



A case study from the Salt River Mortuary, Cape Town, South Africa; one of the world's busiest mortuaries.

INTRODUCTION

Tuberculosis (TB) is a common infectious disease, usually caused by *Mycobacterium tuberculosis*. The disease usually attacks the lungs, but may also affect other organs or areas of the body. It is spread through the air by sputum particles, particularly when the patient coughs or sneezes. Left untreated, the disease can be fatal^{1,2}. Tuberculosis is classified as a granulomatous inflammatory disease. The granuloma prevents dissemination of the mycobacteria and provides a local environment for interaction with cells of the immune system. Necrosis occurs in the centre of tubercles³. Global infection rates of tuberculosis are highest in Sub-Saharan Africa⁴. Various factors make people more susceptible to TB infections, among them HIV infection, which increases the risk of contracting the disease by 10%¹.

CASE PRESENTATION

A 56-year old African male died while awaiting trial at Pollsmoor Prison in the Western Cape of South Africa. He had completed a course of treatment for TB and had been receiving anti-retroviral treatment for HIV at the time of his death. He had been a heavy "stubborn" smoker. He had reportedly been coughing up blood prior to his death.

IMAGING AND DIAGNOSIS

There were no signs of blunt or sharp force trauma to the body. A Lodox full-body X-ray was performed at the time of post mortem and showed consolidation of the left lung, which is consistent with possible pulmonary tuberculosis (TB). There was a history that the deceased had suffered from TB and had been coughing up blood the day before his death. This is a common symptom of TB. Since no foul play was suspected, and the X-ray showed infection with TB, an internal post mortem examination was not performed, and the cause of death was given as natural disease, most likely TB.

DISCUSSION

One third of the world's population is thought to have been infected with *M. tuberculosis*, with new infections occurring in about 1% of the population each year. In 2010, there were an estimated 8.8 million new cases and 1.5 million associated deaths, mostly occurring in developing countries. More people in the developing world contract tuberculosis because of compromised immunity, largely due to high rates of HIV infection and the corresponding development of AIDS⁵. Among those at risk of contracting TB are the health care providers who serve these patients^{3,5}. This extends to the forensic pathologists to whom it often falls to investigate the deaths of these patients. Should it not be possible to establish a TB diagnosis via X-ray imaging, an autopsy becomes necessary. During autopsy of the lungs, exposure to the TB bacilli is unavoidable, putting those in the immediate vicinity at risk of infection. In this case, there were no signs of trauma and no foul play was suspected. The Lodox X-ray image confirmed this, and also revealed the presence of TB infection in the lungs. Along with the history of TB and coughing up blood, this information was sufficient to confirm a natural death as a result of TB. Without the high-quality X-ray image, an autopsy would have been necessary to confirm the TB, with the inherent risks of infection.

CONCLUSION

A full-body radiograph, in conjunction with an external examination, was sufficient to rule out trauma because no fractures or other injuries were visible. Radiographic evidence, in conjunction with the medical history, was able to confirm the suspected TB as the cause of death. By avoiding an internal post-mortem examination, the medical examiner was spared the risk of being exposed to the bacillus unnecessarily.

"This is an example of how the availability of high-quality X-ray imaging in the mortuary can spare the forensic pathologist unnecessary risk"

References

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