CASE REPORT

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Lymph Node Abscess Caused by Nontyphoidal Salmonella in a Lymphoma Patient: Case Report and Literature Review

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ABSTRACT

Nontyphoidal Salmonella species cause a wide spectrum of infections ranging from gastroenteritis and different focal infections to bacteremia. Nevertheless, out of all extra-intestinal manifestations, lymphadenitis is rarely described in the literature, and no cases of associated lymph node abscess in lymphoma patients were described, to our knowledge, in the Middle East. Hence, we are reporting a case of cervical lymph node abscess caused by nontyphoidal Salmonella in a non-Hodgkin's lymphoma patient.

Keywords

Lymph node; Nontyphoidal; Salmonella; Lymphoma; Immunocompromised; Abscess

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INTRODUCTION

Nontyphoidal Salmonella species are food borne pathogens that cause a variety of clinical manifestations ranging from gastroenteritis, bacteremia, endovascular infections, bones and soft tissue abscesses and other focal infections as well as causing a chronic carrier status. Although nontyphoidal Salmonella infection commonly manifests as self-limiting gastroenteritis, about 5% of patients develop subsequent bacteremia, while 8–16.7% of affected patients are reported to have focal complications regardless of bacteremia[1]. Immunosuppression contributes to the development of such infections. Suggested risk factors for nontyphoidal Salmonella infection include age extremes, alteration of bowel flora secondary to use of antibiotics, and immunosuppressive medical conditions such as *diabetes mellitus*, malignancy, autoimmune diseases, HIV infection, or the use of immunosuppressive therapy[2]. Lymphadenitis is an uncommon extra-intestinal manifestation of nontyphoidal Salmonella infection[3]. No cases of lymph node abscess caused by nontyphoidal Salmonella in lymphoma patients were described, to our knowledge, in the Middle East. Hence, we are describing a case of nontyphoidal Salmonellae cervical lymph node abscess in a non-Hodgkin's lymphoma patient.

CASE REPORT

A 65-year-old Yemeni man, known to have diabetes, systemic hypertension, chronic kidney disease (CKD) with a baseline creatinine of 130 umol/L, was diagnosed with diffuse large B-cell lymphoma (DLBCL) and received 3 cycles of chemotherapy (R-CHOP), most recent dose at 18 days prior to presentation.

He presented to the emergency department with a one-week history of fever and chills and painful left cervical swelling with redness. The patient stated that the swelling is at the same site of a previous cervical lymph node biopsy performed eight weeks prior. He reported a history of intermittent abdominal pain but no history of diarrhea, constipation or nausea and vomiting. There was a history of raw camel milk and undercooked poultry ingestion. On examination, the patient was febrile with a tense, red, non-fluctuant 6 x 4 cm cervical swelling. Otherwise, physical examination was unremarkable.

Laboratory investigations showed leukocytosis of 13.6 with neutrophils count of 12.2 K/uL, normocytic anemia with hemoglobin (Hb) of 8.6 g/dL and normal platelets count. Serum creatinine is elevated at 152 umol/L but within patient's baseline, liver function showed hypoalbuminemia

