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## Cutaneous Infection in a Tattoo Due to *Mycobacterium Chelonae*: A Report of 2 Cases and a Review of the Literature<sup>☆</sup>

### Infección cutánea por *Mycobacterium chelonae* en un tatuaje. Presentación de 2 casos y revisión de la literatura

Skin complications arising from tattoos include contact dermatitis, photodermatitis, lichenoid reactions, granulomas (foreign body, sarcoid), and infection.<sup>1,2</sup> Small outbreaks of skin infections due to *Mycobacterium chelonae* in contaminated tattoo ink have recently been reported.

#### Patient 1

Patient 1 was a 33-year-old man who had had a tattoo placed on his right leg 4 years previously. Three months before consulting, he had the shield outlined in black and a gray flame added. Asymptomatic lesions appeared 2 weeks later and were treated unsuccessfully with topical corticosteroids and antibiotics. The patient was then referred to the dermatology department.

Physical examination of the gray flame revealed several papulopustules measuring 1 mm to 4 mm in diameter (Fig. 1A). The border drawn in black ink the same day was not affected. Analysis of a biopsy specimen revealed granulomas with abscess formation (Fig. 1B); Kinyoun staining was negative. *M chelonae* grew in culture 15 days later. The chest x-ray was normal, and laboratory tests (including serology for HIV and hepatitis) were negative. The patient was treated empirically with clarithromycin (500 mg/12 h) for 3 months. The lesions disappeared.

#### Patient 2

Patient 2 was a 25-year-old woman who had had a black and grey tattoo placed on the dorsum of the foot 5 months previously by the same tattoo artist. Five days later, an asymptomatic lesion appeared on the gray areas. The lesion had been treated unsuccessfully with topical antibiotics and corticosteroids. Physical examination revealed an ery-

thematous plaque measuring 1 cm in diameter that was soft to palpation with occasional pustules on its surface (Fig. 2A). Analysis of a biopsy specimen revealed granulomas with abscess formation; Kinyoun staining showed a small accumulation of acid-alcohol-fast bacteria (Fig. 2B), but culture was negative. The patient was treated with clarithromycin (500 mg/12 h), although the drug was withdrawn in less than a month because of digestive tract intolerance. As the lesion had disappeared, no further treatment was administered.

### Discussion

*M chelonae* is a fast-growing saprophytic mycobacterium that is found in tap water and water tanks and can contaminate surgical material. Skin infections have been reported in surgery, acupuncture, mesotherapy, and tattooing. In the case of tattoos, the infections affect the gray areas, as non-sterile water is added to the black ink.

The first case of a tattoo infected by mycobacteria was reported in 2003. Diagnosis was based on Ziehl-Neelsen staining and positive results in polymerase chain reaction (PCR) analysis. De Quatrebarbes et al<sup>4</sup> later reported the first epidemic of *M chelonae* in tattoos. Twenty men presented with a rash in the gray area of their tattoos 7 to 10 days after having them performed by the same artist. Culture was positive for *M chelonae* in 13 patients.<sup>4</sup> Goldman et al<sup>5</sup> subsequently included these patients in a letter reporting on 48 patients who were tattooed by 2 different artists in Le Havre, France. *M chelonae* was found in 2 bottles of diluted black ink. New cases have since been reported in France,<sup>6</sup> Australia,<sup>7</sup> and the United States.<sup>8,9</sup> Rodríguez-Blanco et al<sup>10</sup> recently reported 5 cases in La Coruña, Spain; 3 were culture-positive and 2 PCR-positive. Table 1 summarizes the cases published to date.

