

Melioidosis Splenic Abscess—An Unusual Presentation as Osteomyelitis of Rib

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Abstract

Introduction: We report an unusual case of splenic melioidosis abscess presenting as osteomyelitis. **Clinical Picture:** A 74-year-old non-diabetic gentleman presents with a non-healing left chest wall abscess from osteomyelitis. **Treatment:** He underwent rib resection and the infection was found to involve the underlying pleura, lung, adjacent stomach, liver and diaphragm with a splenic abscess. Splenectomy was performed. Histology showed suppurative granulomas and cultures grew *Burkholderia pseudomallei*. **Outcome:** The patient recovered well with antibiotics. **Conclusion:** Melioidosis should not be forgotten as a cause of chronic suppurative infections in our endemic population.

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Key words: *Burkholderia pseudomallei*, Splenectomy, Suppurative granulomas

Case Report

A 74-year-old Chinese gentleman first presented in February 1999 with an abscess over his left lower chest. He was treated for pulmonary tuberculosis in 1977. There was no history of diabetes mellitus. He had previously worked as an odd job labourer for many years.

He underwent an incision and drainage of the abscess initially in another hospital. However, the wound did not heal after 6 months and continued to discharge purulent fluid. Exploration of the discharging wound was performed in August 1999. The impression was that of a persistent abscess cavity with extension into the chest cavity. No culture of the pus was available. A computed tomographic (CT) scan of the thorax was performed which did not show any rib involvement or any abnormal intrathoracic findings.

The patient was then referred to this hospital for an opinion by the thoracic surgeon. Clinically the impression was that of osteomyelitis of the rib with discharging sinus. He was thus scheduled for exploration and excision of the involved ribs 8 months after the initial presentation.

Intraoperatively, the abscess cavity was found to be eroding into the left 9th and 10th ribs along the anterior axillary line. There was also extension of the inflammatory tissue to involve a small portion of the lower lobe of the left

lung and the diaphragm. When the involved diaphragmatic tissue was excised, the spleen was found adherent to it and grossly abnormal in appearance. Aspiration of the spleen yielded frank pus. A splenectomy was then performed, together with a segment of the left lobe of the liver, which appeared to contain multiple microabscesses. Wedge resection of a segment of the greater curve of the stomach which was adherent to the spleen was also performed (Figs. 1 and 2).

Postoperatively the patient's recovery was uneventful.

Histology of the spleen, liver and stomach specimens showed an abscess with suppurative granulomas. The excised 9th and 10th ribs similarly showed acute on chronic osteomyelitis with suppurative granulomas. Culture of the spleen aspirate grew *Burkholderia pseudomallei*.

A postoperative CT scan of the abdomen and pelvis did not reveal any other foci of suppuration, particularly in the rest of the liver, kidneys, prostate and lymph nodes. The patient was treated with intravenous ceftazidime for 2 weeks followed by 6 months of doxycycline and cotrimoxazole.

The patient did well with complete healing of his wound. He was then noted to have a mild hypokalaemia while on treatment, without accompanying abnormalities in the

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serum creatinine. This was attributed to cotrimoxazole and resolved when the antibiotics were stopped.

Discussion

Melioidosis was first described in 1915 by Whitmore and Khrishnaswami in Burma. It is caused by the bacteria previously known as *Pseudomonas pseudomallei*, now renamed *Burkholderia pseudomallei*. The bacteria is an inhabitant of soil and water and is endemic in Southeast Asia and northern Australia. In Singapore, the bacteria has been isolated from the soil and surface water in Singapore in several studies.¹ It has been noted that there has been a recent increase in the incidence of melioidosis infection in Singapore. Sixty-five cases were reported over a 2-year period from January 1987 to August 1989.² However, this may be a function of increased awareness of the disease rather than an absolute increase in number of cases.²

Infection is thought to occur as a result of inoculation of abrasions or penetrating wounds by contaminated soil or water, inhalation or ingestion of environmental organisms. It has been postulated that the recent increase may be the result of excessive soil excavations in Singapore, creating aerosols and hence liberating the organisms into the air.

Melioidosis can occur as an acute, subacute, chronic or latent infection. The most common symptomatic form of disease is an acute pulmonary infection, probably the result of inhalation of contaminated dust. The disease may progress to acute disseminated septicaemia with up to 90% mortality if inadequately treated.³ Other viscera involved include spleen, liver, genitourinary tract, skin and subcutaneous tissue and skeletal system such as large joints and long bones.⁴

A previous study of melioidosis in Singapore² showed that the majority of patients suffering from melioidosis infection were between 50 and 69 years of age, with two thirds of them having concomitant chronic illness such as diabetes mellitus, carcinoma or chronic renal failure. There was a higher proportion of males involved, in the ratio of 5:1. However, none of the patients in that study reported having been involved in agricultural activities or construction work, other than 3 National Servicemen involved in ground training.

This 74-year-old patient, other than having pulmonary tuberculosis completely treated more than 20 years ago, had no other medical history or predisposing factors to make him at increased risk of melioidosis infection. He was an odd job labourer but had never worked with soil or been involved in farming. There was no travel history. Other than the persistently discharging chest wound he presented with initially, he did not have any symptoms of chronic infection such as fever, lethargy or loss of weight.

