


CASE REPORT

Open Access



Gastrosplenic fistula due to diffuse large B-cell lymphoma: case report

Ahmed Elsahhar^{1*} , Amr Muhammad Abdo Salem¹, Nada Gomaa¹, Maha Arafat¹ and Ghada Elsahhar²

Abstract

Background Gastrosplenic fistula (GSF) is a rare complication of various benign and malignant etiologies. Splenic lymphoma is the most common cause of GSF. Most cases are due to diffuse large B-cell lymphoma (DLBCL).

Case presentation A 39-year-old male patient presented at the emergency department with left upper quadrant abdominal pain. CT scan showed necrotic splenic mass with fistulous tract between the spleen and the gastric cavity. The patient underwent splenectomy and partial gastrectomy. The histopathological diagnosis was DLBCL.

Conclusions Gastrosplenic fistula is a rare complication of diffuse large B-cell lymphoma. Radiologists should be aware of it and consider it in the diagnosis.

Keywords Gastrosplenic fistula, Lymphoma, Computed tomography, DLBCL, Case report

Background

Gastrosplenic fistula (GSF) is a rare complication of various benign and malignant etiologies [1]. The benign etiologies include splenic abscess, Crohn's disease, and trauma, while the malignant etiologies include gastric lymphoma, gastric adenocarcinoma, and splenic lymphoma [2, 3]. Splenic lymphoma is the most common cause of GSF [4, 5]. Although primary gastric lymphoma is a rare disease constituting less than 15% of all primary gastric malignancies, it is the most common site of extranodal gastrointestinal lymphomas [4]. The majority of cases are due to diffuse large B-cell lymphoma (DLBCL) [6]. Here we present a case of DLBCL creating a fistulous tract between the spleen and the stomach which came to our tertiary center.

Case presentation

A 39-year-old male patient presented at the emergency department with left upper quadrant abdominal pain. Work-up revealed white blood cell count of $23.1 \times 10^3/\mu\text{l}$ and hemoglobin level of 10.8 g/dl. The CT scan showed splenic mass with air foci inside, and contrast-filled fistulous tract between the spleen and the stomach fundus (Fig. 1). The patient underwent splenectomy and partial gastrectomy. Pathological analysis revealed diffuse large B-cell lymphoma (DLBCL).

Discussion

In 1962, Scoville et al. reported the first case of GSF. They described two cases of GSF due to lymphosarcoma and used the term "aerosplenomegalie" in one of the cases due to the presence of air in the enlarged spleen [7].

GSF can occur due to benign or malignant etiologies. Benign etiologies are much rarer and occur due to various diseases, e.g., peptic ulcer, splenic abscess, Crohn's disease, trauma, and splenic tuberculosis [4, 8]. Malignancy of the spleen followed by the stomach are the commonest etiologies reported in the literature in 36 cases [5]. Lymphoma either splenic or gastric occurred in 31 out of 36 reported cases (86.11%) [5]. Splenic lymphoma occurred in 24 cases out of 36 malignant

*Correspondence:

Ahmed Elsahhar
ahmed.elsahhar@med.asu.edu.eg

¹ Department of Radiology, Faculty of Medicine, Ain Shams University, Cairo, Egypt

² Egyptian Ministry of Health, Cairo, Egypt

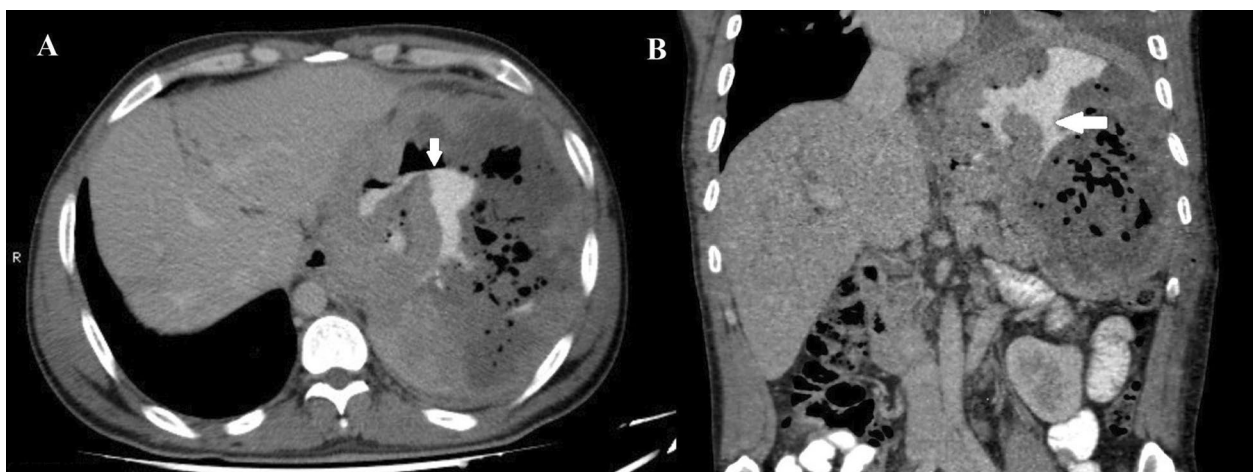


Fig. 1 Contrast-enhanced abdominal CT (A) axial image and (B) coronal image showing splenic mass with air foci inside, and a contrast-filled fistulous tract (arrow) between the spleen and the stomach fundus

