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Non-Tuberculous Mycobacterium facial cellulitis in an immunocompromised rheumatoid arthritis patient – Skin biopsy can help

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A 78-year-old woman with rheumatoid arthritis history came to Dermatology outpatient department (OPD) for a skin rash on the face for six weeks. She went to different clinics for help initially, but skin rash continued to progress. She was advised to hospital for further survey. Skin biopsy was done in our hospital and revealed conglomerated epithelioid cell granulomas with scattered Langhans giant cells. Tissue acid-fast staining demonstrated the presence of positive bacilli, and Periodic-acid Schiff (PAS) staining displayed no specific organisms. The pathology report of the tissue sample suggested chronic granulomatous inflammation, favoring *Mycobacterium* infection.

Before treatment (Fig. 1A), the patient was under methotrexate, hydroxychloroqine and prednisolone treatment for rheumatoid arthritis. Blood culture and acid fast staining for tuberculosis both revealed negative findings. Physical examination revealed no lymph node or tender bone beneath the skin lesion. Under the suspicion of Non-tuberculous Mycobacterium (NTM) facial cellulitis, skin wound related, the regimen including clarithromycin (500 mg Q12h P.O.), levofloxacin (500 mg QD P.O.), and doxycycline (50 mg Q12h P.O.) was initiated. Because overt clinical improvement was noted after treatment, patient hesitated the second biopsy on face for pathogen identification. After 6 months of treatment, the skin rash disappeared completely (Fig. 1B). She was followed up at OPD for 3 months, no recurrence was found.

Differentiating NTM from *Mycobacterium tuberculosis* (MTB) was done. Cutaneous tuberculosis can derive from hematogenous spreading, contiguous spreading from underlying TB lymphadenitis or osteomyelitis[1]. The blood culture of the patient for MTB was no growth. No other skin rash at different part was found, and hematogenous spreading was not likely. Meanwhile, no underlying lymph nodes or tender bony structure at the lesion site, so cutaneous TB derived from contiguous extension was excluded.

NTM was frequently derived from contaminated water. It causes skin infection by skin defect like trauma or operation wound [2]. Rapid-growing NTM is more often the causative pathogen for NTM soft tissue infection [3]. In resource-limited hospital, NTM species identification or drug susceptibility test is not available. Empirical antimicrobials covering rapid-growing NTM soft tissue infection is a reasonable choice. According to the antibiogram of rapid-growing NTM [4] and availability of oral form antimicrobials, levofloxacin, clarithromycin and doxycycline may be chosen for empirical use.

In this case, skin wound contacted with suspicious contaminated water in an immunocompromised host caused NTM soft tissue infection. After 6 months of treatment for skin NTM infection, the patient achieved total recovery without recurrence.

Ethical approval

None.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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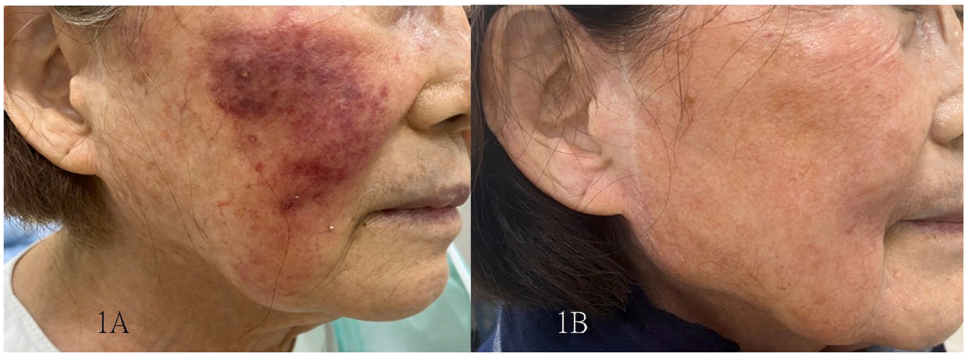

Fig. 1. Erythematous skin lesion was noted on the cheek of the patient (1A), the lesion recovered totally after 6 months' treatment (1B).

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CRediT authorship contribution statement

Tsung Chia Chen: study design, data collections, data analysis, writing. **Chia-Hua Wu:** data collection.

Author statement

I and co-author declare no any AI tools or technologies was utilized in the article-writing process.

Declaration of Competing Interest

No conflict of interests of all authors.

References

[1] Chen TC, Tsai CH. Cutaneous tuberculosis simultaneously presenting as a subcutaneous nodule and mass: a case report. IDCases 2021;25:e01207.
[2] Chen TC, Huang CC, Huang WC, Jheng JL, Tseng TY. Mycobacterium conceptionense mastitis after autologous fat transfer for breast augmentation-a case report. J Intern Med Taiwan 2019;30(6):408–13.
[3] Hsiao CH, Tsai TF, Hsueh PR. Characteristics of skin and soft tissue infection caused by non-tuberculous mycobacteria in Taiwan. Int J Tube Lung Dis 2011;15(6):811–7.
[4] Hunkins JJ, de-Moura VCN, Eddy JJ, Daley CL, Khare R. In vitro susceptibility patterns for rapidly growing nontuberculous mycobacteria in the United States. Diagn Microbiol Infect Dis 2022;105(3):115882.