All the cases involved the appearance of papulopustules in the gray areas of the tattoo 1 to 2 weeks after placement. No systemic involvement was recorded. The diagnostic delay (1-5 mo) is noteworthy, as the patients were initially diagnosed with an allergic reaction or bacterial infection and were treated with topical antibiotics, corticosteroids, or both. No standard treatment has been defined, although the most widely used agent is clarithromycin, which, according to Drage et al,<sup>8</sup> should be prescribed for at least 6 months; however, digestive tract intolerance makes this difficult.<sup>10</sup> Some clinicians have combined clarithromycin

<sup>☆</sup> Curcó N, et al. Infección cutánea por *Mycobacterium chelonae* en un tatuaje. Presentación de 2 casos y revisión de la literatura. *Actas Dermosifiliogr.* 2012;103:842-5.

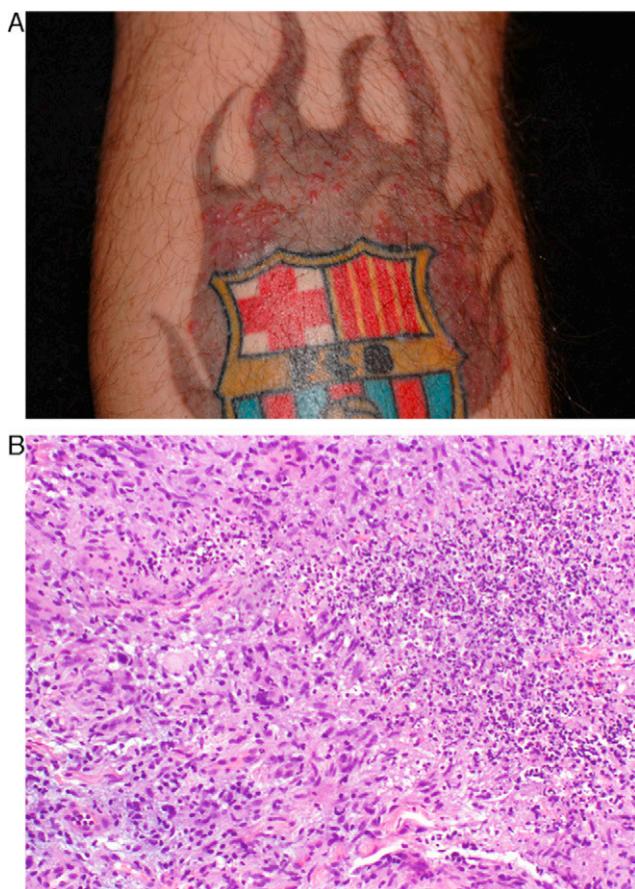
**Table 1** Cases of Skin Infection by *Mycobacterium chelonae* in Tattoos.

Author/Year/ Country	No. of Cases	Time to Appearance	Time to Diagnosis	Histology	Mycobacterial Staining	Culture	Treatment
Wolf and Wolf/2003 <sup>3</sup> / Israel	1	ND	3 mo	Granulomatous dermatitis	+	PCR + atypical mycobacteria	None
Goldman et al./2010 <sup>5</sup> / France <sup>a</sup>	48	3-35 d	2 mo (mean)	50% granulomas	ND <sup>b</sup>	13+/30	Clarithromycin in 41 patients + tobramycin (10 patients)
Kluger et al./2008 <sup>6</sup> / France	8	10-21 d	2-5 mo	Inflammatory dermatitis and granulomatous reaction	- (+ in ink)	-	Minocycline (1 mo)
Preda et al./2009 <sup>7</sup> / Australia	1		2 mo	Inflammatory and granulomatous dermatitis	ND	+	Clarithromycin + moxifloxacin 4 mo
Drage et al./2010 <sup>8</sup> / United States	6	1-2 wk	Mean 17.6 (range, 10-22) wk	Inflammatory dermatitis (3 cases) Granulomatous dermatitis (3 cases)	-	3+/6	Clarithromycin 6 mo
Rodríguez- Blanco et al./2010 <sup>10</sup> / Spain	5	3-30 d	ND	Inflammatory dermatitis (3 cases) Granulomatous dermatitis (2 cases)	-	3 +	Clarithromycin 3-5 mo (2 patients)
Kappel and Cotliar/2011 <sup>9</sup> / United States	1	45 d	2 wk	Inflammatory and granulomatous dermatitis	ND	+	Clarithromycin and levofloxacin, 6 mo
Present report, 2011	2	5-15 d	3-5 mo	Granulomatous dermatitis	1+	1+	Clarithromycin, 1-3 mo

