

Wandering Spleen Complicated by Splenic Volvulus: An Unusual Cause of Acute Abdomen

I. Zouidine^{1*}, O. Tounsi¹, Y. Bouktib¹, A. El Hajjami¹, B. Boutakioute¹, M. Ouali Idrissi¹, N. Cherif Idrissi El Guennouni¹

¹Radiology Department, ARRAZI Hospital, Mohammed VI University Hospital, FMPM, Cadi Ayad University, Marrakech, Morocco

DOI: <https://doi.org/10.36347/sjmcr.2025.v13i04.044> | Received: 18.03.2025 | Accepted: 24.04.2025 | Published: 29.04.2025

*Corresponding author: I. Zouidine

Radiology Department, ARRAZI Hospital, Mohammed VI University Hospital, FMPM, Cadi Ayad University, Marrakech, Morocco

Abstract

Case Report

Background: Wandering spleen is a rare condition caused by ligamentous laxity, predisposing to splenic volvulus, a life-threatening cause of acute abdomen. Diagnosis is challenging due to nonspecific symptoms, making CT imaging crucial. A 17-year-old female presented with acute left hypochondrial pain and bilious vomiting. Imaging revealed a torsion of the splenic pedicle with a splenic infarction. Emergency surgery confirmed the diagnosis of splenic volvulus, requiring splenectomy. Splenic volvulus is a rare surgical emergency. Early recognition via CT and prompt intervention are essential to prevent complications.

Keywords: Splenic volvulus, wandering spleen, CT scan, acute abdomen.

Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Wandering spleen is an uncommon condition in which the spleen is not anchored properly, resulting from either congenital or acquired laxity of the splenic ligaments [1].

The primary complication is torsion of the splenic pedicle associated with splenic volvulus, typically presenting as an acute surgical emergency [2].

CASE PRESENTATION

We present the case of a 17-year-old female with no prior medical history, admitted for severe, sudden-onset pain in the left hypochondrium, associated with bilious vomiting, no transit disturbances or overt gastrointestinal bleeding were noted.

On clinical examination, the patient was hemodynamically and respiratorily stable. Palpation revealed tenderness in the left hypochondrium, with an ill-defined, painful mass.

Ultrasonography showed a globular spleen, displaced to the right, extending between the epigastrium and the left hypochondrium.

Abdominal CT scan with contrast enhancement revealed an enlarged spleen with multiple hypodense, non-enhancing areas involving nearly the entire splenic parenchyma (Fig 1). A "whirl sign" was identified at the splenic pedicle, splenic vessels remained opacified (Fig 2).



Fig 1: Axial contrast-enhanced abdominal CT scan demonstrating a lack of enhancement in nearly the entire splenic parenchyma, consistent with splenic infarction

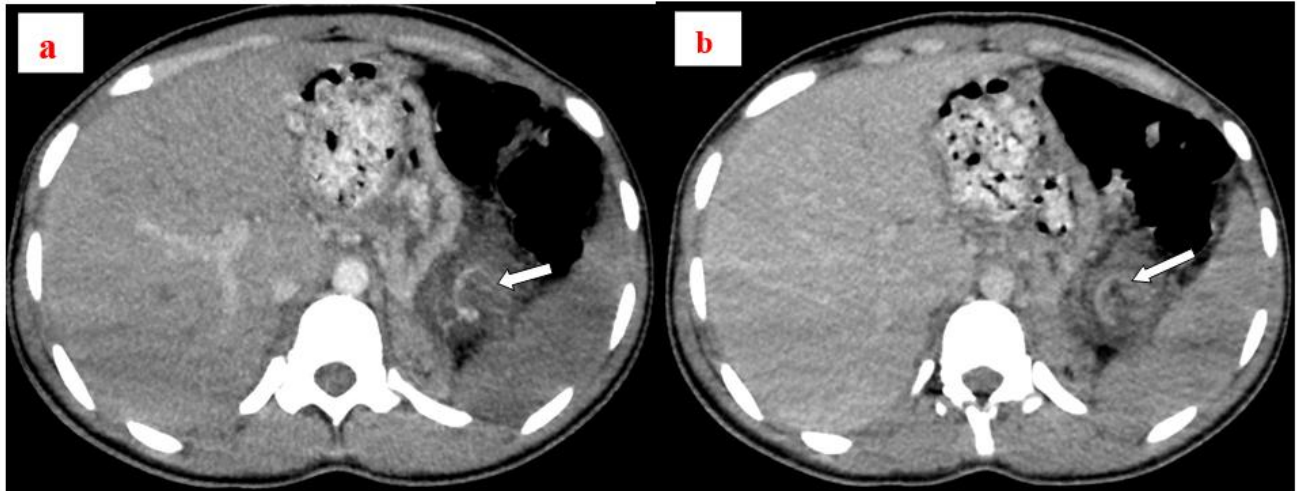


Fig 2: Arterial (a) and portal (b) phase CT images showing a whirl sign (arrow) of the splenic pedicle, associated with stranding of the perisplenic fat

Surgical Management:

The patient underwent emergency surgery, where intraoperative findings revealed an enlarged, freely mobile spleen, positioned between the epigastrium and left hypochondrium, with a complete twist of its pedicle (Fig 3).

Infarcted areas, as seen on CT, were confirmed intraoperatively.

