



A Case of Cutaneous Non-Mycobacterium Infection after Illegal Botulinum Toxin Injection Diagnosed by Polymerase Chain Reaction

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Dear Editor:

A 68-year-old female patient visited our clinic with severe painful and itching skin lesion around chins three months ago. On the physical examination, several erythematous to brownish round shaped papules and nodules were observed (Fig. 1A, B). She had received botulinum toxin injection on both jaws illegally elsewhere 7 months previously, not by a medical doctor. Foreign body granuloma, furuncle, and cutaneous tuberculosis (TB) were clinically suspected and a punch biopsy was performed. Upon histopathologic examination, inflammatory cell infiltration and granulomatous inflammation were observed in the dermis (Fig. 2A). Acid fast bacilli stain was negative. Initially, both *Mycobacterium tuberculosis* (MTB) and non-tuberculous mycobacteria (NTM) were negative in polymerase chain reaction (PCR).

In order to rule out the possibility of TB infection, TB-specific Ag induced IFN-gamma testing was performed. The result was positive and the patient was sent to the pulmonary medicine department but pulmonary TB was not suspected by chest high resolution computed tomography. Then, re-biopsy was subsequently performed to exclude cutaneous TB or NTM. From the histopathologic examination at re-biopsy, MTB-PCR was negative, but NTM-PCR was positive (Fig. 2B). Finally, the patient was diagnosed

with cutaneous NTM. The microorganism was not detected in the test for identification of the microorganism. The patient was subsequently treated with clarithromycin and levofloxacin, and large lesions on both cheeks were surgically excised. After two months of treatment, lesions were significantly improved (Fig. 1C, D). We received the patient's consent form about publishing all photographic materials.

NTM refers to mycobacterium except for MTB and leprosy bacteria¹. Although cutaneous NTM is rare, the incidence is increasing due to advances in diagnostic methods such as PCR and increased invasive cosmetic procedures²⁻⁴. Typical skin lesion is erythematous nodule, but clinical presentation may be variable including ulcers and abscess². Identification of mycobacterium species from cultures of skin biopsies is the standard diagnostic method. PCR and DNA sequencing can be used to identify the exact subtypes⁵. The histologic findings may be present in various forms, such as abscess, necrosis, granuloma, and inflammatory cells infiltration¹. Treatments regimens are not well established. Tetracyclines, macrolides, quinolones, and co-trimoxazoles are the most commonly used drugs^{2,4}. In our case, we initially suspected skin TB infection due to the history of illegal botulinum toxin injection, but the result of PCR was negative from the initial biopsy specimen.

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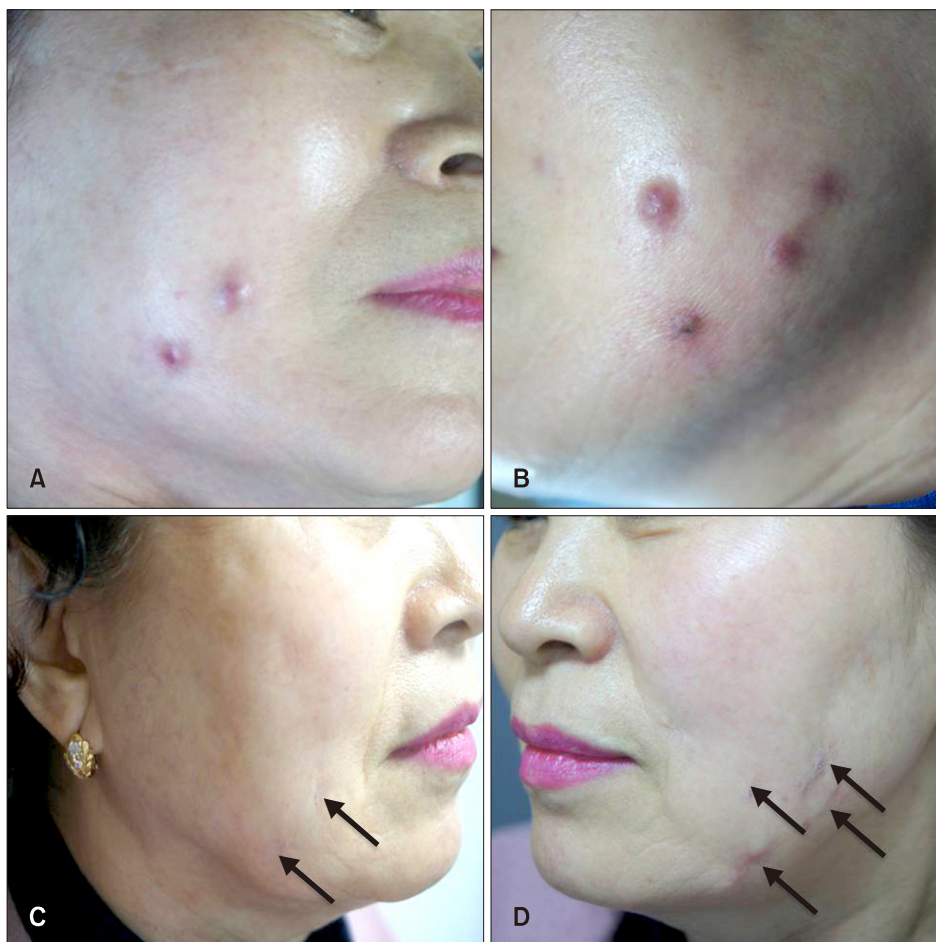


