

# Bilateral Breast Abscesses due to *Salmonella Enterica* Serotype Typhi

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## ABSTRACT

Focal infection is an uncommon complication of *Salmonella* septicemia, particularly in immunocompetent patients. The localization of *Salmonella* infection to breast tissue is regarded as a rare event. We report a case of bilateral breast abscesses due to *Salmonella enterica* serotype Typhi in a nonlactating female and highlight the fact that *Salmonella* spp. should be included in differential diagnosis of abscesses in individuals coming from endemic areas with the history of recent typhoid fever and should be treated accordingly.

**Key words:** Bilateral, Breast abscess, India, *Salmonella* Typhi

## INTRODUCTION

Enteric fever is endemic in developing countries such as India where sanitary conditions and potable water is not accessible to all. Patients typically present at the end of the first week after the onset of symptoms with fever, influenza-like symptoms with a dull frontal headache, malaise, etc., but with few physical signs. A coated tongue, tender abdomen, hepatomegaly, and splenomegaly are common. A relative bradycardia is also common in typhoid. Blanching erythematous maculopapular lesions commonly called ‘rose spots’ are reported in 5–30% of cases.<sup>[1]</sup> If untreated or where the implicated organism is resistant to the treatment being given, there may be seeding of salmonellae in various organs of the body.<sup>[2]</sup> Such patients usually present with abscess formation and fever. There have been occasional reports on the occurrence of abscesses due to *Salmonella* spp., such as liver,<sup>[3]</sup> splenic,<sup>[4]</sup> and anterior abdominal wall,<sup>[5]</sup> but bilateral breast abscesses are a rare presentation. We present here a rare case of a young nonlactating, immunocompetent female who presented with bilateral breast abscesses due to *Salmonella typhi*. We

also review the literature on cases of breast abscesses due to *Salmonella typhi*.

## CASE REPORT

A 29-year-old female presented to the surgical outpatient department (OPD) at our hospital with the complaint of a lump in both the breasts for 7 days associated with pain. The lumps were felt around the nipple, tender to touch with the overlying skin warm. Pain was progressive in nature, sharp and shooting type. There was intermittent discharge of puslike substance from the nipples, milky in consistency. She complained of fever for the past 1.5 months. Fever was high grade with a peak of 39°C and touched baseline only with the intake of antipyretics. She also had occasional episodes of loose motions in this 1.5-month period. Two weeks prior to the development of breast pain and lump, the patient had visited the medical outpatient department with the complaint of fever. She was empirically started on amoxicillin plus clavulanic acid 625 mg bid for 7 days, but did not respond and continued to have fever. Although the blood culture had grown *Salmonella typhi* and the isolate was resistant to ampicillin, she did not visit the hospital for follow-up and so the treatment could not be modified accordingly. Her personal and family history was unremarkable. She was a mother of two children, but at presentation she was neither pregnant nor lactating.

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On examination, the patient was afebrile but her pulse rate was 90/min. There was no organomegaly or macules on skin. Rest of the general physical and systemic examination was unremarkable. There was a centrally located lump in the left breast measuring around 8 × 8 cm and another lump in her right breast just below the areola measuring around 3 × 3 cm. A palpable axillary lymph node around 2 cm in size was present on the left side. Pus was drained from both the sides, which on culture grew non-lactose-fermenting colonies. The organism was identified as *Salmonella typhi* by biochemical reactions and agglutination test with specific antisera. The isolate was sensitive to chloramphenicol, cefotaxime, ciprofloxacin, and co-trimoxazole but resistant to ampicillin and nalidixic acid. The patient had a report of a positive blood culture for *Salmonella typhi* from our laboratory 2 weeks prior to the presentation, which had a similar sensitivity pattern. The Widal test showed a negative result with the titer of TO=160 and TH and AH=40. Her hemogram revealed normal values [haemoglobin (Hb): 10.4 g/dl, total leukocyte count (TLC): 10,000/mm<sup>3</sup>, differential leukocyte count (DLC); neutrophils: 80%; lymphocytes: 18%; eosinophils: 2%]. Biochemistry investigations were also within normal limits except that her serum glutamic oxaloacetic transaminase (SGOT) and serum glutamic pyruvic transaminase (SGPT) were raised with values of 96.59 and 113.78 U/l, respectively. The patient was started on oral ciprofloxacin 500 mg bid for 2 weeks to which she responded favorably with regression of the lesion. The stool and urine cultures were negative for *Salmonella typhi* during presentation and subsequent visits.

## DISCUSSION

*Salmonella typhi* bacteremia is occasionally associated with extraintestinal disease.<sup>[2]</sup> It is capable of forming abscesses in various organs such as liver, subcutaneous tissue, muscles, and skin. The pathogenesis of abscess formation is not well established. The possible causes may be infective bile from carriers, hematogenous spread from distant site, and lymphatic spread from gastrointestinal tract. Bilateral breast abscesses due to *Salmonella typhi* are a rare presentation.<sup>[6]</sup> The present case was associated with a detectable bacteremia in the past.

