A rare case of scrofuloderma along with lupus vulgaris

Chiara Sabbadini,1 Julia Oberschmied,1 Martina Tauber,2 Carla Noble1
1Department of Dermatology, Venerology and Allergology, Hospital Brunico, Brunico; 2Department of Pathology, Central Hospital Bolzano, Bolzano, Italy

Abstract

Cutaneous forms of tuberculosis are rare, comprising about 1-1.5% of all cases, and show a wide range of clinical manifestations. Here we present a case of a patient with left cervical ulcerated lymphadenopathy associated with a violaceous plaque in the area of the manubrium of sternum. We performed a biopsy of the plaque for histopathology, a polymerase chain reaction (PCR) to test for mycobacteria and a smear of the ulcerated lymph node. Histopathology results showed a dermal infiltrate consisting of epithelioid granulomas without necrosis, PCR was negative, and the culture was positive for M. tuberculosis. We made the diagnosis of scrofuloderma associated with lupus vulgaris. The patient was treated with an anti-tuberculous therapy with clinical regression of the lesions. Our case emphasizes the importance of recognizing that tuberculosis can occur as a primary cutaneous pathology, with a challenging diagnosis that requires the correlation of clinical findings with diagnostic testing.

Case Report

We report a case of a 57-year-old Indian man, who had a 2-year history of a cervical lymphadenopathy, followed by the Department of Pneumology. He lived in Italy since a few years, had no relevant medical history and didn’t take any drugs. In February 2018 he performed a cervical lymph node biopsy. The histopathologic findings showed extensive lymphohistiocytic inflammatory reaction with a central abscess and a peripheral granulomatous reaction, the PCR amplification was positive for atypical mycobacteria. QuantIFERON-TB Gold (QFT-G) test was borderline. The patient refused the purposeful antibiotic treatment because of non-compliance. In January 2020 he was admitted to our dermatological department with a 5-month history of cervical wound healing disorder. On physical examination, he had mild, tender left anterior cervical lymphadenopathy with two hard nodular erythematous formations associated with a violaceous plaque with satellite papules and ulceration in the area of the manubrium of sternum (Figure 1).

One of the cervical lymph nodes ulcerated after 1 week and evolved with the persistence of a secreting fistula with drainage of serous-purulent content. We performed a blood test, a smear from the ulcerated area of the neck and a skin biopsy from the plaque. In our skin biopsy, the histopathologic findings showed a dermal infiltrate consisting of epithelioid granulomas without necrosis surrounded by lymphocytes and multinucleate giant cells (Figure 2).

The PCR amplification was negative for mycobacteria. The histologic features were compatible with lupus vulgaris. The culture of material obtained from the cervical draining lesion was positive for Mycobacterium tuberculosis. QuantIFERON-TB Gold test was positive, laboratory findings were within normal...
range, HIV test was negative. We also performed a chest radiography and a chest, neck and abdomen computed tomography which excluded visceral tuberculosis. A diagnosis of scrofuloderma associated with lupus vulgaris was made. For the planning of the correct treatment and management, the pneumologists were involved. We started an antituberculous quadruple therapy combining rifampicin 600 mg/daily, isoniazid 300 mg/daily, ethambutol 1.2 g/daily, and pyrazinamide 2 g/daily. At the dermatologic follow up visit, after 2 months of therapy, cutaneous lesions were regressed, leaving hyperpigmented patches. The treatment is still ongoing with only rifampicin 600 mg/daily and isoniazid 300 mg/daily.

