

## AN UNUSUAL ETIOLOGY OF PUO

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**Abstract:** Brucellosis is a zoonotic disease that remains endemic worldwide. The most rare complication in the course of brucellosis is involvement of the respiratory system. Here we report a case of non-resolving pneumonia with prolonged fever, which was diagnosed as Brucella pneumonia by serology and responded to treatment with rifampicin, doxycycline and streptomycin.

**Key words:** Non-resolving pneumonia, Brucellosis, prolonged pyrexia

### INTRODUCTION

Brucellosis is a zoonotic disease that remains endemic worldwide. Its clinical manifestations and focal complications are often troublesome in making a diagnosis. Involvement of the respiratory system in brucellosis is an acknowledged but rare event that is only occasionally described in literature.<sup>1</sup>

### CASE HISTORY

53 yrs old male was admitted with complaints of moderate to high grade continuous fever associated with chills, mainly occurring during evening hours of two months duration. No h/o any rash, chest pain, hemoptysis, pain abdomen, burning micturition. He was admitted and evaluated. On examination, he was febrile Temperature of 38 C, P-100/min, BP 140/90 mm Hg. He had pallor with no other positive finding on general physical examination. The systemic examination was normal. On investigation, he had anemia, leucocytosis with raised ESR. Initially fever showed a downward trend but later he again started having fever spike. He was again investigated and found to have right pneumonia as shown in CT thorax (Figure 1) for which he was put on different regimens of antibiotics ( PipTazo, levofloxacin, meropenem, teicoplanin and even anti-tubercular therapy ) but fever did not subside. Pulmonology opinion was taken and a bronchoscopy and bronchoalveolar lavage was done. Gram's stain, AFB smears and culture of BAL fluid was negative. Patient was suggested an open lung biopsy but refused, so empirical four drug anti-tubercular treatment was started. Patient did not show improvement so was re-evaluated and the following investigations were done:

| INVEST.           | 08/04 | 14/04 | INVEST.             | 08/04 | 14/04 |
|-------------------|-------|-------|---------------------|-------|-------|
| <b>Hematology</b> |       |       | <b>Biochemistry</b> |       |       |
| Hb                | 8.5   | 7.8   | BUN                 | 9     | 6.0   |
| TLC               | 12.5  | 10.9  | CREAT               | 0.9   | 0.8   |
| PLATE             | 458   | 699   | Na                  |       | 140   |
| ESR               | 140   |       | K                   |       | 4.5   |
| PCV               | 25.3  | 22.6  |                     |       |       |

**CRP:** Positive, **Ferritin:** 439, **C3-2033, C4-334, ANA, cANCA and pANCA:** Negative

**Bone marrow culture:** sterile

**24 hrs urine protein:** 537/6 mg/24 hrs., **Bone marrow BACTEC:** Negative

**Bone marrow:** Cellular reactive bone marrow. No abnormal cells/hemoparasite was seen.

**11/04/08 S. Agglutination (SAT) for Brucella antibodies:** Titre-1: 640

Patient was diagnosed as a case of Brucella pneumonia and was started on rifampicin 900 mg once daily, streptomycin 0.75 gm intramuscularly daily and doxycycline 100 mg twice daily. Patient responded to the treatment and became afebrile. A repeat CT scan showed resolution of the pneumonia (Figure 2). On one year follow up patient is asymptomatic.

### DISCUSSION

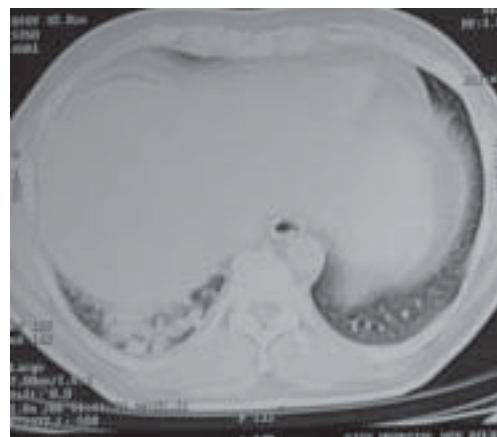


Figure 1: CT thorax Showing right lower lobe consolidation

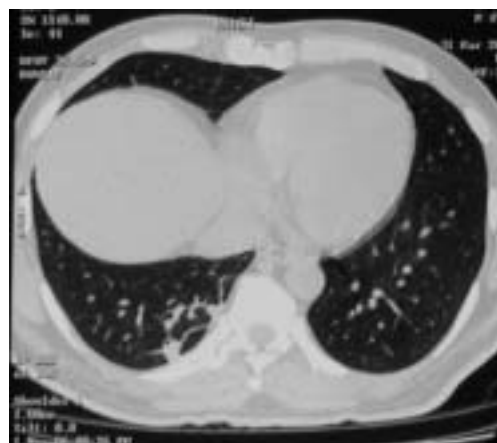


Figure 2: CT thorax showing resolution of consolidation on right side.

