

# Reactivation of dormant microorganisms following a trauma

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## CASE REPORT

A 19-year-old man was referred to our centre in July 2005 with a fistula in his left heel. Five months prior to admission he had been involved in a scooter accident and received a chest contusion and abrasions to his left inner heel. Within one week, the skin lesion on the foot developed into a fluid-filled blister, which the patient punctured with a sewing needle. Thereafter, he suffered from persistent secretion of serosanguineous fluid and pus from the puncture area (*figure 1*), but standard culture of the fistula pus had not shown bacterial growth. The

medical history he gave was unremarkable. He had been born in the Philippines and immigrated to Switzerland at the age of four years. Physical examination revealed a sternal protrusion, about the size of half a tennis ball (*figure 2*) that had developed gradually since the accident.

## WHAT IS YOUR DIAGNOSIS?

See page 364 for the answer to this photo quiz.

**Figure 1.** Secretion of serosanguineous fluid and pus from an area which included a fluid-filled blister that was punctured with a sewing needle



**Figure 2.** Sternal protrusion



ANSWER TO PHOTO QUIZ (ON PAGE 363)

REACTIVATION OF DORMANT MICROORGANISMS FOLLOWING A TRAUMA

DIAGNOSIS

The diagnosis is pneumonia, sternal abscess and calcaneus osteomyelitis due to *Mycobacterium tuberculosis*.

Chest radiography showed a calcified scar in the apical-posterior segment of the right upper lobe. A computerised tomography scan of the thorax demonstrated infiltrates in the left and right upper lobe typical for reactivation tuberculosis and a sternal abscess with an area of osteolysis. Magnetic resonance imaging findings of the left heel were consistent with calcaneus osteomyelitis. Upon further questioning, the patient admitted to a discreet chronic cough, night sweats (which he attributed to the summer heat) and a weight loss of 6 kg over the past five months. He denied travel during the last three years and was not aware of any tuberculosis contacts. Culture from bronchoalveolar lavage fluid, sternal puncture aspirate and of biopsies from the heel fistula showed growth of *Mycobacterium tuberculosis* with the same resistance patterns. HIV serology was negative. A one-year course of antituberculosis therapy was initiated. Surgical treatment comprised resection of the fistula and the infected part of the calcaneus; the soft-tissue defect was covered with a sural flap. One year after completion of therapy, sternal protrusion was completely absent. Currently the patient is in good health.

In North American and Western European countries, immigrants and foreign-born residents are increasingly contributing to the incidence of tuberculosis, and their prevalence in the host country often mirrors that in the country of origin. Tuberculosis control in the Philippines remains unsatisfactory. There are about a quarter of a million new cases and 39,000 deaths due to tuberculosis annually, in a country of approximately 83 million people.<sup>1</sup> The rate of latent tuberculosis infection in children living in households of patients with pulmonary tuberculosis is almost 70%.<sup>2</sup> Contrary to North American countries, Filipinos represent a minority of the immigrants in certain Western European countries, such as France, Austria, the Netherlands or Switzerland. Thus, their

prevalence of latent and active tuberculosis might be underappreciated in clinical practice. It is very likely that this patient had latent tuberculosis when he moved to Switzerland 15 years ago. Since our patient was not suffering from HIV infection or malnutrition and was not using any immunosuppressive medication, reactivation of latent tuberculosis was likely triggered by the chest contusion during the scooter accident. Trauma as a trigger of reactivation has been reported previously,<sup>3</sup> although this relationship is difficult to demonstrate conclusively. The interval between immigration and onset of symptoms should also be noted. In a Canadian study, the mean interval between immigration and diagnosis was 11 years, and extrapulmonary infection accounted for 60% of the tuberculosis cases in Asian immigrants.<sup>4</sup> The detailed pathogenesis of the calcaneus osteomyelitis remains unclear, in part due to the long history prior to presentation, but local reactivation, haematogenous seeding or autoinoculation are possible. Filipino immigrants are highly likely to have a latent tuberculosis infection and remain at a lifetime risk for reactivation, not rarely at an extrapulmonary site. Thus, microbiological investigations in this population should include active search for *Mycobacterium tuberculosis*.

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