
Rare non-tuberculous mycobacterial infection following hyaluronic acid injection

SHORT CASE REPORT

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Background

Non-tuberculous mycobacterial (NTM) infections are an emerging complication of injection treatments and may lead to delayed diagnosis when routine cultures are insufficient.

Case presentation

We present a case of a woman in her 50s with a chronic ulcerative lesion following hyaluronic acid injections administered abroad. Her history included prior nasal trauma and a silicone implant. Initial empirical treatment and repeated routine cultures were unsuccessful. Only after extended aerobic and anaerobic incubation and referral for molecular analysis were *Mycobacterium wolinskyi*, a rare rapidly growing NTM, together with *Cutibacterium acnes* identified. The patient was successfully treated with a 14-week course of ciprofloxacin and doxycycline alongside implant removal.

Interpretation

This case underscores the importance of providing thorough clinical information on microbiology requisitions, especially in suspected foreign body infections or after injection treatments, and the need for heightened awareness of NTM infections.

Complications after injection treatments require clinical vigilance and a multidisciplinary approach to prevent delays in treatment.

A woman in her fifties was referred to the Department of Otorhinolaryngology after four weeks of erythema, pain and swelling over the nasal bridge. She had sustained a nasal injury in a traffic accident 30 years earlier, and her nose had been reconstructed 15 years later with a silicone implant along the nasal bridge. Two months prior to symptom onset, she had received hyaluronic acid filler injections in the nose and cheeks, all performed abroad.

Before referral, the patient had been treated by a specialist in private practice with oral clindamycin and metronidazole for five and six days, respectively, as well as hydrocortisone/oxytetracycline/polymyxin B ointment, without clinical improvement. No culture results were available. She had HBeAg-negative chronic hepatitis B virus infection but no immunodeficiency or diabetes mellitus.

On examination, a reddish lesion with ulceration was observed on the nasal bridge. She was in good general condition and afebrile. Pus was evacuated through a skin incision and sent for microbiological analysis, and treatment with oral dicloxacillin 500 mg four

times daily for seven days was initiated. Microbiological examination revealed no growth.

The patient initially experienced some improvement, but her symptoms recurred after two weeks. A repeat sample was taken for microbiological analysis, along with a tissue biopsy from the wound edge for histological examination. She was given topical fusidic acid ointment. Histology showed granulation tissue without evidence of atypia, and microbiological analysis again showed no growth. On both occasions, pus samples were incubated aerobically with 5 % CO₂ for two days and anaerobically for three days at 35 °C, in accordance with standard procedures for this type of specimen.

It was considered likely that removal of the silicone implant would cause major functional and cosmetic defects; secondary healing was therefore sought. At the five-month check-up, the clinical picture remained unchanged (Figure 1). CT imaging revealed a soft tissue reaction surrounding the silicone implant, but no abscess or fistula formation. Endoscopic examination also showed no evidence of fistula.



Figure 1 Patient with a nasal silicone implant and chronic skin infection

New samples were collected for microbiological analysis: two from the wound and one from the nasal mucosa. The requisition included more detailed clinical information about the course of the disease, prompting the microbiologist to submit the samples for extended aerobic and anaerobic culture. Samples were also sent for mycobacterial culture at an affiliated laboratory.

After six days of aerobic culture, Gram-positive rod-shaped bacteria were detected in all samples, while anaerobic culture yielded *Cutibacterium acnes*. The Gram-positive rods were identified by 16S rRNA sequencing as a rapidly growing non-tuberculous mycobacterium, most consistent with *Mycobacterium wolinskyi*. The isolate was sent to Norway's National Reference Laboratory for Mycobacteria at the Norwegian Institute of Public Health for further identification and susceptibility testing. Whole-genome sequencing confirmed *M. wolinskyi* as the closest match in the database used (1).

In consultation with an infectious disease specialist, the implant was deemed the likely source of infection and was removed (Figure 2). Antibiotic therapy with oral ciprofloxacin 500 mg twice daily and doxycycline 100 mg twice daily was initiated, with a planned duration of at least three months. *Cutibacterium acnes* was considered adequately managed by removal of the foreign body. The patient discontinued antibiotic therapy after 14 weeks; by that time the wound had healed, although she had experienced gastrointestinal side effects.



Figure 2 Silicone implant removed from the patient's nose

At follow-up three months after completion of therapy, and almost one year after symptom onset, no signs of recurrence were observed. Removal of the silicone implant resulted in nasal collapse, and the patient developed respiratory difficulties. She subsequently underwent extensive nasal reconstruction using autologous costal cartilage.

Discussion

Non-tuberculous mycobacteria (NTM) comprise a diverse group of low-virulence organisms that naturally inhabit soil and water. They are classified as rapidly or slowly growing species and can cause a wide range of diseases, including skin and soft tissue infections (2). The lipid-rich cell wall of mycobacteria and their ability to form biofilm promote environmental persistence and make them resistant to antibiotics and disinfectants. Selective culture is essential when mycobacterial infection is suspected, although rapidly growing species can be detected through prolonged routine bacteriological incubation (3). Several NTM species have been implicated in healthcare-associated infections following surgical and other skin-penetrating procedures. Exposure to contaminated water, including tap water, is a risk factor for such infections (2, 4).

Chronic wound infections caused by NTM in association with surgery and injection treatments are a growing problem internationally. In our case, we isolated a rare rapidly growing mycobacterial species first described in 1999 (5). As of May 2024, 35 cases of infection due to *Mycobacterium wolinskyi* have been reported in the literature. The most frequently reported manifestations are skin and soft tissue infections following surgical or cosmetic procedures (6).

Accurate species identification and antimicrobial susceptibility testing are crucial for optimising the management of rapidly growing NTM. In our patient, treatment was guided by published case reports in conjunction with susceptibility data. The isolate was resistant to clarithromycin, an agent commonly used in the treatment of infections caused by other NTM. Although our patient received a shorter course of antibiotic therapy than in most published cases, therapeutic success was nevertheless achieved (6).

The patient was assessed by multiple clinicians, and lack of continuity of care may have hindered optimal follow-up. It took more than six months to establish the correct diagnosis after the initial consultation. Extended bacteriological investigations were not requested until the third sampling, which ultimately proved diagnostic. This case underscores the importance of clinical vigilance in order to avoid delayed treatment of cutaneous infections caused by NTM.

The patient has consented to publication of the article.

The article has been peer-reviewed.

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