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The most rare complication in the course of brucellosis is involvement of the respiratory system. Most large studies of patients with brucellosis have only occasionally focused on the respiratory system, with an estimated rate of involvement of <1%–5% of cases [5]. In a study published from Bikaner, India, they came across seven patients with predominant symptomatology of pulmonary involvement amongst 98 patients of active brucellosis seen in four years. This study was related to patients of brucellosis whose principal presenting features were related to respiratory symptom (cough, expectoration, pain in chest and breathlessness) along with fever and other constitutional symptoms. Diagnosis was confirmed by demonstration of the raised brucella agglutination titre of 1:320 or more in the serum. All patients were treated with rifampicin 900 mg daily and doxycycline 100 mg twice daily for six weeks.<sup>2</sup> Three of the patients in this study had abnormality in skiagram chest in the form of pleural effusion, multiple parenchymal opacities and pneumonia. The skiagram chest was normal in remaining four patients. The response of treatment started with 10–15 days.

A study of a total of 450 cases of brucellosis diagnosed in 3 hospitals of the Balkan Peninsula during a 3-year period showed 31 patients with pulmonary involvement in brucellosis—the largest report ever. It is well known that brucellosis can initially present with atypical symptoms not unlike the symptoms of most mild upper respiratory tract infections. This presentation could be considered the respiratory mononuclear cells' reaction to the invading microbe; it is not considered to be truly "respiratory involvement", unless it takes a prolonged and paroxysmal course.

As discussed above, there are only few reports of respiratory involvement in brucellosis, many of which are case reports. Empyema, pleural effusion, granulomas and solitary nodules,

interstitial pneumonia, hilar and paratracheal lymphadenopathy, and even pneumothorax have all been reported.<sup>3</sup> Often, respiratory symptoms are the presenting or even the sole symptoms of brucellosis. Miliary mottling has also been reported, thus raising an important issue: it can be difficult to differentiate respiratory brucellosis from tuberculosis. Most regions where there is an increased incidence of brucellosis are also areas where tuberculosis is endemic. Moreover, the clinical presentation of both diseases is often identical. The burden of empirically and unnecessarily treating a patient who has brucellosis with anti-tubercular medications, as well as the fact that agents such as rifampin and streptomycin can act against both brucella and mycobacteria, underlines the need for additional diagnostic evaluation in these cases. In our opinion, it is only in cases in which it is difficult to differentiate respiratory brucellosis from tuberculosis that bronchoscopy would be truly beneficial to the patient.

In conclusion, we emphasize that it is of paramount importance in areas where brucellosis is endemic high index of suspicion can be rewarding. Prompt recognition and treatment not only is beneficial to the patient, but it also allows the clinician to readily differentiate brucellosis from tuberculosis and neoplasia, thus excluding the need for unnecessary invasive procedures.

## REFERENCES

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## BOOK REVIEW

### **HOSPITAL ADMINISTRATION AND HUMAN RESOURCE MANAGEMENT**

*Authors: D.K. Sharma & R.C. Goyal, Fifth Edition 2010*

*Published by Asoke K Ghosh, PHI Learning Private Limited M-97, Connaught Circus New Delhi-110001 and Printed by Syndicate Binders, A-20 Hosiery Complex Noida. Fifth Edition: January 2010*

The authors have addressed all major issues pertaining to the subject in great detail and there is a lot to be learnt from this book for all Hospital Administrators. A few observations have been made and these are as follows: The initial chapters offer a complete insight into our present day health care delivery system and the various reforms which have taken place till date. The time bound goals to be achieved in the Eleventh Five Year Plan have been enumerated and various solutions to the problems have also been mentioned. These solutions could also include the role of NGO's for urban slum dwellers and RWA's for regularised colonies under the Bhagidari Scheme. Amongst the initiatives taken by the government in the 11th Five year plan, telemedicine needs to be emphasized, especially its impact on rural India. Further, in the present day practice of medicine, the importance of provision of standard drugs and the weeding out of substandard drugs also needs to be emphasized. Overall, the book is educative, relevant and is very well written. It would serve as a reference book for all hospital administrators.

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