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Subcutaneous salmonella typhi infection masquerading as mycobacterium tuberculosis

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Abstract
One well-known gram-negative bacilli bacterium that infects and colonizes humans is Salmonella typhi. Gastroenteritis is the most common of its many clinical manifestations, which typically occur after eating poorly prepared or undercooked food. It is especially prevalent in developing nations. Distant body sites may experience rare extraintestinal symptoms during or after the bacteremia episode. This case report describes a rare instance of a healthy 26-year-old woman who contracted salmonella, which was first identified as mycobacterium tuberculosis and developed an atypical chest wall abscess with right side chest pain. This case discusses the current literature and treatment options while highlighting the slow progression of a Salmonella chest wall abscess.

Keywords: Mycobacterium, abscess atypical infection, chest wall swelling, and S. Typhi infection,rare presentation, gastroenteritis, ATT (antitubercular treatment), extraintestinal manifestations

Introduction
Human infections with the gram-negative bacilli bacterium S typhi can result in a vari*et*y of clinical symptoms, with gastroenteritis being the most common in developing nations. Extraintestinal symptoms are uncommon and hardly documented in the literature. This case report describes a rare instance of a young, healthy woman who had an unusual chest wall abscess and right-sided chest pain caused by salmonella, which was first believed to be mycobacterium tuberculosis. This case discusses the current literature and management while highlighting the slow progression of a Salmonella chest wall abscess. Several extra-intestinal manifestations include (but are not limited to) the involvement of the cranial nervous system, cardiovascular and pulmonary systems, musculoskel*et*al system, hepatobiliary, and genitourinary systems [1, 2].

Case Study
Current case report describes a rare instance of a young 26 years old healthy female who had an unusual chest wall abscess and right-sided chest pain. She was diagnosed with mycobacterium tuberculosis and was taking antitubercular medication regularly. Irrespective of continuing ATT regularly her symptoms were not relieved and her condition was not improving.
Since her symptoms did not improve, she presented to us in the OPD at Max Hospital Patparganj for additional assessment and care. After d*et*ailed history taking and examination she was advised to visit an intervention radiologist for image guided pus aspiration. Procedure was performed on opd basis and an USG-guided pus aspiration from the right side of the anterior chest wall was done. Culture and sensitivity report later on suggested that the patient had an infection with Salmonella typhi. After that, she was told to be admitted immediately, and her ATT was stopped right away.
She was started on oral fluoroquinolone, OFLOXACIN 400 mg twice daily, and third-generation cephalosporin (gram negative action), INJ CEFTRIAXONE 2 gm twice daily. A review USG of the anterior chest wall was performed five days after the IV medication was administered, and it revealed that the lesion had become more organized and smaller. Following that the patient was kept on follow-up and sent home on oral medications.
Later on, two routine follow-up ultrasounds spaced fifteen days apart, it was discovered that the lesion had compl*et*ely disappeared and that the patient's symptoms had improved radically.
Patients generally suffer from diarrhea, fever, and abdominal pain, and the illness is generally self-limiting with no specific intervention. Bacteraemia is a serious and potentially

fatal complication from nontyphoidal *Salmonella* infection that can occur in up to 5% of patients, with the incidence being higher in immunocompromised patients [3].

