

## Medical Imagery

## A 34-Year-Old Obese Woman with Rash, Finger Swelling and Fever



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**Corresponding Editor:** Eskild Petersen,  
?Aarhus, Denmark

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## SUMMARY

Disseminated tuberculosis first presenting as cutaneous lesion is uncommon and difficult to diagnose on account of its diverse clinical forms. We present a 34-year-old obese woman with rash, finger swelling and fever. The patient was firstly manifested by fever and mass in palm and finger, gradually involving multisystems injury. She was diagnosed with disseminated tuberculosis in consideration of multiple system involvement, imaging characteristics, tuberculous granuloma in dermis and positive result of Mycobacterium culture. After two months of anti-tuberculosis treatment, fever and multisystems injury were controlled effectively, but skeletal and bone marrow involvement continued to progress, experiencing tuberculosis related acute hematopoietic stagnation. Continuing intensive therapy to one year, skeletal and hematological involvement improved and treatment was discontinued after two years. Follow-up to now with drug withdrawal for more than 1 year, the patient remains in remission.

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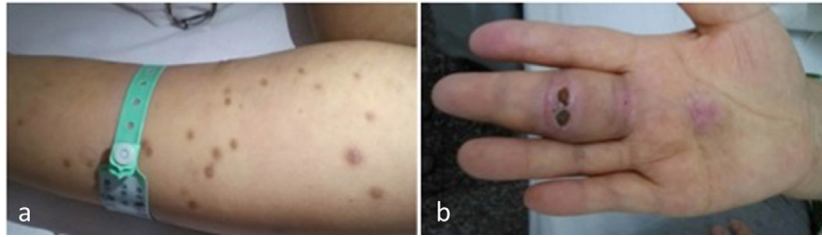
## Introduction

Tuberculosis (TB) is a multisystem disease with myriad presentations and manifestations, affecting any organ or tissue. There are an estimated number of 9.6 million new tuberculosis infections globally and 940 thousand in China, and the prevalence rate is about 696 cases per 100 000 population of the world and 89 cases per 100 000 population of China, according to the World Health Organization global tuberculosis report 2016 WHO (WHO, 2016). Pulmonary tuberculosis is the most common manifestation, and extra-pulmonary tuberculosis accounts for approximately 15–20% of all tuberculosis (Tang et al., 2016), with cutaneous involvement accounting for 1–1.5% (van Zyl et al., 2015). It takes at least 6 months of standard anti-TB medical therapy to successfully treat most forms TB, many experts consider that the treatment duration should be more than 12 months or until evidence of disease regression (Dartois, 2014). Here, we report a unique case of disseminated tuberculosis first presenting as cutaneous lesion and with complex progression in an immunocompetent youthful obese woman.