A splenectomy was performed.

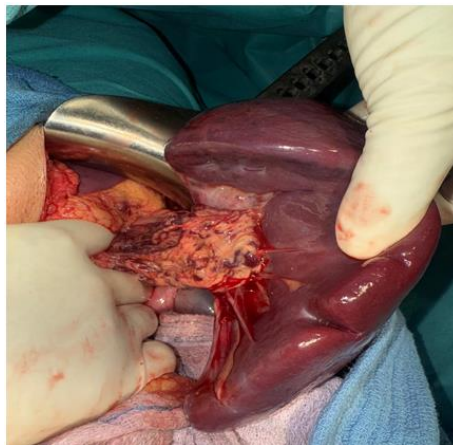


Fig 3: Intraoperative image of a twisted splenic pedicle confirming volvulus

DISCUSSION

Wandering spleen is a congenital or acquired anomaly characterized by excessive splenic mobility due to ligamentous laxity or agenesis of suspensory ligaments [3]. It can be found in any abdominal quadrant, depending on pedicle length [4]. Its prevalence is estimated at 0.2%, predominantly in children, with a female predominance in adults [5].

Most cases are asymptomatic and discovered incidentally during clinical examination or imaging. However, some patients present with intermittent abdominal pain due to spontaneous episodes of torsion and detorsion.

Chronic volvulus leads to progressive splenic artery narrowing and splenic vein compression or

occlusion, which may result in splenomegaly, hypersplenism, or splenic infarction, initially presenting as acute pain that later becomes chronic [6].

Acute torsion of the splenic pedicle causes venous stasis, which can progress to ischemia or even splenic necrosis. Patients typically present with acute abdominal pain, nausea, vomiting, and sometimes fever. Clinical examination may reveal abdominal tenderness with peritoneal signs and a mobile abdominal mass, raising suspicion of the diagnosis.

Imaging Findings:

- **Ultrasound** is the first-line imaging modality, showing the absence of the spleen in its usual position and a splenic-like abdominal mass. However, it is not definitive for diagnosing torsion

or infarction due to variable echogenicity of the infarcted spleen. The spleen may retain normal echogenicity despite acute infarction [7].

- **Doppler ultrasound** assesses splenic perfusion, with absent or reduced vascular flow suggesting splenic torsion. The absence of detected flow may be due to limited Doppler sensitivity for slow flow. Power Doppler is particularly useful as it can detect low-velocity flow and small vessels, aiding in tissue perfusion assessment and blood flow measurement using contrast agents [7].
- **Computed tomography (CT)** is the gold standard for diagnosis, as it confirms the ectopic spleen position and infarcted hypodense areas. A key finding is the "Rim sign" (capsular hyperdensity with parenchymal hypodensity, indicating total splenic infarction). The pathognomonic "Whirl sign" (twisting of the splenic pedicle) confirms volvulus [4].

Management

Surgical intervention is mandatory due to the high risk of complications, including infarction, splenic abscess, and acute pancreatitis.

- **Splenectomy** is indicated in cases of established necrosis or irreversible ischemia after detorsion.
- **Splenopexy** may be considered for non-necrotic spleens to prevent future torsion and avoid post-splenectomy infectious complications [8].

CONCLUSION

Although rare, splenic torsion is a major surgical emergency, often associated with congenital anatomical anomalies. Preoperative suspicion is

challenging, emphasizing the crucial role of CT in diagnosis. The definitive treatment is surgical intervention.

REFERENCES

1. William J Schaeffer¹, S M Jafar Mahmood [Splenic volvulus of a wandering spleen], March 2021, Pages 265.e1-265.e3
2. Lamiaa Chahidi El Ouazzani¹, Abdelhamid Jadib, [Splenic volvulus on ectopic spleen in adults: A case report], Radiol Case Rep. 2022 Apr 15;17(6):2167–2169.
3. Dème H, Akpo LG, Fall S, et al. [Torsion of wandering spleen in a teenager: about a case]. The Pan African Medical Journal. 2016 ;24:15. DOI: 10.11604/pamj.2016.24.15.7554. PMID: 27583079; PMCID: PMC4992398.
4. Splenic volvulus on ectopic spleen in adults, Abdelillah Elbakouri¹, Asmar Mohamed¹, et al. [Splenic volvulus on ectopic spleen in adults] 2020
5. Sodhi KS, Saggar K, Sood BP, Sandhu P. [Torsion of a wandering spleen: acute abdominal pré-sentation.] J Emerg Med. 2003; 25(2): 133-7.
6. Blanc C, Delvaux M, Aggadi Y, Lagier E, Gonzales N, Fourtanier G, Frexinos J. [Splenic infarction by torsion of its pedicle: the wandering spleen syndrome.] Gastroenterol Clin Biol. 1999; 23(5): 585-6.
7. Murat Danacı MD, Ümit Belet MD, Türkay Yalın MD, Veysel Polat MD, Selim Nuroi MD, Mustafa Bekir Selçuk MD [Power Doppler sonographic diagnosis of torsion in a wandering spleen] 2000.
8. S. Daldoul · A. Baccari · S. Gatria · A. Ben Tahar · M. Ben Moussa [The Wandering Spleen Syndrome: Unexpected Cause of Acute Abdomen] *Medicina (B Aires)* 2017;77(1):43-45