GSF (66.67%) [5]. Gastric lymphoma was reported in 6 of the 36 cases (16.67%) [5]. There is a case in which the author could not locate the site of the lymphoma, whether splenic or gastric [9]. Non-Hodgkin's lymphoma (NHL) was the most reported histopathological subtype in malignant GSF in 63.89% (23/36), particularly diffuse large B-cell type 58.33% (21/36) [5]. A higher prevalence of GSF in male patients compared to female patients was noticed with no clear explanation for such different sex distribution [10].

GSF formation is considered to be an unfavorable prognostic event which occurs either spontaneously due to tumor progression or as a complication after administration of chemotherapy [1]. Spontaneous GSF cases are more common than post-chemotherapy GSF. Spontaneous GSF occurred in 75% of the reported cases [5].

GSF occurs spontaneously in splenic lymphoma due to extensive necrosis and invasion of the splenic capsule as well as all layers of the stomach [2, 11]. The gastric fundus and the greater curvature are the most common involved segments of the stomach. This is explained by their anatomic proximity to the spleen and the presence of the gastrosplenic ligament [12]. Although adenocarcinoma of the stomach is more common than primary gastric lymphoma, malignant GSF is much more common in lymphoma compared to adenocarcinoma [13]. This fact can be explained by the desmoplastic reaction that occurs in adenocarcinoma versus the rapid growth and tumor necrosis that occur in lymphoma [1]. On the other hand, it has been postulated that GSF after chemotherapy administration occurs due to rapid lysis of the tumor which exceeds the regenerative capacity of the gastric mucosal cells [14].

GSF has non-specific symptoms and is accidentally discovered during imaging studies [14]. Common presenting clinical features include splenomegaly (up to 85% of cases), epigastric or left upper quadrant abdominal pain (up to 60% of cases), anorexia and weight loss (53% of cases) [3]. GSF can lead to hematemesis (8.3% of cases) and melena (5.55% of cases) [5].

Contrast-enhanced CT (CECT) is the best imaging modality for diagnosis of GSF [14]. The pathognomonic finding is the presence of contrast-filled tract between the stomach and the spleen [15]. Indirect signs include the presence of air or oral contrast in the spleen, and loss of fat planes between stomach and spleen [5, 16]. GSF on CECT may look like a splenic abscess, with a case previously reported which was initially diagnosed as an abscess in which a percutaneous catheter for drainage was inserted; then, the GSF was diagnosed by injecting contrast medium through the catheter and observing the fistulous tract on CT [17]. Endoscopy, upper gastrointestinal series, and barium studies can also demonstrate the GSF [18].

Conclusions

Gastrosplenic fistula is a rare complication of diffuse large B-cell lymphoma. Radiologists should be aware of this unusual presentation.

Abbreviations

GSF	Gastrosplenic fistula
DLBCL	Diffuse large B-cell lymphoma
CECT	Contrast-enhanced computed tomography
CT	Computed tomography

Acknowledgements

Not applicable.

Author contributions

AE designed the case structure and obtained the data, AMAS collected the clinical data and shared in writing the case report, NG drafted the work and substantively revised it, MA shared in writing the case report and analysis of the case report, and GE drafted the work and substantively revised it. All authors have read and approved the manuscript.

Funding

No funding.

Availability of data and materials

The data that support the findings of this study are available from the corresponding author on reasonable request.

Declarations**Ethics approval and consent to participate**

This study was approved by the ethical committee of the institution, and informed written consent from the patient included in this study was taken.

Consent for publication

All authors read and approved the final manuscript. The patient included in this research gave written informed consent to publish the data contained within this study.

Competing interests

The authors declare that they have no competing interests.

