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# **Pleural Empyema with *Salmonella mendoza* following Splenic Abscesses in a Patient with Myelodysplastic Syndrome**

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The clinical manifestations of salmonellosis fall into four main groups: gastrointestinal, septic syndrome (resembling typhoid fever), focal manifestations, and carrier state [1,2]. Focal manifestations usually result from bacteremia and can appear at any site. Pleural empyema due to *Salmonella* is exceptionally rare. Of the few cases reported in the English medical literature, most were related to pneumonia or lung abscess rather than to transdiaphragmatic passage of bacteria from

a splenic abscess. Pleural empyema due to splenic abscess was previously reported with only *Salmonella typhi* [3,4] and *S. newport* [5]. We describe a patient with myelodysplastic syndrome, splenic abscesses, and pulmonary empyema caused by *Salmonella mendoza*.

## **Case Description**

A 48-year-old Arab Muslim male, known to have myelodysplastic syndrome (refractory anemia) and sple-

nomegaly for one year, presented with a 1 month history of progressive shortness of breath, fatigue, fever and chills. The patient denied cough, sputum production, and a previous history of exposure to contaminated food or water.

On admission his temperature was 39°C; he appeared to be in acute respiratory distress with a respiration rate of 40 breaths/min, and was noted to be using accessory breathing muscles. The rest of the physical examina-

tion was unremarkable except for dullness and diminished breath sounds over the left side of the thorax, and splenomegaly. Laboratory findings showed anemia of hemoglobin 8 g/dl and leukocytosis of  $13 \times 10^9/\text{L}$  with left shift. Liver and kidney function tests were normal. Chest X-rays demonstrated a moderate amount of pleural effusion on the left side. Diagnostic thoracentesis yielded purulent fluid. Surprisingly, *S. mendoza* was grown on culture. All blood, urine, and stool cultures were sterile. Treatment with ceftriaxone and erythromycin was started. Computerized tomography revealed a huge empyema in the left pleural space with atelectasis of the lung, and splenic lesions suspected to be abscesses. Since repeated thoracentesis failed to drain the empyema, an open drainage with decortication and obliteration of the pleural empyema was performed, and the patient's condition gradually improved.

A follow-up CT showed a marked pulmonary improvement, but no change in the splenic lesions. After CT-guided needle aspiration of the lesions yielded 8 ml of purulent fluid, a drain was left in place. Direct smear of this fluid showed an abundance of polymorphonuclear cells without bacteria. Bacterial culture was sterile. The fever returned, and follow-up imaging showed the lesions to be

enlarged. Laparotomy was performed, revealing an enlarged spleen adherent to the diaphragm with multiple lesions in the upper pole. Macroscopic examination of the excised spleen demonstrated several abscesses of different sizes in the upper pole. Microscopic examination confirmed the presence of abscess but failed to demonstrate bacteria. The patient was discharged with no residual infectious disease after 2 weeks of intensive antibiotic therapy with ampicillin. A follow-up period of 6 months found no recurrence of the empyema.

## Comment

Pulmonary involvement manifesting as either bronchitis or pneumonia is recognized as a pulmonary manifestation of *Salmonella* infections. However, pulmonary empyema is exceptionally rare [1–5]. Moreover, when either typhoid or non-typhoid *Salmonella* pulmonary empyema has occurred in the past, it has almost always been associated with an adjacent pneumonia or lung abscess [1–3,5].

In our patient, the laparotomy findings of multiple splenic abscesses adhering to the diaphragm, together with the absence of cough or sputum production, suggest that the pathogenesis of pulmonary empyema involved transdiaphragmatic passage of organisms from the spleen to the pleural cavity

rather than extension of pulmonary parenchymal infection. A similar etiology for *Salmonella* empyema has been reported previously — twice with *S. typhi* [3,4] and once with *S. newport* [5]. The empyema in our patient resolved without complications after administration of systemic antibiotics, open drainage of the pleural space, and removal of the spleen.

*To our knowledge this is the first reported case in the English literature of pulmonary empyema caused by Salmonella mendoza.*

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## References

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