**CASE REPORT** **DOI: XXX**

# A 51-year-old man with abdominal pain

**Marzieh Abbasi[1], Faeze Salahshour[2], Mohammad Jalili[1], Mohammad Ashouri[3], Hadi Mirfazaelian[1,4]***

1. Department of Emergency Medicine, Tehran University of Medical Sciences, Tehran, Iran.
2. Department of Radiology, Tehran University of Medical Sciences, Tehran, Iran.
3. Department of Surgery, Tehran University of Medical Sciences, Tehran, Iran.
4. Prehospital and Hospital Emergency Medicine Research Center, Tehran University of Medical Sciences, Tehran, Iran.

***Corresponding author:** Hadi Mirfazaelian; **Email:** H-mirfazaelian@sina.tums.ac.ir

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**Abstract:** Spontaneous isolated celiac artery dissection (SICAD) is a rare vascular condition, often presenting with non-specific abdominal or flank pain, and may result in downstream visceral ischemia. Early recognition is essential to guide appropriate management. We present a case of SICAD in this report.

**Keywords:** Abdominal Pain; Arterial Dissection; Celiac Artery Dissection; Visceral Artery Dissection

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## 1. Introduction

Spontaneous isolated celiac artery dissection (SICAD) is an uncommon vascular disorder that has gained increasing recognition with the widespread use of advanced imaging modalities. First described in 1947, SICAD remains a rare but clinically significant condition, accounting for only a small fraction of visceral artery dissections. Because its etiology is not fully understood, SICAD is often associated with potential predisposing factors such as hypertension, atherosclerosis, connective tissue disorders, trauma, and inflammatory processes. Despite these associations, many cases occur without an identifiable underlying cause. The clinical presentation is highly variable, ranging from mild, nonspecific abdominal discomfort to severe abdominal pain caused by impaired perfusion of organs supplied by the celiac trunk. This variability often complicates diagnosis and may lead to unnecessary delays in management.

Accurate diagnosis of SICAD relies heavily on imaging, with contrast-enhanced computed tomography angiography (CTA) being the gold standard due to its ability to visualize intimal flaps, false lumen formation, thrombosis, and downstream ischemic complications. Early identification is crucial because visceral ischemia involving the spleen, liver, kidneys, or pancreas may occur, leading to significant morbidity. Treatment strategies depend on the severity of symptoms and complications, ranging from conservative medical therapy to endovascular or surgical intervention. Given its rarity, SICAD may be overlooked in patients presenting with unexplained flank or abdominal pain. Here, we present a case of spontaneous isolated celiac artery dissection with associated renal and splenic infarctions, highlighting the diagnostic challenges and emphasizing the importance of considering vascular etiologies in patients with persistent abdominal or flank pain.

## 2. Case presentation

A 51-year-old man presented to the emergency department with a chief complaint of bilateral flank pain. The pain started suddenly and remained constant for two weeks. The pain was non-colicky in nature with no radiation. He had no fever, chills, dysuria, hematuria, cough, or weight loss. His past medical history was significant for only hypertension, for which he was taking antihypertensive medication. On physical examination, the patient was alert and oriented, with stable vital signs: temperature 36.8°C, blood pressure 138/82 mmHg, heart rate 78 bpm, respiratory rate 16 breaths per minute, and oxygen saturation 98% on ambient air. Cardiac and lung examinations were unremarkable. Abdominal examination revealed mild bilateral flank tenderness without guarding or rebound tenderness. No costovertebral angle (CVA) tenderness was noted. There was no palpable mass, and the bowel sounds were normal. His laboratory study was within normal limits. Because of the unknown cause of pain, the patient underwent computed tomography (CT) imaging with intravenous contrast (Figure 1-4).

Axial CT imaging revealed a linear filling defect within the celiac trunk with fusiform dilation of the celiac trunk (Figure 1- red arrow). Additionally, areas of hypoattenuation in the spleen and left kidney were visible, in favor of infarctions (Figures 3 and 4). Of note, there was also extension of the dissection flap with partial thrombosis of the false lumen in the superior segment of the right renal artery (Figure 2).

## 3. Discussion

The diagnosis of SICAD with downstream ischemia was made. SICAD is a rare vascular disease primarily observed in middle-aged men (1). Although the etiology is unknown, several predisposing factors such as atherosclerosis, pregnancy,

