

Case Report

Torsion of a wandering spleen: an uncommon cause of acute abdomen

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Background: Wandering spleen is a rare clinical entity caused by congenital or acquired laxity or absence of the splenic suspensory ligaments, resulting in excessive splenic mobility and an increased risk of vascular pedicle torsion. This condition may progress to splenic infarction and represent a surgical emergency. Because its clinical presentation is often nonspecific, diagnosis is frequently delayed unless characteristic imaging findings are recognized. In this case report, we highlight the clinical and radiological features suggestive of splenic torsion, with particular emphasis on the diagnostic value of computed tomography and the surgical decision-making process.

Case Presentation: We report on the case of a 15-year-old patient who presented with acute abdominal pain and vomiting. Physical examination revealed diffuse abdominal tenderness associated with a mobile abdominal mass. Laboratory investigations showed elevated inflammatory markers. Contrast-enhanced computed tomography revealed an absent spleen in the left upper quadrant with an ectopic pelvic splenic mass associated with twisting of the vascular pedicle (whirl sign), suggesting splenic torsion. Emergency laparotomy confirmed complete torsion with splenic infarction. Detorsion was attempted; however, due to lack of reperfusion, splenectomy was performed. The postoperative course was uneventful, and the patient was discharged on postoperative day seven.

Conclusion: Torsion of a wandering spleen is an uncommon but potentially life-threatening cause of acute abdomen in children and adolescents. Early recognition and prompt CT imaging are crucial for diagnosis. Surgical management is mandatory, with spleen-preserving procedures recommended whenever splenic viability is maintained.

Keywords: wandering spleen; splenic torsion; splenectomy; ectopic spleen; splenopexy

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1. Introduction

The spleen is normally located in the left upper quadrant of the abdomen and is stabilized by the gastrosplenic and splenorenal ligaments [1]. Wandering spleen (WS) is a rare condition, accounting for less than 0.2% of splenectomies in large series [1] and results from congenital or acquired absence or laxity of these supporting ligaments. It predominantly affects children under 10 years of age and women in their third decade [2]. Clinical presentation of splenic torsion is usually nonspecific and includes abdominal pain, nausea, vomiting, and fever. Abdominal computed tomography (CT) is the corner stone diagnostic exam, allowing accurate localization of the ectopic spleen and identification of vascular pedicle torsion [3]. Herein, we report on the case of a 15-year-old patient with splenic torsion secondary to WS that was managed by splenectomy.

2. Case presentation

A 15-year-old patient with no significant past medical history presented with acute abdominal pain and vomiting evolving over 24 hours. Physical examination revealed diffuse abdominal tenderness with a palpable mobile abdominal mass, predominantly located in the lower abdomen.

The patient was hemodynamically stable without signs of shock. Laboratory findings showed leukocytosis ($15,000/\text{mm}^3$) associated with an elevated C-reactive protein level (50 mg/L). Renal function was preserved, with urea at 5 mmol/L and creatinine at 70 $\mu\text{mol/L}$. Abdominal CT was performed, revealing that the spleen was not located in the left upper quadrant. A comma-shaped mass was observed in the hypogastric region demonstrating the “whirl sign” consistent with vascular pedicle torsion. Emergency laparotomy revealed a massively enlarged ectopic spleen measuring approximately 20 cm, located within the pelvic cavity, with complete torsion of the vascular pedicle (720°). The spleen was markedly congested and exhibited extensive areas of infarction and necrosis (Fig. 1). Following detorsion, no restoration of splenic perfusion was observed despite a period of warm saline packing and intraoperative observation. Consequently, a splenectomy was performed (Fig. 2).

The postoperative course was uneventful. In accordance with current recommendations for asplenic patients, the patient received vaccinations against encapsulated bacteria, including *Streptococcus pneumoniae*, *Neisseria meningitidis*, and *Haemophilus influenzae* type b. Oral antibiotic prophylaxis with amoxicillin 500 mg twice daily was initiated. The patient was discharged home on postoperative day 7 in good clinical condition.

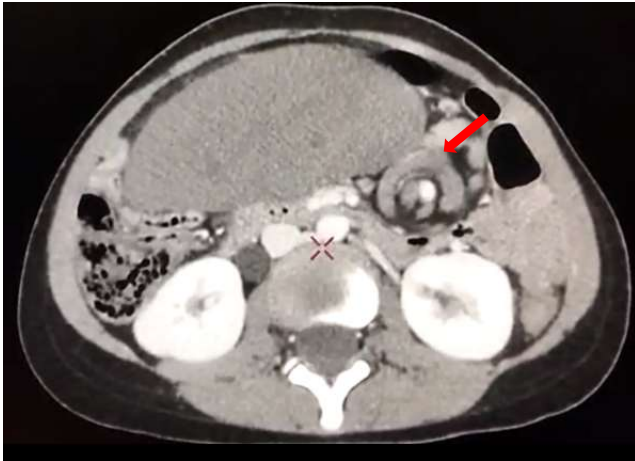


Fig. 1. CT image showing a wandering spleen located in the lower quadrant of the abdomen, the red arrow indicates a whorled appearance of the splenic pedicle.