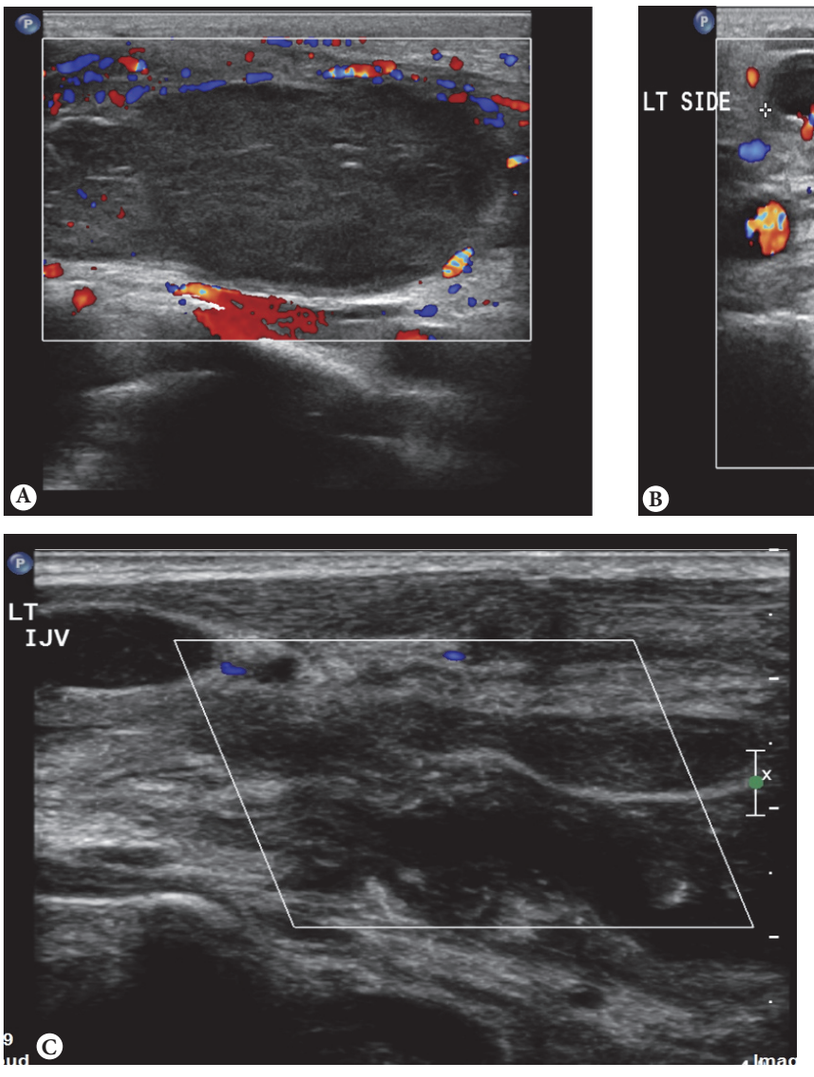

FIGURE 1.
(A) and (B): Ultrasonography of the neck showing heterogeneous echogenicity with peripheral hypervascularity measuring around 4.8 x 3 x 3 cm at the left cervical region with multiple anechoic cysts and air pockets. Along with multiple enlarged cervical lymph nodes. (C) Ultrasonography of the neck showing echogenic structure within with no color flow Doppler of the Left Internal Jugular artery suggestive of thrombosis.

of 18 g/L, otherwise insignificant. Serology was negative for HIV, Hepatitis B and C antibodies.

On admission, blood cultures were collected as part of the septic screen and the patient was started empirically on intravenous ceftriaxone. Two days after admission, blood cultures reported Gram-negative bacilli. Based on this result, antibiotic treatment was changed to piperacillin-tazobactam for broader coverage. Ultrasound of the neck showed heterogeneous echogenicity noted at the left cervical region with multiple anechoic cysts and air pockets. It measured 4.8 x 3 x 3 cm, extending medially to the left thyroid lobe and inferiorly to the infraclavicular area, with peripheral hypervascularity and multiple enlarged cervical lymph nodes, consistent with an abscess. The left internal jugular vein showed findings indicative of thrombosis (Fig. 1 A, B and C).

Blood cultures final report indicated that nontyphoidal Salmonella was isolated which was susceptible to ceftriaxone, piperacillin-tazobactam and cotrimoxazole while resistant to ciprofloxacin and ampicillin. The antibiotic regimen was deescalated to ceftriaxone plus metronidazol and low-molecular-weight-heparin was prescribed for internal jugular vein thrombosis. Incision and drainage was performed. Culture of the debrided material was similar to the previously reported blood cultures. Metronidazole was discontinued since tissue culture didn't show anaerobic organisms. The patient completed a 14-day course of ceftriaxone and was discharged on oral cotrimoxazole to complete 4 weeks of antibiotics. Blood culture post-completion of antibiotics was negative and no recurrence of the cervical or other abscesses on examination.

