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Internal Medicine

NON-TYPHOIDAL SALMONELLA INDUCED ILIOPSOAS ABSCESS IN A YOUNG MALE- A CASE REPORT

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ABSTRACT Non typhoidal Salmonellae are commonly associated with self-limiting gastro-enteritis. Extra-intestinal infection is usually seen in patients with comorbidities. Iliopsoas abscess secondary to Salmonella infection is extremely rare.Here, we present a case of a young male with no known comorbidities, who presented with fever, severe lower back pain, cough and breathlessness. Upon evaluation, he was found to have Non typhoidal Salmonella causing Iliopsoas abscess, paraspinal muscle abscess, sacroiliitis and bacteremia. The patient is symptomatically better after successful abscess drainage and treatment with antibiotics. We conclude that physicians should have a high index of suspicion in appropriate settings for the diagnosis and appropriate treatment of this infection.

KEYWORDS : Non-typhoidal Salmonella, Iliopsoas Abscess, Septic arthritis, Paraspinal muscle abscess, A case report

INTRODUCTION:

Collection of pus in the iliopsoas compartment is termed as iliopsoas abscess. The classical triad of fever, limp and back pain is present in less than 30% of the cases. Usually patients present with fever and lower backache. Primary iliopsoas abscess is due to hematogenous spread from a distant site and secondary is due to contiguous extension. [1]. Abscess culture provides definitive microbiological diagnosis. Staphylococcus aureus followed by Escherichia coli, are considered as the most frequent causes. [2] Non typhoidal-Salmonella induced iliopsoas abscess is an extremely rare entity. It is commonly associated with sickle cell anemia and extra-intestinal manifestations include pulmonary involvement, vertebral osteomyelitis and epidural abscess. [3] Some authors have pointed out that Salmonella induced iliopsoas abscess can have rapid progression and spread to the adjacent spinal structures and cause nerve compression. Intravenous antibiotics and percutaneous drainage are recommended for adequate treatment in most cases.[4]

CASE REPORT

A 22 year old asian male came to the hospital with chief complaints of fever for 1 week. He also had complaints of cough and breathlessness for 2 days. He had severe pain in the lower back for the past 2 weeks, non radiating and with no aggravating and relieving factors. He had decreased sleep and difficulty in walking due to pain. He had a history of pus and serous fluid discharge above the natal cleft, 3 months back, which lasted for 1 month. He had a history of lymph nodal tuberculosis for which he was adequately treated 15 years back. He had no history of sick contact or travel history. He had no complaints of headache, abdominal pain, bowel or bladder complaints, chest pain or palpitations. He was admitted to the hospital for further management.

On examination, the patient was conscious and oriented. His vital data revealed tachypnoea. His systemic examination revealed crepts and he needed 2 liters of oxygen to maintain normal oxygen saturation levels. He had tenderness over the L5-S1 level. He had multiple small sinus openings and a sealed off dimpling at the natal cleft. His baseline investigations revealed respiratory alkalosis, mild anemia, eosinopenia, conjugated hyperbilirubinemia, elevated alkaline phosphatase, elevated alanine transaminase and slightly elevated uric acid *(See table1)*. His chest X ray revealed bilateral lower zone opacities. He was tested for seasonal influenza and COVID19 and they were negative. Tropical fever screening was negative. He was started on empirical intravenous(IV) antibiotics (ceftriaxone and targocid).

His blood culture revealed Non-typhoidal Salmonella. His antibiotics were modified and he was started on ciprofloaxcin and continued on ceftriaxone. Magnetic resonance imaging(MRI) of the pelvis and spine were done*(see figure 1)*. It showed Ill-defined multi-loculated inter-septated right iliopsoas abscess. He also had minimal right paraspinal muscle abscess. A computed tomography(CT) of the abdomen was done and it showed multiloculated abscess in right psoas muscle and no intra-abdominal extension*(see figure 2)*. He had plate-like atelectatic changes in the bilateral lower lobes with mild bilateral pleural effusion. He was evaluated by the pulmonology team and supportive management with nebulisations was continued.

He underwent drainage of the iliopsoas abscess and iliac bone was biopsied. Post surgery, the patient had decreased fever spikes. His lower backache reduced. Pus from the abscess showed moderate growth of pan-sensitive non typhoidal Salmonella *(See table 2)*. Acid fast bacilli(AFB) stain, Xpert MTB were negative. Histopathological examination of the iliac crest sample revealed findings consistent with iliopsoas abscess. The patient was hemodynamically stable, ambulant and afebrile. He was discharged with advice to continue ceftriaxone for 2 weeks and ciprofloxacin for 1 month. During follow up, the patient was found to have no further fever spikes and his lower back pain reduced.