Review of literature

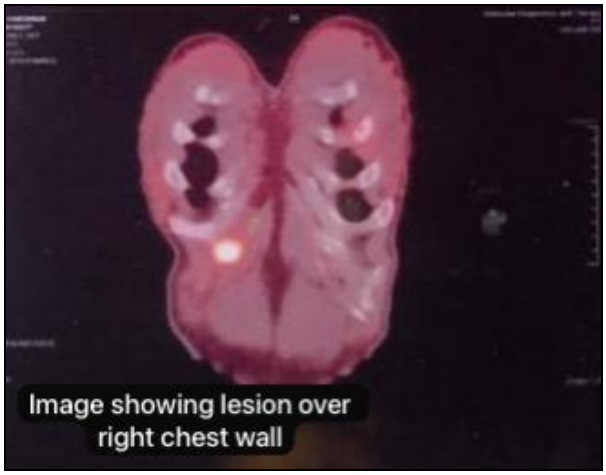
Radwan El Othman *Et al* studies also s/o similar findings as mentioned in their case report; Necrotizing fasciitis is an aggressive disease that causes necrosis in the muscular fascia and subcutaneous tissues. The infection spreads rapidly along the fascia and perifascial planes, followed by extension of the infection to nearby soft tissues and muscles. Necrotizing fasciitis can be attributed to different pathogens, namely *Staphylococcus aureus*, group A streptococci, and *Clostridium perfringes*. Only a few cases of skin and soft tissue infections from *Salmonella* species have been reported to date. Herein we report a case of *Salmonella* non-typhi necrotizing fasciitis, an exceedingly rare entity. This case report may serve as a potential management plan in similar cases in light of the scarcity of evidence [4].

Dominic Nguyen *Et al* Salmonella is a gram negative bacilli with worldwide health concern with most common manifestation as gastroenteritis. The major source of infection is food and is mainly found in developing countries with poor hygiene. The patient suffers from diarrhea, fever and abdominal pain in general. There are few extra-intestinal manifestations of salmonella typhi reported till now of which subcutaneous abscess of the chest wall is very rare. We have few studies in this similar kind of case scenario as mentioned [5].

Mokraoui NR *Et al* reported that *S. enterica* serotype Choleraesuis, a nontyphoidal *Salmonella*, often causes self-limited gastrointestinal disease with rare extra-abdominal involvement. However, this organism can be invasive, with documented bacteremia and little intestinal involvement. The CDC has also reported a significantly higher number of this serotype isolated from the blood than stool in all isolates evaluated. Bacteremia was shown to have a higher incidence in immunosuppressed patients. Dissemination to the bones and cartilage causing osteomyelitis and costochondritis has been reported since 1937. Here, we report a case of *S. enterica* serotype Choleraesuis chest wall abscess and costochondritis in a patient with a history of local trauma to the chest without documented bacteremia or associated risk factors for disseminated infection [6].

Tonziello G *Et al* reported Non-typhoid *Salmonella* (NTS) can cause not only self-limited acute gastrointestinal infections, but also bacteremia with or without extra-intestinal focal infections [7].

Weixiao Wang *Et al* studies shows that chest wall abscess might occur as the primary infection or the outcome of an open trauma or thoracic wall surgery. So far, there are only 7 cases of chest wall abscesses caused by Salmonella, involving in S. Typhimurium, S. Typhi, S. Newport, S. Enteritidis, S. group D and S. subsp. arizonae. In fact, each non-typhoidal Salmonella (NTS) serotype could cause focal disease, which, in turn, is a source of bacteremia [8].



Discussion

As per our study it was found that salmonella typhi infection usually presents with gastroenteritis but in very few cases it has been reported with signs and symptoms of M. tuberculi abscess. The study done by Radwan *et al* reported that Salmonella typhi infection spreads aggressively as necrotising fasciitis in fascia and perifascial planes similar to our study where it involved the right anterior chest wall of the patient [4].

In another study of Dominic *et al* it was reported that there are few extra-intestinal manifestations of salmonella typhi reported till now of which subcutaneous abscess of the chest wall is very rare [5].

Conclusion

Our unique case report discusses the current literature and treatment options while highlighting the slow progression of salmonella typhi chest wall abscess which som*et*imes pr*et*ends to present like Mycobacterium tuberculosis and are missed in many cases as gastroenteritis is a rare manifestation in the former case scenario. It was also found that patients had more pronounced features mimicking tubercular infection with brief episodes of gastroenteritis which delayed the treatment primarily. The sign and symptoms of M. tuberculi infection mimics S. typhi infection in rare and unusual presentation.

Conflict of Interest

Not available

Financial Support

Not available

Reference

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