Fig. 1. (A, B) Several erythematous to brownish round shaped papules and nodules were observed on both cheeks. (A) Right cheek, (B) Left cheek. The large lesions were surgically removed via punch biopsies. The removed sites are indicated by arrows. (C, D) After treatment of two months, the lesions were improved. (C) Right cheek, (D) Left cheek.

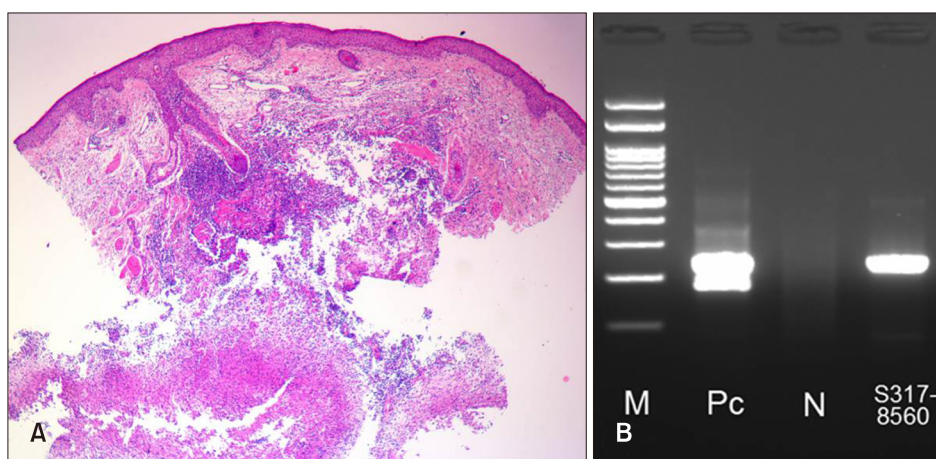


Fig. 2. (A) In the histology of the first biopsy, inflammatory cells infiltration and granulomatous inflammation was observed in the dermis (H&E, $\times 40$). (B) From the histopathologic examination at second biopsy, NTM-PCR was positive. NTM: non-tuberculous mycobacteria, PCR: polymerase chain reaction, M: size marker, Pc: positive control, N: negative control.

However, re-biopsy was performed based on the clinical feature and patient's history of illegal cosmetic procedure. NTM-PCR was positive in the re-biopsy specimen and eventually diagnosis of cutaneous NTM was established. Due to the trend that the prevalence of cutaneous NTM is increasing because of the illegal cosmetic procedure, the possibility of NTM infection should be considered for skin

lesion that does not respond to initial treatment at the site of invasive procedures. It is helpful to perform culture and biopsy repeatedly if necessary, as we were able to successfully diagnose NTM through repeated biopsy. In this context, we report a case of cutaneous NTM that may serve as a useful educational case.

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CONFLICTS OF INTEREST

The authors have nothing to disclose.

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A Case of Perinevoid Alopecia on the Scalp

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Dear Editor:

Perinevoid alopecia is one of the atypical hair loss disorders¹. We describe a rare case of perinevoid alopecia. A 33-year-old woman presented with a solitary patch of alopecia with a central skin-colored papule on her vertex for

2 months (Fig. 1A). The match-head-sized skin-colored papule was observed when she was 10 years old, although the patch of alopecia was observed 2 months prior to presentation. Broken hairs were seen at the site of the patch of alopecia. There was no history of local irritation

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