Tuberculous Gumma
(Cutaneous Metastatic Tuberculous Abscess)

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Tuberculous gumma, also called metastatic tuberculous abscess, is a multibacillary type of skin tuberculosis caused by hematogenous spread of mycobacteria from a primary focus. We report a patient with tuberculous gumma on the right shin. The 68-year-old woman with pulmonary miliary tuberculosis and an occult non-Hodgkin lymphoma was found to have a pigeon-egg sized, soft nodule on the right shin. Histopathologic examination showed granulomatous inflammation with occasional giant cells and a pronounced inflammatory infiltrate in the deep dermis and subcutaneous tissue. Extensive necrosis with abscess formation was also noted. Acid-fast stain revealed multiple acid-fast bacilli. The tissue culture yielded *Mycobacterium tuberculosis*. The patient was treated with rifampin, isoniazid, pyrazinamide, and ethambutol daily for the initial 2 months, and isoniazid and rifampin for 4 more months. No recurrence of any skin lesion has been noted. (Dermatol Sinica 23: 27-31, 2005)

Key words: Tuberculous gumma, Cutaneous metastatic tuberculous abscess

結核腫
(皮膚轉移性結核膿瘍)

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結核腫，又叫做皮膚轉移性結核膿瘍，是一種多菌型，由原發病灶血行傳播所造成的皮膚結核。我們報告一個位於右脛前的結核腫案例。一位68歲的女性，患有肺部粟粒結核及非霍金氏淋巴瘤，被發現在右脛前出現一個鴨蛋大小的腫塊。病理檢查可見肉芽腫性發炎併有少量的巨大細胞，及在深部真皮及皮下組織大量的發炎細胞浸潤。同時，也發現嚴重的壞死及膿瘍。Acid-fast染色發現多數染色陽性的桿菌。組織的培養長出結核分枝桿菌。病人接受前兩個月每日rifampin，isoniazid，pyrazinamide以及ethambutol的治療以及之後四個月rifampin與isoniazid的治療。病人至今無皮膚病灶復發。(中華皮誌23:27-31, 2005)
Skin infection with *Mycobacterium tuberculosis* (*M. tuberculosis*) can express itself in many different forms. Secondary cutaneous tuberculosis from haematogenous spread may result in slow-growing soft tissue abscesses or nodules, called tuberculous gumma or metastatic tuberculous abscess. It usually presents as one or multiple non-tender subcutaneous nodules, which slowly soften, or cold abscesses with fluctuant swelling. The histopathological features consist of necrosis, non-specific acute and chronic inflammatory exudate containing numerous acid-fast bacilli, and tuberculous granulomatous inflammation with caseous necrosis. It is a very rare form of cutaneous tuberculosis.

**CASE REPORT**

This 68-year-old woman had been admitted to the internal medicine ward for fever of unknown origin and bilateral lower limb weakness for two weeks. Laboratory examination showed a normal blood count. Renal function tests, liver function tests, and serum electrolytes were within normal range. Blood cultures yielded no aerobic or anaerobic pathogens. Chest X-ray showed reticular nodular pattern on the bilateral lung fields. The patient was put on strong antibiotics, including vancomycin, ciprofloxacin and clindamycin, but fever persisted. Magnetic resonance image of cervico-thoracic spine revealed compression fracture of C5, C6, T4, and T12 with anterior extradural and cord compression. High resolution computer tomography of chest revealed bilateral miliary nodules in lung parenchyma. The impression was diffuse granulomatous lesions of the lungs. Gallium-67 whole body scan showed focal accumulation of gallium at the bilateral lungs and right knee. Disseminated tuberculosis with miliary lung lesions and cervico-thoracic spine involvement was suspected. The patient was treated with rifampicin 600 mg, isoniazid 300 mg, pyrazinamide 1500 mg, and ethambutol 800 mg daily.