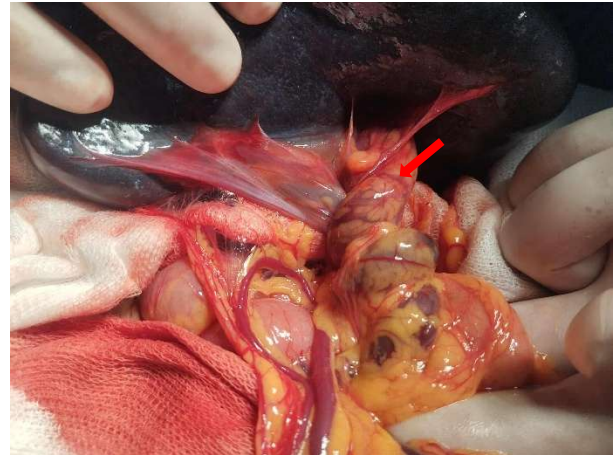


Fig. 2. Per-operative image of the ectopic spleen, the red arrow indicates the pedicle torsion.

3. Discussion

A wandering spleen is an extremely rare situation, which explains the limited number of large clinical series reported in the literature. Despite its rarity, certain epidemiological patterns have been described. An original study reported a female predominance with a female-to-male ratio of 2,4 in the pediatric population [1]. Moreover, the same study showed that WS was diagnosed at a younger age in male gender compared to female (median age 12 years vs 22 years $p < 0,0001$) [1].

The clinical diagnosis is based on a classic triad that was described by Grindrey and Piquard in 1996 [4]. The triad includes the palpation of a hard ovoid abdominal mass with a crenate border, special mobility of this mass (painless to movements to the left upper quadrant of the abdomen but painful and limited mobility to any other direction), and resonance to percussion in the left upper quadrant of the abdomen. Abdominal mass was the most commonly documented symptom, present in 93% of the cases [1].

In addition to physical examination, ultrasonography and CT can provide more valuable information and preoperative valuation of the WS [2]. On sonography, the spleen is not found in the upper left quadrant of the abdomen. A mass will be visualized in the abdomen or pelvis [5]. This mass may demonstrate a heterogeneous or hypoechogenic echotexture according to the reduced or absent hilar flow on Doppler, depending on the degree of torsion [6]. Despite its feasibility, ultrasonography lack of sensitivity (42% [7], 54,9 % [8]) may lead to a certain delay in diagnosis. Nevertheless, CT remains the modality of choice for diagnosis of WS [6]. Lombardi et al [8] reviewed 40 articles that included 55 patient with WS and as result they concluded that CT sensitivity for diagnosis achieved about 71,7% versus 54,9% for ultrasonography. Typical CT findings include an ectopic position of the spleen, a whorled appearance of the splenic pedicle, which may or may not be accompanied by twisting of the pancreatic tail [5]. Consequently, preoperative diagnosis without imaging is uncommon, and most cases are confirmed by CT; in a series of 187 patients, 87% required CT for diagnosis [1].

Once torsion is diagnosed, surgical management is mandatory. Although both splenopexy and splenectomy are possible, splenectomy remains the most frequently

performed procedure. Bough et al. reported a series of 406 patients with wandering spleen [1]. In this cohort, splenectomy was performed in 81% of cases, splenopexy in 18%, and isolated detorsion without fixation in 1% [1]. Currently, laparoscopic approach is feasible for both splenectomy and splenopexy with low conversion rates and favorable post-operative outcome [9].

Importantly, splenopexy is preferred whenever the spleen can be preserved [1]. Three broad trends are followed in splenopexy; including the direct fixation of the spleen to the abdominal wall, the indirect fixation rather using a retroperitoneal pouch or an artificial mesh pocket [1].

However, splenopexy is not without limitation, as it is associated with a relatively high re-operating rate [1]. In a series of 394 patients, 18% required reoperation, either for recurrent torsion necessitating redo splenopexy or for secondary splenectomy [10]. This risk must therefore be balanced against the long-term infectious complications associated with splenectomy. Indeed, overwhelming post-splenectomy infection remains a major concern, with reported mortality rates ranging from 10 to 50% [1]. This risk is higher among children who undergo splenectomy before the age of five years, particularly during the first five years following surgery [1]. In a cohort study of 1,648 splenectomized patients, 350 patients (21.2%) developed severe infections requiring hospitalization [10]. Kyaw et al. further demonstrated that more than half of these infections happened in the first year after splenectomy with over 84% occurring within the first three years [10].

Splenectomy is a well-recognized risk factor for overwhelming post-splenectomy infection, a potentially life-threatening complication caused predominantly by encapsulated bacteria [11]. To reduce this risk, vaccination against *Streptococcus pneumoniae*, *Neisseria meningitidis*, *Haemophilus influenzae* type b, and seasonal influenza virus is strongly recommended. In a study including 216 splenectomized patients, vaccination coverage was 70,2% [11]. The pneumococcal vaccine was the most frequently administered (67,1%), followed by the meningococcal vaccine (65,3%), while vaccination rates for *Haemophilus influenzae* type b and influenza were considerably lower, at 34,2% and 2,8%, respectively [11]. The study demonstrated

a significantly higher mortality rate among unvaccinated patients compared with vaccinated patients (44% vs. 15%; $p < 0,001$) [11].

