannot be definitively excluded, the clinical picture and epidemiology strongly suggest that the patient's poor hypertension control was the main etiological factor. This underscores the importance of hypertension management and adherence to therapy in preventing adverse aortic complications.

6.1 Limitations and Prognosis

Lack of follow-up imaging or further interventions impedes the possibility of assessing long-term prognosis. Without restoring kidney perfusion, the infarction may lead to chronic kidney disease. Moreover, the patient's non-compliance with medication is a significant risk factor that highlights the necessity of patient education.

7. Conclusion

This case highlights the challenges in diagnosing, managing, and providing care to patients with aortic dissection. Atypical presentations, especially in young patients, may lead to diagnostic delays. Moreover, bedside ultrasound is useful for early detection, whereas CT angiograms remain the method of choice in confirmation. The first line of managing uncomplicated type B aortic dissection is medical therapy. However, if ischemic complications occur, an urgent surgical or endovascular intervention is required to reduce mortality. Both socioeconomic and financial constraints limit access to proper care. This calls for urgent healthcare policies that ensure at-risk populations have access to proper, advanced diagnostic and therapeutic interventions as needed.

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