![Fig. 1](image1)

A skin-colored, pigeon-egg sized, fluctuated nodule on the right shin.

![Fig. 2](image2)

Extensive inflammation in the deep dermis and subcutaneous tissue. The epidermis and superficial dermis are relatively normal. (H&E, x20).
One week later, the family noted a non-tender, nodular lesion on the right shin. The dermatologist was consulted. On examination, a skin-colored, pigeon-egg sized nodule with fluctuation was noted on the right shin (Fig. 1). An abscess was suspected. Needle puncture for drainage was attempted but failed. Copious yellowish discharge was noted during skin biopsy. The tissues were sent for pathology examination and bacterial, fungal, and mycobacterial cultures. Histopathologically, the epidermis was intact and normal. Granulomatous inflammation with occasional giant cells and a pronounced inflammatory infiltrate were revealed in the deep dermis and subcutaneous tissue (Fig. 2, 3). Extensive necrosis with abscess formation was also noted. Acid-fast stain showed multiple acid-fast bacilli (Fig. 4). The bacterial and fungal cultures yielded no microorganisms. Eight weeks later, the skin tissue and sputum cultures grew *M. tuberculosis*. Pyrazinamide was discontinued after 2-month treatment. Ethambutol was also discontinued subsequently after the culture yielded fully susceptible *M. tuberculosis*. The skin lesion healed gradually in two months.

Surgical intervention of the thoracic spine with T12 corpectomy, T11-12 and T12-L1 discectomy and anterior bone fusion was performed during the follow-up period because of the persistent low back pain and paraplegia. The pathology showed non-Hodgkin lymphoma, diffuse large B-cell type. No granulomatous inflammation was found. Thus, non-Hodgkin lymphoma with cervico-thoracic spine involvement, pulmonary miliary tuberculosis and tuberculous gumma were finally diagnosed. Chemotherapy with rituximab, cyclophosphamide, vincristine and prednisolone was given subsequently, and simultaneously, she kept on receiving isoniazid and rifampin daily until completion of a 6-month full course of anti-TB treatment. A follow-up chest X-ray complete resolution of the lung nodules. Besides, there has been no recurrence of any skin lesion.

**DISCUSSION**

Between the mid-1980s and the early 1990s, resurgence of tuberculosis, including infections with multidrug-resistant strains, has become a very serious public health issue. The rates of incidence and mortality of TB per 100000 population in Taiwan were 74.60 and 5.68, respectively, in 2002. The difficulty to prevent spread of tuberculosis is partially due to the long period to culture the microorganism. In our patient, the rapid identification of the granu-
The immune and tissue responses of the host play a decisive role in determining the type and extent of disease produced by mycobacterial infection. Tuberculous gumma is common in poorly nourished children and immunosuppressed adults. Tuberculous gumma is common in poorly nourished children and immunosuppressed adults. In our patient, an occult non-Hodgkin lymphoma probably resulted in the impaired immunity, and might be related to the development and/or spread of the tuberculosis. There has been a case report of disseminated tuberculosis, tuberculous gumma and an underlying lymphoma in the literature. These data suggested that searching for a possible malignancy in a patient with disseminated tuberculosis or tuberculous gumma may be indicated.

Since most patients with tuberculous gumma have systemic disease involvement as well, the treatment is that of tuberculosis in general. Antituberculosis regimens used for pulmonary tuberculosis are considered to be adequate for treating cutaneous tuberculosis because the bacillary load in cutaneous tuberculosis is usually much smaller than that in pulmonary tuberculosis. For military tuberculosis, a 6-month regimen is recommended, although there are limited data from controlled clinical trials addressing this issue.

In summary, tuberculous gumma is rarely reported in Taiwan. Based on the experience in this case, we suggest that a possible tuberculous etiology should always be considered when dermatologists are confronted with a painless abscess. In a patient with disseminated tuberculosis or tuberculous gumma, searching for an occult malignancy may be indicated.
REFERENCES