Univariate analysis also showed that fatal post-splenectomy infections occurred significantly more frequently in patients who had not received any of the recommended vaccines than in those who had received at least one ($p < 0,001$) [11]. These findings highlight the critical importance of appropriate vaccination in reducing both the incidence of severe infection and mortality following splenectomy.

4. Conclusion

Splenic torsion is an uncommon but potentially life-threatening surgical condition that poses a diagnostic challenge due to its variable and non-specific clinical presentation.

It predominantly affects children and female patients, with no consistent pattern of symptoms. The coexistence of abdominal pain and a palpable abdominal mass should raise clinical suspicion and prompt cross-sectional imaging. Improved recognition of characteristic radiological findings, particularly an ectopic spleen with a twisted vascular pedicle on computed tomography, has contributed to higher rates of accurate preoperative diagnosis. Spleen-preserving surgical approaches should be considered whenever clinically and anatomically feasible.

Statements and Declarations

Conflicts of Interest

The authors have no conflicts of interest to declare. Consent for Patient Participation: Written informed consent was obtained from the patient for participation in this case report.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and the accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal upon request.

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Conflict of Interest Disclosures

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Author contributions

Conception and design: H.T. Administrative support: B.B. Provision of study materials or patients: A.B. Collection and assembly of data: Y.B. Data analysis and interpretation: M.D. Manuscript writing: All authors. All authors have read and approved the final manuscript

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References

- [1] Bough GM, Gargan KE, Cleeve SJ, Farrell S. Diagnosis, management and outcome of splenic torsion; a systematic review of published studies. *Surgeon*. 2022;20:e296–305. <https://doi.org/10.1016/j.surge.2021.08.006>.
- [2] Wang Z, Zhao Q, Huang Y, Mo Z, Tian Z, Yang F, et al. Wandering spleen with splenic torsion in a toddler: A case report and literature review. *Medicine (Baltimore)*. 2020;99:e22063. <https://doi.org/10.1097/MD.0000000000002063>.
- [3] Perez-Rosillo MA, Gomez-Huertas M, Salmeron-Ruiz A, Lainez-Ramos-Bossini AJ. Acute abdomen secondary to torsion and infarction of a wandering spleen. *Gastroenterol Hepatol*. 2021;44:585–6. <https://doi.org/10.1016/j.gastrohep.2020.05.013>.
- [4] Soleimani M, Mehrabi A, Kashfi A, Fonouni H, Büchler MW, Kraus TW. Surgical Treatment of Patients with Wandering Spleen: Report of Six Cases with a review of the literature. *Surg Today*. 2007;37:261–9. <https://doi.org/10.1007/s00595-006-3389-0>.
- [5] Khan DB, Khandwala K, Abbasi S, Khan SD, Raza R. Torsion of Wandering Spleen with Infarction. *Cureus*. 2018. <https://doi.org/10.7759/cureus.3177>.
- [6] Nemcek AA, Miller FH, Fitzgerald SW. Acute torsion of a wandering spleen: diagnosis by CT and duplex Doppler and color flow sonography. *Am J Roentgenol*. 1991;157:307–9. <https://doi.org/10.2214/ajr.157.2.1853811>.
- [7] Karmazyn B, Steinberg R, Gayer G, Grozovski S, Freud E, Kornreich L. Wandering spleen—the challenge of ultrasound diagnosis: Report of 7 cases. *J Clin Ultrasound*. 2005;33:433–8. <https://doi.org/10.1002/jcu.20165>.
- [8] Lombardi R, Menchini L, Corneli T, Magistrelli A, Accinni A, Monti L, et al. Wandering spleen in children: a report of 3 cases and a brief literature review underlining the importance of diagnostic imaging. *Pediatr Radiol*. 2014;44:279–88. <https://doi.org/10.1007/s00247-013-2851-6>.
- [9] Alqadi G, Saxena A. Is laparoscopic approach for wandering spleen in children an option? *J Minimal Access Surg*. 2019;15:93. https://doi.org/10.4103/jmas.JMAS_14_18.
- [10] Kyaw MH, Holmes EM, Toolis F, Wayne B, Chalmers J, Jones IG, et al. Evaluation of Severe Infection and Survival After Splenectomy. *Am J Med*. 2006;119:276.e1–276.e7. <https://doi.org/10.1016/j.amjmed.2005.07.044>.
- [11] Di Sabatino A, Lenti MV, Tinozzi FP, Lanave M, Aquino I, Klersy C, et al. Vaccination coverage and mortality after splenectomy: results from an Italian single-centre study. *Intern Emerg Med*. 2017;12:1139–47. <https://doi.org/10.1007/s11739-017-1730-9>.

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