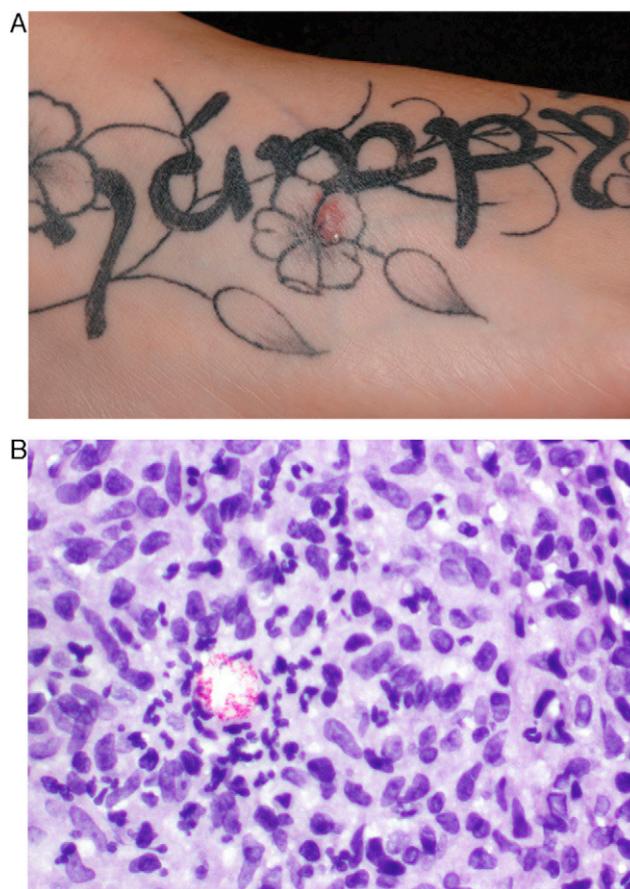
Abbreviation: ND, no data.

<sup>a</sup> Includes 20 cases reported by De Quatrebarbes et al<sup>4</sup> in 2005.

<sup>b</sup> The article by De Quatrebarbes et al<sup>4</sup> appears to include some positive cases, although the exact number is not given.



**Figure 1** Patient 1. A, Papulopustules only affecting the gray area of the flame. B, Granuloma with abscess formation and occasional giant cells (hematoxylin-eosin, original magnification  $\times 200$ ).



**Figure 2** Patient 2. A, Erythematous papule in the gray area of a petal of the flower. B, Accumulation of acid-alcohol-fast bacteria in the area with abscess formation (Kinyoun, original magnification  $\times 400$ ).

with quinolones<sup>9</sup>; others have found a 1-month course of minocycline to be successful.<sup>6</sup>

The tattoo artist claimed to have used disposable material with each patient. The gray color was obtained by mixing black ink with rose water bought at the pharmacy. We assume that this water or the mixture became contaminated and was thus the cause of the infection, although we were unable to verify this, as all the material had been disposed of.

As tattooing is increasingly common, we wish to stress the importance of using disposable material and sterile products in order to avoid this type of infection. Furthermore, black ink should be mixed with sterile saline or water when the tattoo is being placed in order to avoid subsequent contamination; the mixture should not be stored.

Clinicians should suspect this infection and be able to recognize it, since staining is usually negative and culture positive in only 40% to 60% of cases. New PCR techniques can help to confirm the diagnosis.