Patients previously described to have cutaneous manifestations of melioidosis infection had multiple skin pustules and abscesses, and this was often associated with disseminated infection with septicaemia and multiorgan involvement.⁵

This patient was unusual in that he presented with a very localised suppurative lesion of the left 9th and 10th ribs. Although exploration showed that there was a significant splenic abscess requiring splenectomy as well as microabscesses in the left lobe of the liver, the patient did not manifest any symptoms or signs of septicaemia or disseminated melioidosis. A postoperative CT scan also did not reveal any other foci of infection.

It is likely that in this patient the splenic abscess was the result of haematogenous dissemination of the bacteria,

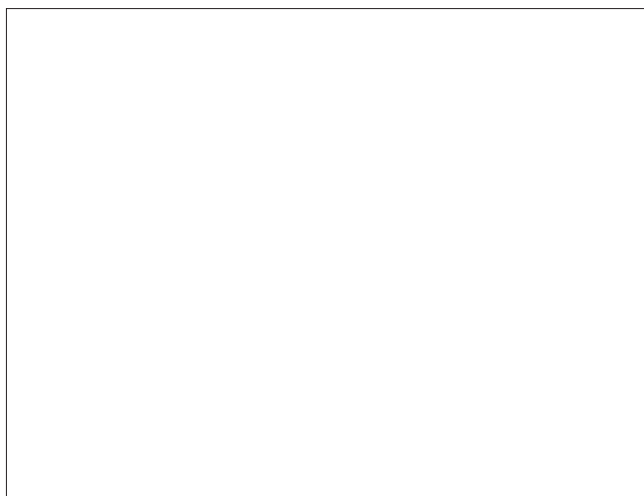


Fig. 1. Shows the excised spleen (C) with adjoining wedge of lung tissue (B) and ribs (A) on the right of picture. To the left is a segment of left lobe of liver (D) adherent to the spleen.

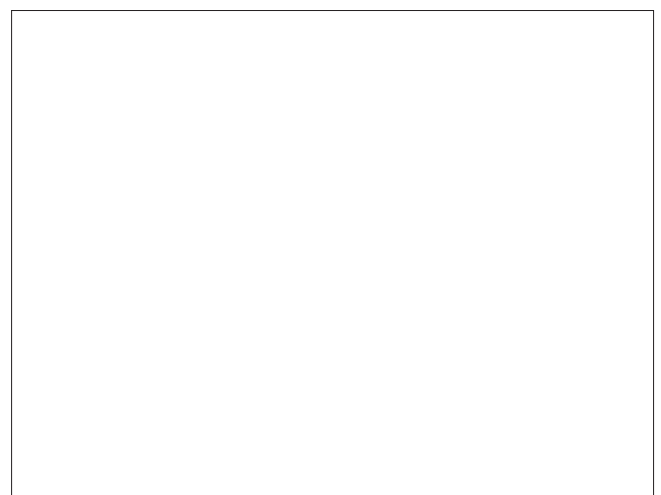


Fig. 2. A close up view of the spleen showing the chronic suppurative process within the spleen parenchyma.

with the osteomyelitis and overlying abscess secondary to direct extension of the suppurative process. However, in the absence of systemic symptoms and signs, the other possibility is that of primary inoculation of the skin and subcutaneous tissue of the chest wall via contamination of an open wound by bacteria in soil or water. Contiguous extension of the abscess inwards can then account for the lung, diaphragm and spleen involvement. In the absence of any systemic symptoms and signs to suggest disseminated disease, contiguous involvement of adjacent organs by the suppurative process is still possible. In this scenario, liver microabscesses can be explained by dissemination of the bacteria via the splenic vein and portal system.

Chronic non-healing wounds should have samples of tissue sent for histology and cultures, which should include bacteria, mycobacteria and fungi. Melioidosis can present with a chronic course and histological appearance can be granulomatous.⁶

In conclusion, it must be remembered that melioidosis is an endemic infection in Singapore and physicians and

surgeons should consider it as a differential diagnosis in patients with chronic suppurative disease or recurring lesions.

REFERENCES

1. Thin R N T, Groves M, Rapmund G, Mariappan M. *Pseudomonas pseudomallei* in the surface water of Singapore. *Singapore Med J* 1971; 12:181-2.
2. Tan A L, Ang B S P, Ong Y Y. Melioidosis—Epidemiology and antibiogram of cases in Singapore. *Singapore Med J* 1990; 31:335-7.
3. Koponen M A, Zlock D, Palmer D L, Merlin T L. Melioidosis. Forgotten, but not gone. *Arch Int Med* 1991; 151:605-8.
4. Sikulchayanonta V, Subhadrabandhu T. Melioidosis. Another etiology of granulomatous osteomyelitis. Report of 2 cases. *Clin Orthop* 1994; 308:183-6.
5. Puthucheary S D, Parasakthi N, Lee M K. Septicaemic melioidosis—a review of 50 cases from Malaysia. *Trans R Soc Trop Med Hygiene* 1992; 86:683-5.
6. Piggott J A, Hochholzer L. Human melioidosis. A histopathologic study of acute and chronic melioidosis. *Arch Pathol* 1970; 90:101-11.