Received: 4 December 2023 Accepted: 17 February 2024

Published online: 27 February 2024

References

- Bubenik O, Lopez MJ, Greco AO, Kraybill WG, Cherwitz DL (1983) Gastrosplenic fistula following successful chemotherapy for disseminated histiocytic lymphoma. *Cancer* 52(6):994–996. [https://doi.org/10.1002/1097-0142\(19830915\)52:6%3c994::aid-cnrcr2820520611%3e3.0.co;2-e](https://doi.org/10.1002/1097-0142(19830915)52:6%3c994::aid-cnrcr2820520611%3e3.0.co;2-e)
- Choi JE, Chung HJ, Lee HG (2002) Spontaneous gastrosplenic fistula: a rare complication of splenic diffuse large cell lymphoma. *Abdom Imaging* 27(6):728–730. <https://doi.org/10.1007/s00261-002-0011-9>
- Ding YL, Wang SY (2012) Gastrosplenic fistula due to splenic large B-cell lymphoma. *J Res Med Sci* 17(8):805–807
- García Marín A, Bernardos García L, Vaquero Rodríguez A, Menchén Viso L, Turégano Fuentes F (2009) Fístula gastroesplénica espontánea secundaria a linfoma gástrico primario [Spontaneous gastrosplenic fistula secondary to primary gastric lymphoma]. *Rev Esp Enferm Dig* 101(1):76–78. <https://doi.org/10.4321/s1130-01082009000100014>
- Borgharia S, Juneja P, Hazrah P, Lal R, Kapur N, Chaudhary P (2022) Gastrosplenic fistula: a systematic review. *Indian J Surg Oncol* 13(3):652–660. <https://doi.org/10.1007/s13193-022-01551-5>
- Kang DH, Huh J, Lee JH, Jeong YK, Cha HJ (2017) Gastrosplenic fistula occurring in lymphoma patients: systematic review with a new case of extranodal NK/T-cell lymphoma. *World J Gastroenterol* 23(35):6491–6499. <https://doi.org/10.3748/wjg.v23.i35.6491>
- de Scoville A, Bovy P, Demeester P (1967) "Aérosplénomégalie" radiologique par lymphosarcome splénique nécrosant à double fistulation dans le tube digestif [Radiologic "aerosplenomegaly" caused by necrotizing splenic lymphosarcoma with double fistulization into the digestive tract]. *Acta Gastro-Enterol Belg* 30(12):840–846
- Rothermel LD, Chadwick CL, Thambi-Pillai T (2010) Gastrosplenic fistula: etiologies, diagnostic studies, and surgical management. *Int Surg* 95(3):270–272
- Jain V, Pauli E, Sharzehi K, Moyer M (2011) Spontaneous gastrosplenic fistula secondary to diffuse large B-cell lymphoma. *Gastrointest Endosc* 73(3):608–609. <https://doi.org/10.1016/j.gie.2010.09.015>
- Gallo V, Pugliese L, Latteri FS, Peri A (2020) Hand-assisted laparoscopic approach for the treatment of gastrosplenic fistula: a case report and review of the literature. *Laparosc Endoscop Robot Surg* 3(4):120–125
- Senturk S, Bilici A, Tekin RC (2009) MDCT demonstration of a rare complication of lymphoma: spontaneous gastrosplenic fistula. *Eur J Radiol Extra* 70(1):e19–e20
- Dellaportas D, Vezakis A, Fragulidis G, Tasoulis M, Karamitopoulou E, Polydorou A (2011) Gastrosplenic fistula secondary to lymphoma, manifesting as upper gastrointestinal bleeding. *Endoscopy*. <https://doi.org/10.1055/s-0030-1256935>
- Maillo C, Bau J (2009) Fístula gastroesplénica y esplenotorácica debida a linfoma esplénico primario no tratado [Gastrosplenic and thoracosplenic fistula due to primary untreated splenic lymphoma]. *Rev Esp Enferm Dig* 101(3):222–223. <https://doi.org/10.4321/s1130-01082009000300012>
- Seib CD, Rocha FG, Hwang DG, Shoji BT (2009) Gastrosplenic fistula from Hodgkin's lymphoma. *J Clin Oncol Offic J Am Soc Clin Oncol* 27(20):e15–e17. <https://doi.org/10.1200/JCO.2008.21.7695>
- Khan F, Vessal S, McKimm E, D'Souza R (2010) Spontaneous gastrosplenic fistula secondary to primary splenic lymphoma. *BMJ Case Rep*. <https://doi.org/10.1136/bcr.04.2010.2932>
- Puppala S, Williams R, Harvey J, Crane MD (2005) Spontaneous gastrosplenic fistula in primary gastric lymphoma: case report and review of literature. *Clin Radiol Extra* 60(2):20–22
- Aribaş BK, Başkan E, Altinyollar H, Ungül U, Cengiz A, Erdil HF (2008) Gastrosplenic fistula due to splenic large cell lymphoma diagnosed by percutaneous drainage before surgical treatment. *Turk J Gastroenterol Offic J Turk Soc Gastroenterol* 19(1):69–70
- Al-Ashgar HI, Khan MQ, Ghamdi AM, Bamehriz FY, Maghfoor I (2007) Gastrosplenic fistula in Hodgkin's lymphoma treated successfully by laparoscopic surgery and chemotherapy. *Saudi Med J* 28(12):1898–1900

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.