Figure 1: Magnetic resonance Imaging (MRI) showing right sided iliopsoas abscess

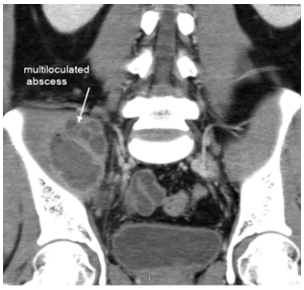

Figure 2: CT image of the pelvis showing ill-defined multi-loculated abscess with multiple air pockets in inter-muscular plane of right iliopsoas muscle in longitudinal section.

Table 1: Baseline parameters of the patient

Parameter	Patient's value	Normal value
Hemoglobin	11.2gm/dl	13 - 18 gm/dl
Total count	9.47 10^3/mm^3	4 - 11 10^3/mm^3
Platelet count	233 10^3/mm^3	150 - 450 10^3/mm^3
Neutrophils	77	40-80
Lymphocytes	17	20-40
Eosinophils	0	1-6
Monocytes	6	2-10
Blood urea	50 mg/dL	13 - 43 mg/dL
Serum creatinine	1.2 mg/dL	0.7 - 1.3 mg/dL
ALT(Alanine transaminase)	53 U/L	< 45 U/L
ALP(Alkaline phosphatase)	180 U/L	<128 U/L
Total Bilirubin	3.5 mg/dL	0.0 - 1.3 mg/dL
Direct bilirubin	2.7 mg/dL	0.0 - 0.5 mg/dL
Indirect Bilirubin	0.8 mg/dL	0 - 1.2 mg/dL
Serum Albumin	3.7 g/dL	3.5 - 5.2 g/dL
Serum Globulin	3.3 g/dL	2.0 - 3.5 g/dL
Serum Uric acid	7.3 mg/dL	3.5 - 7.2 mg/dL

Table2: Sensitivity profile of Non typhoidal Salmonella species isolated by Kirby bauer method in this patient

Chloramphenicol	Sensitive
Ampicillin	Sensitive
Co-Trimoxazole	Sensitive
Ciprofloxacin	Sensitive
Ceftriaxone	Sensitive
Azithromycin	Sensitive

DISCUSSION

Intestinal disease is the most common presentation of Salmonella. The Salmonella genus contains three species- enterica, bongori and subterranean. S. enterica type species is divided into six subspecies- *enterica* (subsp. I), *salamae* (subsp. II), *arizonae* (subsp. IIIa), *diarizonae* (subsp. IIIb), *houtenae* (subsp. IV), and *indica* (subsp. VI) . [5]

The risk factors of Salmonellosis include sickle cell disease, atherosclerosis, collagen diseases, liver cirrhosis, diabetes, achlorhydria or turtle contact. [6] Hirai N et al studied 11 patients with non typhoidal salmonella induced epidural abscess, of which three cases were associated with systemic lupus erythematosus and rheumatoid arthritis and two cases were associated with sickle cell anemia. [6]

In our patient, there is no risk factor. However, he had a history of pilonidal sinus which might have predisposed to the infection. Asymptomatic gastrointestinal infection cannot be ruled out as the predisposing factor in our case. Pathogenesis of invasive non-typhoidal Salmonellosis is suggested to be due to genome degradation. Some studies on rare patients with primary immunodeficiencies have postulated a role for Interferon gamma mediated immunity which might play a role in host defense. [7] Patients can present with fever of unknown origin, local tenderness of vertebral bone or neurological symptoms with or without gastrointestinal features.[6] James J reported that patients with invasive non-typhoidal Salmonellosis have about 35% diarrhea and 40% vomiting only [7]

High index of suspicion is warranted in appropriate settings and blood cultures should be sent prior to antibiotic treatment. Abscess drainage is necessary in most cases [6]. Non typhoidal salmonellosis induced gastro-enteritis is mainly treated with fluid replacement. Incase bacteremia or extraintestinal foci of infection is suspected, antibiotic treatment should be initiated based on sensitivity profile of the strain and the clinical condition. Antibiotics that are known to be effective against non-typhoidal salmonellosis are ampicillin, fluoroquinolones, trimethoprim-sulfamethoxazole, third generation cephalosporins such as ceftriaxone.[5]

In a multi-centre study by Vicente Navarro López et al, 124 patients with iliopsoas abscess were studied and they described that Staphylococcus aureus, Escherechia coli,. Bacteroides fragilis were most often associated. [2] But, a study by Rodrigues J et al identified tuberculosis as the common cause of iliopsoas abscess in Indian patients.[1] A similar case report was published by Mousselli M et al, wherein the patient had a Salmonella induced iliopsoas abscess which progressed to osteomyelitis and discitis. [4]

In conclusion, although the presentation points towards iliopsoas abscess, the identification of Non typhoidal Salmonella in the blood and pus culture is highly unusual. Our case highlights the need for a high index of suspicion for the diagnosis of this rare entity.

DECLARATIONS:
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Conflict Of Interest- None
Ethical Approval- Not required

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