Discussion

Lupus vulgaris is the most common type of CTB, as showed in a recent Spanish study, representing 61.11% of the cases. The disease can either be acquired endogenously, by contiguous spread, haematogenous or lymphatic dissemination, or exogenously by direct inoculation. Lupus vulgaris sometimes develops on cervical scars of scrofuloderma that had occurred previously, usually in childhood. Clinically, lesions are generally reddish-brown, solitary and sharply defined. Clinical variations exist and are defined as classic plaque, hypertrophic ulcerative and vegetating. It occurs in previously sensitized individuals with high immunity. Without therapy, its course usually extends over many years, leading to significant impairment of function and disfiguration. Scrofuloderma emerges from direct invasion of the bacilli into the skin from an underlying tuberculous process, most of the time tuberculous lymphadenitis and tuberculosis of the epididymis, bone and joints. Lesions present as firm, painless, subcutaneous, red-brown nodules overlying an infected focus, which gradually enlarge and suppurate forming ulcers and sinus tracts that drain watery, purulent, or caseous material.

Immunopathologically, initial immune response to *Mycobacterium tuberculosis* consists in an adaptive immune response engaging Th1 cells (CD4+ T-cells) and macrophages. If the mycobacteria survive a second stage begins, in which macrophages induce the production of cytokines resulting in the recruitment and activation of monocytes, lymphocytes, neutrophils and dendritic cells. Cellular activation and interleukin liberation stimulate macrophages to differentiate into epithelioid and giant cells that will organize themselves into granulomas according to individual host factors. Cutaneous TB is recognized to form a continuous immunopathologic spectrum, ranging from a high intensity of cell-mediated immunity, for example in lupus vulgaris, to a low intensity of cell-mediated immunity, like in scrofuloderma. Rarely, as showed in our case report, these findings can be associated. In our opinion, this association is linked to the long course of the untreated lymph node disease. In the English published works, we found only two other combined case reports, which are

Table 1. Cases of scrofuloderma associated with lupus vulgaris.

| Article type       | Age | Gender | Localization | Clinical presentation                                      |
|--------------------|-----|--------|--------------|----------------------------------------------------------|
| Alia ao lu et al. (2006)  | 70  | F      | Neck         | Ulcerous-discharging abscess on the neck, giant atrophic plaque on the chest |
| Tuli et al. (2014)  | 27  | M      | Neck         | Two ulcers associated with an erythematous, psoriasiform scaling plaque |
patients are no longer infectious, followed by a continuation or sterilizing phase.4 The initial phase includes a daily dose of isoniazid, rifampicin, pyrazinamide and ethambutol given for a total of 2 months, followed by two drugs (isoniazid and rifampicin) for 4 months.7,13 The long duration of the treatment could negatively influence the patient’s compliance. Patients who do not adhere to the prescribed treatment are likely to become drug resistant. A recommended method in order to address these problems is prescribing fixed-drug combination products.4 The ending of the therapy is defined more accurately by the total number of doses taken than by the length of treatment. Consequently, the response to the therapy must be assessed clinically. Based on the fact that viable mycobacteria can still be cultured from clinically cured lesions, treatment should be continued for at least 2 months after complete involution of the lesions.4

Conclusions

Cutaneous TB is an uncommon form of tuberculosis, difficult to diagnose due to its rare nature and the fact that it may present in different clinical forms. Therefore, it is challenging for the dermatologist to find the right diagnosis. Cutaneous TB requires the correlation of clinical findings with diagnostic testing. There are only a few cases in literature which describe scrofuloderma along with lupus vulgaris. Chemotherapy is still the treatment of choice and the response should be assessed clinically.

References

1. World Health Organization. Global tuberculosis report 2018. Geneva, Switzerland: World Health Organization; 2018. https://apps.who.int/iris/handle/10665/274453.
2. van Zyl L, du Plessis J, Viljoen J. Mycobacterial culture and Other Mycobacteria. Biomed Res Int 2014:645802.
3. McHugh TD, Newport LE, Gillespie SH. IS6110 homologs are present in multiple copies in mycobacteria other than tuberculosis-causing mycobacteria. J Clin Microbiol 1997;35:1769-71.
4. Jagielski T, van Ingen J, Rastogi N, et al. Current Methods in the Molecular Typing of Mycobacterium tuberculosis and Other Mycobacteria. Biomed Res Int 2014:645802.
5. Furin J, Cox H, Pai M. Tuberculosis. Lancet 2019;393:1642-56.