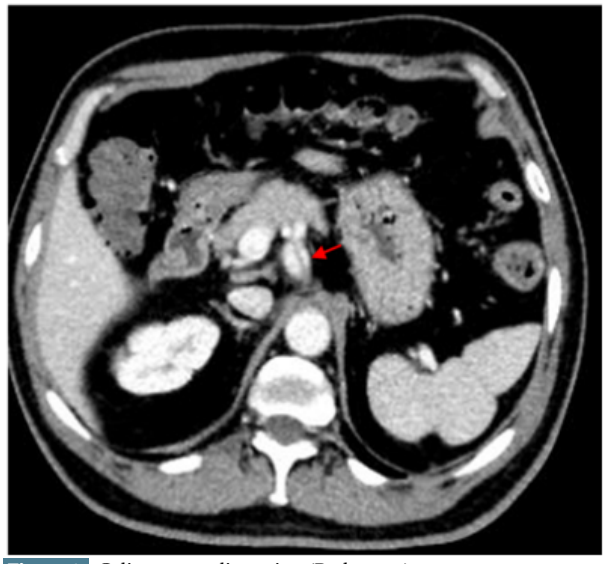

**Figure 1** Celiac artery dissection (Red arrow)

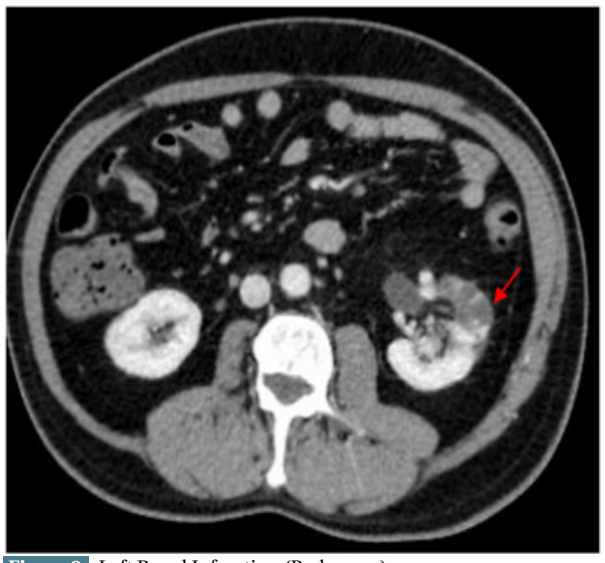

**Figure 3** Left Renal Infraction (Red arrow)

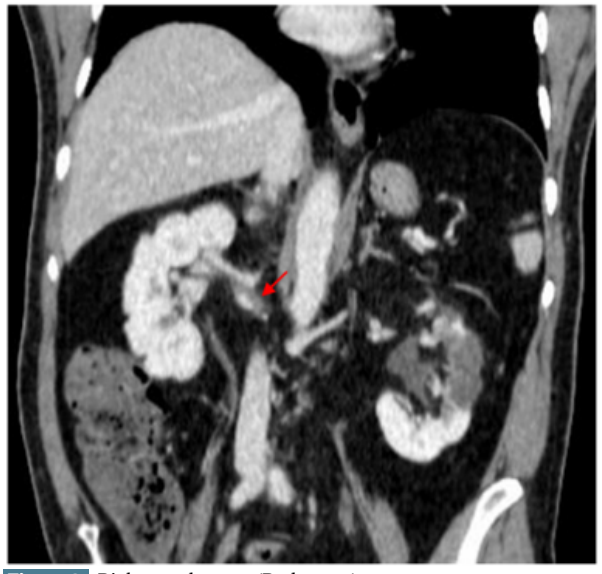

**Figure 2** Right renal artery (Red arrow)

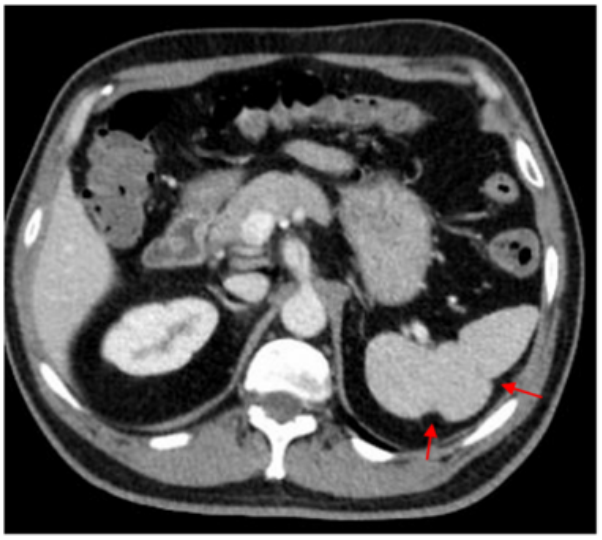

**Figure 4** Splenic infraction (Red arrows)

trauma, infections, and connective tissue diseases have been identified (2). The dissection typically begins with a spontaneous tear in the intimal layer of the celiac artery, leading to the formation of a false lumen. This false lumen may promote thrombus development or aneurysmal dilation (2). The most commonly reported presenting symptom in patients with SICAD is the sudden onset of severe epigastric or right upper quadrant abdominal pain. In rare instances, SICAD may be associated with acute pancreatitis or atypical presentations such as syncope or lower gastrointestinal bleeding (3). The physical examination is non-specific in most cases, and while not diagnostic, laboratory tests may aid in identifying end-organ involvement. Elevated lactate levels can indicate visceral ischemia, while liver and kidney function tests help assess the extent of hepatic or renal compromise (2). Among the available diagnostic tools, contrast-enhanced computed tomography angiography (CTA) remains the gold standard. Other diagnostic modalities may include: magnetic resonance angiography (MRA), doppler ultrasonography, digital subtraction angiography (DSA) (2). These tools show linear intimal flap within the celiac trunk, associated with fusiform dilation and partial thrombosis of the false lumen, hallmark features of arterial dissection. The dissection or associated thrombus reduces perfusion to distal organs supplied by the celiac trunk and its branches. Hence, liver, spleen, and stomach might be injured due to the downstream ischemia. Pancreatic ischemia, leading to acute pancreatitis or pancreatic necrosis in rare cases.

The prognosis of SICAD patients is generally favorable, and conservative medical treatment is recommended for most SICAD cases in patients who are stable with no complications (4). In contrast, surgical management is preferred for patients with complications or persistent/recurrent symptoms.

When surgery is not feasible, endovascular techniques—such as selective embolization and stent grafting—can be considered (5,6). The patient was discharged after hypertension management and, unfortunately, lost to follow-up.

## 4. Conclusion

Spontaneous isolated celiac artery dissection is a rare but important differential diagnosis in patients presenting with unexplained abdominal or flank pain. Awareness of this condition can prevent misdiagnosis and facilitate appropriate management in the emergency setting.

## 5. Declarations

### *5.1. Acknowledgement*

None.

### *5.2. Authors' contribution*

All authors contributed to the manuscript equally.

### *5.3. Conflict of interest*

None.

### *5.4. Funding*

None.

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