DISCUSSION

In an effort to classify extra-intestinal nontyphoidal Salmonella infection, Ramos *et al.*[4] conducted a retrospective study in 1995. A total of 183 patients with extra-intestinal salmonellosis over a 32-year period admitted to their facility in Spain were studied. The investigators found that 74 patients had non-digestive focal infections. The most frequent sites being the urinary tract (30%) followed by the respiratory tract (20%) and the osteoarticular system (19%) with only one case of lymphadenopathy. Their study showed an association between focal infections and patients over age 60 (45%), severely immunosuppressed (51%), and those with chronic medical illness (28%) compared with digestive infected patients of whom 75% had no other underlying illness[4].

Another report of 129 patients with nontyphoidal Salmonella bacteremia between the periods of January 1999 and June 2005 reported that 51 (39.5%) had extra-intestinal focal infections including mycotic aneurysm (19), pneumonia and pulmonary empyema (13), osteomyelitis (7), hepatic (2) or splenic abscess (2), septic arthritis (2), spontaneous bacterial peritonitis (3), catheter-related infection and infective endocarditis. No cases of lymphadenitis were included. Extra-intestinal focal infections in the absence of bacteremia were more common with increasing age, *diabetes mellitus*, hypertension and chronic lung diseases; while malignancies, connective-tissue disorders and immunosuppressive therapy were more associated with primary bacteremia compared to extra-intestinal focal infections[1]. In a Malaysian study by Dhanoa and Fatt[5], examining the relationship of nontyphoidal Salmonella bacteremia and immunosuppression, a total of 55 nontyphoidal Salmonella bacteremia cases were identified, 30.9% had an extra-intestinal focal infection. The investigators reported that 90.9% of the patients had an underlying medical condition, while 65.5% had severe immunosuppressive with malignancy being the most common risk factor (23.6%) followed by HIV/AIDS[5].

Our patient displayed evidence of bacteremia along with a dietary history suggestive of nontyphoidal Salmonella; asymptomatic enteritis followed by bacteremia and seeding into the lymph nodes was the most likely mechanism of developing cervical lymphadenitis and abscess. He had a diagnosis of DLBCL and had been on chemotherapy (R-CHOP) at the time of presentation. Multiple risk factors were evident in our patient including malignancy, chemotherapy, diabetes and CKD. Nonetheless, a careful and thorough history coupled with a high degree of suspicion were imperative to diagnose such a case. Previously reported two cases of nontyphoidal Salmonella lymphadenitis in lymphoma patients were described, however, both lymphoma and infection presented concomitantly at initial presentation, which required even a higher degree of suspicion[3,6]. Nontyphoidal Salmonella should be suspected in immunocompromised patients with a suggestive history and disconcerting risk factors.

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Conflict of Interest

The authors have no conflict of interest.

Disclosure

None of the authors received any type of commercial support either in forms of compensation or financial for this study. They have no financial interest in any of the products or devices, or drugs mentioned in this article.

Ethical Approval

Obtained.

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تسبب بكتيريا السالمونيلا غيرالتيفودية في خراج لمفاوي في مريض مصاب بورم الغدد اللمفاوية تقرير حالة ومراجعة أدبيات الحالة: تقرير حالة ومراجعة أكاديمية

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المستخلص

بكتيريا السالمونيلا غير التيفودية تسبب أنواعا متباينة من الأمراض التي تتراوح من التهابات معوية إلى تسمم دموي إلى التهابات خارج الجهاز الهظمي، وومن النادر ان تكون هذه البكتيريااا سببا في التهابات الغدد اللمفاوية، كما أنه لم يتم وصف الإصابة بخراج لمفاوي بسبب هذه البكتيريا في مرضى أورام الغدد اللمفاوية في الشرق الأوسط، من أجل ذلك قمنا بتدوين هذه الحالة الطبية المتمثلة بإصابة مريض يعاني من سرطان الغدد المفاوية غيرالهودجكينية بخراج لمفاوي بسبب هذه البكتيريا.