The occurrence of breast abscesses in patients with typhoid has been shown to be around 0.3% by Klose and Sebening (1930) and 0.5% by Pezinski (1937) in a study of 1 196 cases of typhoid over a period of 2 years. In females, the incidence was 0.9%.<sup>[7]</sup> Other authors have also reported similar cases of unilateral breast

abscess due to *Salmonella typhi*.<sup>[8,9]</sup> Other nontyphoidal salmonellae have also been associated with cases of breast abscess. Razeq *et al*<sup>[10]</sup> and Edelstein *et al*<sup>[11]</sup> had isolated *Salmonella* Landweisser and *Salmonella* serogroup B in breast abscess, respectively. In a recently published study from Kuwait, a very rare serotype, *Salmonella enterica* serotype Poona, was isolated from a case of breast abscess that was associated with erythema nodosum.<sup>[12]</sup> Neonatal mastitis due to *Salmonella* spp. has also been published.<sup>[13]</sup> Kumar<sup>[14]</sup> reported a multidrug-resistant typhoid with breast abscess. On analyzing the available literature on breast abscesses due to *Salmonella* spp., we found that most of the patients were immunocompetent females between the ages of 23 and 45 years. They were nonlactating. However, no common predisposing factors could be elucidated.

In the present case, besides fever, which could also be a feature of breast abscess, there was no other clinical feature of typhoid. The patient had been initially started on amoxicillin in combination with clavulanic acid, but as the strain was resistant to it she did not show any response. The patient did not turn up for the scheduled follow-up after the blood culture and sensitivity report, leading to the progression of the disease and localization in the breast tissue. It was only when she visited the surgical OPD 2 weeks later with the complaint of bilateral breast abscesses, the pus could be drained and was sent for culture and sensitivity testing. The patient responded to oral ciprofloxacin with reduced swelling of the abscesses and was afebrile thereafter.

## CONCLUSION

Any breast abscess in a nonlactating female with a history of typhoid fever in the recent past and no other predisposing factors must be evaluated, keeping the possibility of a *Salmonella* breast abscess in mind. Also, a combination of medical and surgical management helps in such a case when supported by a microbiological culture and sensitivity report.

## REFERENCES

1. Parry CM, Hien TT, Dougan G, White NJ, Farrar JJ. Typhoid fever. *N Engl J Med* 2002;347:1770-82.
2. Rodriguez M, de Diego I, Mendoza MC. Extraintestinal salmonellosis in a general hospital (1991 to 1996): Relationships between *Salmonella* genomic groups and clinical presentations. *J Clin Microbiol* 1998;36:3291-6.
3. Ciraj AM, Reetika D, Bhat GK, Pai CG, Shivananda PG. Hepatic abscess caused by *Salmonella typhi*. *J Assoc Physicians India* 2001;49:1021-2.
4. Duggal S, Mahajan RK, Biswas NK, Chandel DS, Duggal N, Hans C. Splenic abscess due to *Salmonella enterica* Serotype Typhi in a young adult. *J Commun Dis* 2008;40:219-22.

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5. Thakur K, Singh G, Gupta P, Chauhan S, Jaryal SC. Primary anterior parietal wall abscess due to *Salmonella typhi*. Braz J Infect Dis 2010;14:328-9.
6. Singh S, Pandya Y, Rathod J, Trivedi S. Bilateral breast abscess: A rare complication of enteric fever. Indian J Med Microbiol 2009;27:69-70.
7. Barrett GS, MacDermot J. Breast abscess: A rare presentation of typhoid. Br Med J 1972;2:628-9.
8. Delori M, Abgueguen P, Chenebault JM, Pichard E, Fanello S. Breast abscess with *Salmonella typhi* and review of the literature. J Gynecol Obstet Biol Reprod (Paris) 2007;36:709-12.
9. Mahajan RK, Duggal S, Chande DS, Duggal N, Hans C, Chaudhry R. *Salmonella enterica* serotype Typhi from a case of breast abscess. J Commun Dis 2007;39:201-4.
10. Razeq JH, Glenn A, Thomas G, Sholes A. First human case of *Salmonella enterica* serotype Landwasser recovered from breast fluid. J Clin Microbiol 2000;38:4300.
11. Edelstein H. Breast abscess due to *Salmonella* serogroup B, serotype Reading, in a young nonpuerperal woman. Clin Infect Dis 1993;17:951-2.
12. Al Benwan K, Al Mulla A, Izumiya H, Albert MJ. Erythema nodosum and bilateral breast abscesses due to *Salmonella enterica* serotype Poona. J Clin Microbiol 2010;48:3786-7.
13. Nelson JD. Suppurative mastitis in infants. Am J Dis Child 1973;125:458-9.
14. Kumar PD. Breast abscess: A rare complication of multiresistant typhoid fever. Trop Doct 1998;28:238-9.

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