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Case report of rare chronic myelogenous leukemia related multibacterial splenic abscess presenting with scrotal swelling

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ABSTRACT

INTRODUCTION: Splenic abscesses associated with leukemia are rare. Most reported cases of splenic abscesses occur after chemotherapy and are related to the immunosuppressive effects of the chemotherapy. Their etiology is most frequently fungal.

PRESENTATION OF CASE: A 58-year-old male presented with splenomegaly and scrotal swelling secondary to a multibacterial splenic abscess which required a splenectomy. Upon investigation he was found to suffer from chronic myeloid leukemia (CML) and epididymitis.

DISCUSSION: Splenic abscesses are rarely found in leukemic patients. Reported cases are fungal and commonly occur after chemotherapy due to immunosuppression. Scrotal swelling with concurrent splenomegaly can be found in other pathologies including brucellosis, Lyme disease and even non-Hodgkin primary testicular lymphoma. Scrotal swelling in our case was likely secondary to epididymitis and exacerbated by the effects of splenomegaly upon the systemic circulation promoting venous congestion.

CONCLUSION: This case illustrated an unusual presentation of CML because the patient presented with splenomegaly, a multibacterial splenic abscess, and scrotal swelling.

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1. Introduction

Splenic abscesses are frequently reported in the literature. They are often times fungal and related to immunosuppressive states such as those induced from chemotherapy.¹ Cases of splenic abscesses related to CML before chemotherapy are rare. We report a case of a 58-year-old patient who presented to the emergency department with respiratory symptoms, scrotal swelling, and was found to have splenomegaly from a massive multibacterial abscess which required a splenectomy. Upon investigation the patient was found to suffer from chronic myelogenous leukemia.

2. Case report

A 58-year-old male with past medical history of diabetes type II presented to the emergency department with abdominal pain and painful erythematous scrotal swelling. He reported a history of left sided abdominal pain worse with inspiration for six months

with associated fatigue, weight loss, and intermittent night sweats. He was recently treated with a 5-day course of azithromycin for suspected pneumonia on chest X-ray. The scrotal swelling started two days ago and was associated with increasing local pain and a blood tinged penile discharge. Past medical history was diabetes controlled with novolin. Family history and social were unremarkable. On exam, he had left upper quadrant pain and his scrotum was tender. His hematology and biochemical labs were significant for leukocytosis with a WBC (white blood cell count) of $162.3 \times 10^9/L$ and creatinine of 1.2 mg/dL (Table 1). Urinalysis was positive for glucose of 1000 mg/dL and ketones of 10 mg/dL. A scrotal ultrasound showed bilateral acute epididymo-orchitis, scrotal edema, right more than left with a suspicious right pyocele, and a small left hydrocele. CT of the abdomen with intravenous contrast showed a large perisplenic fluid collection with an associated large air-fluid level measuring 22.5 cm as well as multiple splenic hypodensities (Fig. 1). The left kidney, abdominal aorta and inferior vena cava were displaced to the right. Splenectomy revealed a huge rind of fibrinous material covering the spleen (Fig. 2). A liter of purulent material was drained. Post-operative the WBC was $189.2 \times 10^9/L$. The abscess included mixed aerobic flora including Gram positive cocci, Gram positive rods, and Gram negative rods as well as mixed anaerobic flora. Blood cultures were positive for prevotella. A urine culture grew Gram positive flora. Fungal abscess cultures were negative. A continued high WBC post-op prompted a workup

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Table 1
Labs for patient at admission.

WBC	162.3 × 10 ⁹ /L
Hb	11.0 g/dL
Ht	34.3%
Platelets	264 × 10 ⁹ /L
Sodium	116 mEq/L
Potassium	4.8 mEq/L
Chloride	85 mEq/L
HCO ₃	18 mEq/L
BUN	22 mg/dL
Creatinine	1.2 mg/dL
Glucose	584 mg/dL
Albumin	2.4 g/dL

for leukemia. A bone marrow aspirate revealed a percentage of myeloblasts under 1%. A FISH (Fluorescence in situ hybridization) analysis confirmed BCR-ABL fusion and thus chronic myelogenous leukemia in the chronic phase. He was treated with vancomycin and meropenem for his epididymitis and bacteremia. His CML was treated with hydroxyurea and methylprednisolone. After several weeks he was discharged stable.

3. Discussion

In this report we describe the presentation of chronic myelogenous leukemia with a multibacterial splenic abscess and associated scrotal swelling. This is an uncommon presentation for leukemic patients. The usual presentation of leukemia related splenic abscesses is after chemotherapy and is due to immunosuppression. The etiology is commonly fungal, not multibacterial.^{2–4} Another rare exception is from a case report of a CML patient who presented with peritonitis from a splenic abscess containing *Escherichia coli*.¹

The etiology of the scrotal swelling is likely due to his epididymitis.⁵ Additionally, the compressive effect of the spleen on the systemic circulation may have exacerbated his swelling.