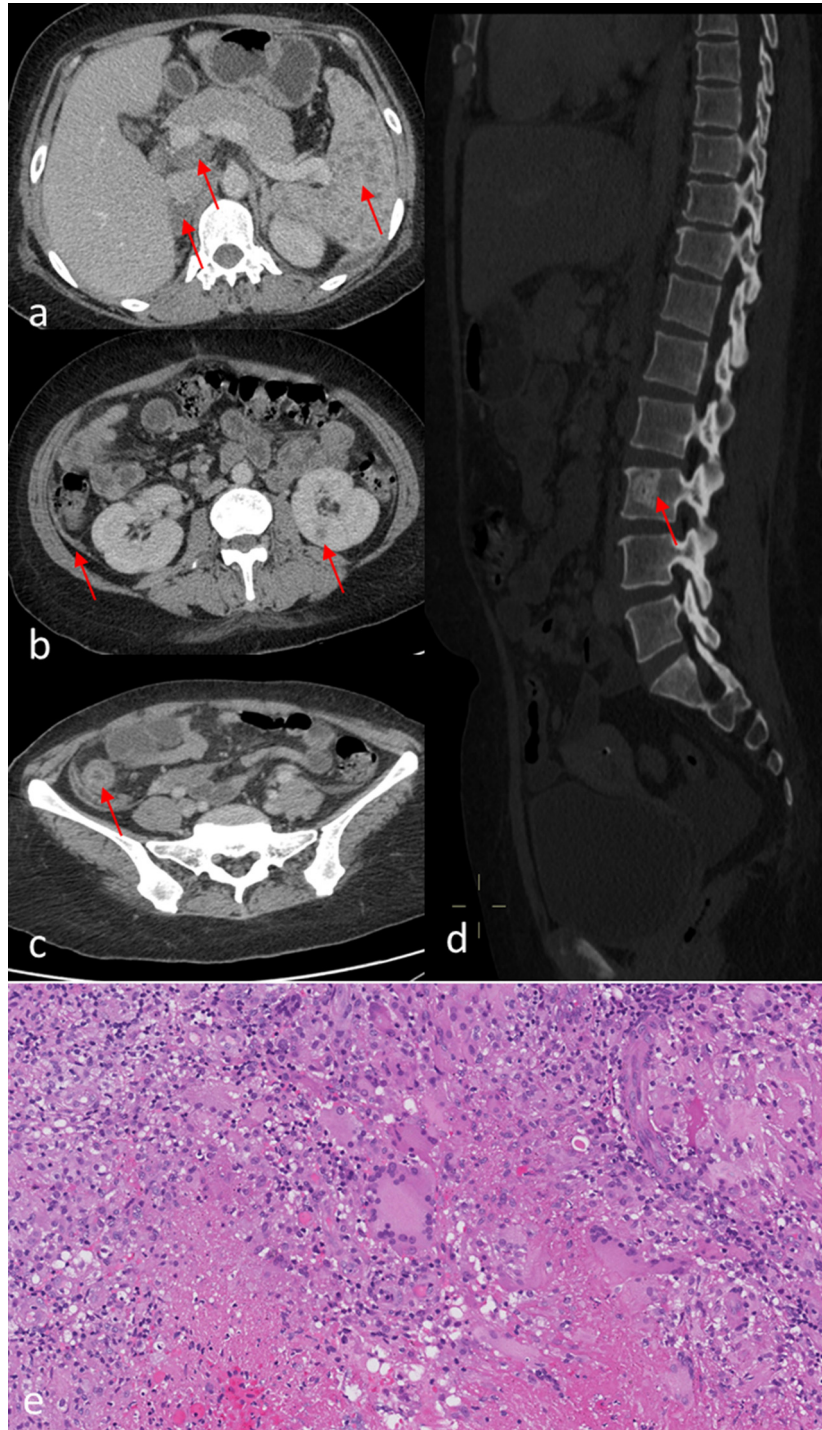
## Case report

A 34-year-old obese woman (BMI: 40.51 kg/m<sup>2</sup>) complaining cutaneous lesions for 10 months, right middle finger swelling for half a year, amenorrhea for four months, a 20-day history of fevers (T<sub>max</sub> 39.5 °C), cough, night sweats and weight loss presented at the Peking University First Hospital in July 2013. She noticed 10–20 nodular rashes without pain and itching in her right forearm in September 2012 (Figure 1a) and extended to palm and right middle finger with fistula formation in January 2013 (Figure 1b). She had

been in good health and living in Heilongjiang province in China. She did not drink alcohol, smoke or use illicit drugs. She had a 6-year-old healthy child and worked in a chopsticks-making factory. Physical examination showed a temperature of 38.9 °C, tachycardia (102 beats per min), normal blood pressure and respiratory rate. The chest examination revealed decreased breath sounds in left lower lobe. The cardiac examination and abdomen were normal. Several flexible enlarged lymph nodes in bilateral clavicle and right axillary region. Laboratory results revealed pancytopenia [White Blood Cell (WBC)  $0.3 \times 10^9/L$ , Hemoglobin (HGB) 77 g/L, Platelet (PLT)  $18 \times 10^9/L$ ], elevated erythrocyte sedimentation rate (ESR) (110 mm/hr) and positive T-SPOT.TB (A=14, B=7) (normal, <6SFCs/2.5 × 10<sup>5</sup>PBMCs). Albumin level was 22 g/L and other biochemical test was normal. human immunodeficiency virus (HIV), Epstein–Barr virus (EBV) and cytomegalovirus (CMV) was negative. An Enhanced computed tomographic (CT) scan of the chest, abdomen, and pelvis demonstrated multiple lesions in lung, pleural, spleen, kidney, adrenal gland, lymph nodes, ileocecal wall, peritoneum, retroperitoneum and lumbar vertebral (Figure 2a–d), and significant effusions in pleural, abdominal and pelvic cavity. Pleural effusions and cerebrospinal fluid (CSF) smear assays were negative for tuberculosis, fungus, and bacterias. Sputum cultures, examination of caseous secretions from the right middle finger for tuberculosis and the test of tuberculin skin with purified protein derivative were negative. Right forearm skin-biopsy specimen revealed large tuberculous granuloma (Figure 2e). Tuberculosis culture using sample from right forearm skin lesion showed positive result. We did not do conventional drug susceptibility testing (DST) of cultured mycobacteria for the reason that this experiment provided results within 1–3 months.



**Figure 1.** Nodular rashes in right forearm (1a) and fistula formation in palm and fingers (1b).



**Figure 2.** CT demonstrated multiple lesions in lung, pleural, spleen (2a), kidney (2b), adrenal gland, lymph nodes, ileocecal wall (2c), peritoneum and lumbar vertebral (2d). Right forearm skin biopsy revealed large tuberculous granuloma (2e, HE  $\times$  20).

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