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Short communication

Non-tuberculous Mycobacterium infection after transfer of autologous fat to the face: a rare case

D.-H. Seo [a,b], J.Y. Shin [a,b,*], S.-G. Roh [a,b], S.C. Chang [a,b], N.-H. Lee [a,b]

[a] *Department of Plastic and Reconstructive Surgery, Medical School of Chonbuk National University, Jeonju, Republic of Korea*
[b] *Research Institute of Clinical Medicine of Chonbuk National University-Biomedical Research Institute of Chonbuk National University Hospital*

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Abstract

Autologous fat has long been used as a filler in the face, and has recently gained popularity in plastic surgery with a wound infection rate of 1% − 5%. The incidence of mycobacterial infections has increased over recent decades, which is attributed in part to the increased popularity of these procedures.[2] Infections by non-tuberculosis mycobacteria often cause chronic inflammation and progressive infection that may eventually manifest themselves as severe scars, fistulas, and hollows, and irregular facial contours. However, few cases of mycobacterial infection have been reported to have been caused by plastic surgery. We present a rare case of non-tuberculosis mycobacterial infection after transfer of autologous fat to the face.

Keywords: fat graft; non-mycobacterium infection; face infection

Case report

A 35-year-old woman presented to our plastic surgery clinic with intermittent discomfort, pain, swelling, erythematous change, and induration, and an irregular margin in the left cheek that had been injected with autologous fat on two occasions previously (Fig. 1).[1–3] After the second transfer of fat, she had these symptoms, but they were getting worse. She had been treated with antibiotics at a local clinic, but after two weeks the symptoms continued.

She was referred to our outpatient department by the local clinic. Initial clinical evaluation led us to suspect cellulitis and she was referred for ultrasound screening, which showed a collection of fluid in the left cheek about 1.6 × 1.2 cm in size with a hyperechoic rim, which indicated inflammation. We injected a common antibiotic empirically (tigecycline, 50 mg daily).

The symptoms still did not improve so we decided to remove the collection of pus by incision and drainage and identify the causative bacterium and its antibiotic susceptibilities. We operated on her fourth day in hospital through a pre-existing scar (Fig. 2). Microbiological tests, (bacterial and fungal cultures, Gram staining, acid-fast bacilli (AFB) staining, and acid-fast culture) were completed. Routine cultures and stains showed no abnormality, but a specimen did stain for AFB, so we did a polymerase chain reaction (PCR) to test for *Mycobacterium tuberculosis*, and this confirmed the presence of non-tuberculosis mycobacteria.

We then started her on a combination of antibiotics empirically (clarithromycin 500 mg every 12 hours, ciprofloxacin 400 mg every 12 hours, and imipenem 500 mg every six hours). We also used a multiplex PCR to identify the bac-

* Corresponding author at: Department of Plastic and Reconstructive Surgery, Chonbuk National University Hospital, 20, Geonji-ro, Deokjin-Gu, Jeonju-si, Chonbuk, 561-712, Republic of Korea. Tel: +82 632501860; Fax: +82 632501866.
E-mail address: psjyshin@gmail.com (J.Y. Shin).

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Fig. 1. The patient showing erythematous skin change, swelling, and induration with an irregular margin after transfer of autologous fat.

Fig. 2. The patient after incision and drainage on the fourth day in hospital. Pus was discharged and necrosis of the fat had been visible through the open wound.

terium, and an antimicrobial susceptibility test to confirm non-tuberculosis mycobacteria.

We irrigated the wound daily in parallel with the antibiotics, and two weeks later the symptoms had improved and there were no obvious signs of infection.

Finally, *Mycobacterium fortuitum* complex was identified on day 28.

After discharge, we prescribed ciprofloxacin and doxycycline for six months to prevent recurrence. Antimicrobial susceptibility testing for non-tuberculosis mycobacteria indicated that the *M. fortuitum* complex regimen was susceptible to this regimen on day 60 (Table 1). During six-months' follow-up, symptoms did not recur and a scar began to form.

Table 1
Antimicrobial susceptibility test for non-tuberculosis mycobacteria.

Antibiotic	Minimum inhibitory concentration (mcg/ml)	Susceptibility
Amikacin	≤1	Susceptible
Cefoxitin	16	Susceptible
Ciprofloxacin	0.5	Susceptible
Clarithromycin	≤0.5	Susceptible
Doxycycline	≤0.25	Susceptible
Imipenem	2	Susceptible
Moxifloxacin	≤0.125	Susceptible
Rifampicin	>16	
Trimethoprim/sulfamethoxazole	4/76	Resistant
Tobramycin	4	
Ethambutol	8	
Linezolid	8	Susceptible

Discussion

Because of the ability of autologous fat to alter facial contours, its clinical application for aesthetic reasons has become popular. Adverse effects, such as infection have, however, increased in parallel to the total number of procedures.[2]

Wounds infected with non-tuberculosis mycobacteria, particularly those caused by a rapid growth Mycobacterium, such as, *M. fortuitum, M. chelonae* or *M. abscessus*, are generally reported to present with symptoms of mild discomfort; erythematous nodules and folliculitis; swelling; erythematous change; serosanguineous discharge; and the formation of abscesses. Systemic symptoms are rare.[4] These infections do not respond to antibiotics and persist for a long time.[5]

The guidelines for treatment of rapidly growing mycobacterial infections are poorly established. Currently, susceptibility testing of all isolates and the use of antibiotics empirically are recommended until susceptibilities are known.[6] Clarithromycin and doxycycline or levofloxacin are recommended for four to six months for cutaneous *M. fortuitum* infections.[7]

Operation is an important adjunct in non-tuberculous infections, but may result in noticeable complications such as scars, fistulas, hollows, and asymmetries.

Mycobacterial infections after the transfer of autologous fat for a cosmetic procedure are easily overlooked because they are usually caused by a bacterium such as *Staphylococcus aureus*. When presented with a patient with uncontrolled cellulitis at around two weeks after the transfer of autologous fat, the possibility of infection by an atypical Mycobacterium should be suspected.[1]

To prevent these mycobacterial infections plastic surgeons must use clean, sterilised instruments because they are usually attributed to contamination or a non-aseptic technique.[8]

Conflict of interest

We have no conflicts of interest.

Ethics statement/confirmation of patient's permission

Ethics approval not required. The patient's permission was obtained.

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