Fig. 1. CT with IV contrast showing a 22.5 cm splenic abscess.



Fig. 2. Surgical specimen.

Splenomegaly can compress the renal vasculature leading to increased renal resistive indices.⁶ This compression can induce venous stasis of the renal veins, and by affecting the gonadal and testicular veins can promote scrotal swelling. Venous congestion has been demonstrated in ultrasound studies of scrotal swelling.⁷ Epididymitis can occlude venous outflow⁸ further exacerbating the scrotal swelling. In a similar case report, an 18-year-old male who presented with splenomegaly, scrotal swelling, and epididymitis was diagnosed with brucellosis.⁹ Scrotal swelling is seen in other etiologies associated with splenomegaly including Lyme disease¹⁰ and primary testicular non-Hodgkin lymphoma.¹¹ There has been one other report of a case of CML presenting with splenomegaly and testicular swelling in the presence of Richter's syndrome but the patient lacked a splenic abscess.¹²

4. Conclusion

This case illustrated an unusual presentation of CML because the patient presented with splenomegaly, a multibacterial splenic abscess, and scrotal swelling.

Conflict of interest

The authors declare no conflict of interests.

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None declared.

Ethical approval

Written and informed consent was obtained from the patient for publication of this case report and any accompanying images.

Author contributions

The splenectomy was performed by Dr. Vercruyse. The case report was created by Dr. McPhillips. The final editing and proof-reading was done by Dr. Friese, Dr. Vercruyse, and Dr. McPhillips.

References

1. Cohen MAA, Galera MJ, Ruiz M, La Calle Jr JP, Rius X, Artigas V, et al. Splenic abscess. *World J Surg* 1990;**14**(4):513–6. <http://dx.doi.org/10.1007/BF01658678>.
2. Hsiao HH, Tsai HJ, Liu YC, Tseng YT, Lu PL, Yang WC, et al. Invasive fungal infections in patients with acute leukemia. *Kaohsiung J Med Sci* 2006;**22**(5):217–22.
3. Tomiie F. Hepatic and splenic fungal microabscess complicating acute leukemia. *Jpn J Clin Radiol* 1996;**41**:1477–86.
4. Karthaus M, Arnold G. Hepatosplenic candidiasis in patients with acute leukaemia. *Br J Haematol* 2000;**109**(3):672. <http://dx.doi.org/10.1046/j.1365-2141.2000.01975.x/full>.
5. Geisler WM, Krieger JN. Chapter 6: epididymitis and the acute scrotum syndrome. In: Klausner JD, Hook III EW, editors. *Current diagnosis & treatment of sexually transmitted diseases*. New York, NY: McGraw-Hill; 2007. <http://accessmedicine.mhmedical.com/content.aspx?bookid=369&Sectionid=39914782> [21.06.14].
6. Serter S, Gülüz Y, Gökhan P. Effect of splenomegaly on renal resistive index: Doppler Ultrasonography Study. *Nephro-Urol Mon* 2012;**2**:368–72.
7. Grainger AJ, Hide IG, Elliott ST. The ultrasound appearances of scrotal oedema. *Eur J Ultrasound* 1998;**8**:1:33–7.
8. Dogra VS, Rubens DJ, Gottlieb RH, Bhatt S. Torsion and beyond new twists in spectral Doppler evaluation of the scrotum. *J Ultrasound Med* 2004;**23**(8):1077–85.
9. Misteli M, Sakmann P. [Fever, swelling of testis and epididymis, polylymphadenopathy, splenomegaly]. *Schweiz Rundsch Med Prax* 1991;**80**(17):468–70. <http://www.ncbi.nlm.nih.gov/pubmed/1871475>
10. Steere AC, Bartenhagen NH, Craft JE, Hutchinson GJ, Newman JH, Rahn DW, et al. The early clinical manifestations of Lyme disease. *Ann Intern Med* 1983;**99**:1:76–82. <http://annals.org/article.aspx?articleid=696718>
11. Ren W, Zhong Z, Zhao X, Yang J, Zhang L, Xu R, et al. Primary testicular non-Hodgkin's lymphoma associated with hemophagocytic syndrome: case report and review of the literature. *Oncol Lett* 2012;**4**(1):59–62. <http://www.spandidos-publications.com/ol/4/1/59?text=fulltext>
12. Jha B, Dass J, Sachdev R, Bhargava R. Testicular swelling: a rare manifestation of chronic lymphocytic leukemia presenting with Richter's syndrome. *Indian J Pathol Microbiol* 2014;**57**:1:133. <http://www.ijpmonline.org/text.asp?2014/57/1/133/130925>

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