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## Optic Neuritis Probably Induced by Isotretinoin<sup>☆</sup>

### Neuritis óptica probablemente inducida por isotretinoína

To the Editor:

Isotretinoin is a drug indicated in dermatology for the treatment of acne and used off-label for other skin and mucosal disorders.<sup>1–4</sup>

Most patients treated with isotretinoin develop mild adverse effects that do not affect the course of treatment. However, it can have less common unpredictable effects that are more serious and must be known by those who habitually use this drug in clinical practice.<sup>4,5</sup>

A 16-year-old girl weighing 63 kg with no relevant past medical history or treatment for chronic disease was evaluated in our department for moderate, predominantly facial juvenile acne that had not been controlled with topical treatment (adapalene and benzoyl peroxide in combination) or oral antibiotics (oral doxycycline 50 mg for 2 months, interrupted 2 months before she started treatment with oral retinoids). Three months after starting treatment with oral isotretinoin (30 mg daily, 0.47 mg/kg/d), the patient began to notice vision loss and blurred vision in her right eye. She did not report pain with eye movements, impaired color vision, photophobia, or headache.

The patient was evaluated by an ophthalmologist, who detected a peripheral visual field deficit in the right eye and established the clinical diagnosis of retrobulbar optic neuritis. Slit lamp examination and funduscopy showed normal findings in both eyes. The intraocular pressure was within the normal range in both eyes. On suspicion of an adverse reaction to isotretinoin, the patient was referred urgently to our clinic; when she attended she had reduced the daily dose from 30 to 20 mg and her vision had improved considerably. At that time it was decided to stop treatment. Nuclear magnetic resonance imaging was requested to rule out demyelinating disease and the patient was referred to the neurology department. The general neurological examination was normal. A lumbar puncture revealed no pathological findings. The visual evoked potential responses revealed P100 waves with prolonged latency, decreased amplitude, and altered morphology and confirmed the pres-

ence of bilateral optic neuropathy. The other additional tests revealed no pathological findings.

Six months after withdrawal of the drug, the patient had recovered vision completely and no ophthalmologic sequelae were observed in later examinations. The patient is studying abroad, so at the time of writing it has not been possible to confirm the return to normal values by repeating the ophthalmologic studies and visual evoked potentials.

A recent review of the adverse effects of isotretinoin in a series of 1743 patients showed that ocular manifestations may occur in up to 3.4% of cases.<sup>4</sup>

The most common manifestations are mild cases of blurred vision, keratitis, and keratoconjunctivitis (Table 1). However, there have been isolated reports of potentially serious ophthalmic adverse events.

Optic neuritis is an inflammatory disease of the optic nerve that is generally associated with acute or subacute loss of vision.<sup>6</sup> This condition is included in the list of possible adverse effects of isotretinoin in the drug's summary of product characteristics in some countries<sup>7,8</sup> and in several review articles.<sup>9–11</sup> Fraunfelder et al.<sup>10</sup> reviewed a total of 2379 possible ocular adverse effects related to the administration of isotretinoin and identified 33 cases of optic neuritis, of which 22 occurred in women with a mean age of 25.6 years. Fraunfelder et al. classified optic neuritis as a

**Table 1** Ocular Adverse Effects Most Frequently Induced by Isotretinoin.

Adverse Effect	Frequency, % <sup>a</sup>
Blurred vision	19.9
Keratitis	16.6
Blepharoconjunctivitis	10.9
Dry eye	10.2
Decreased dark adaptation	5.9
Corneal opacities	5
Intracranial hypertension	4.6
Photophobia	3.7
Refractive disorders	3.5
Cataracts	2.1
Altered accommodation, decreased tolerance to contact lenses, subconjunctival hemorrhage, optic neuritis, diplopia, iritis, mydriasis, palpebral angioedema, glaucoma, scleritis, decreased color vision, epiphora	< 2

<sup>☆</sup> Pérez-Pérez L, et al. Neuritis óptica probablemente inducida por isotretinoína. *Actas Dermosifiliogr.* 2012;103:846–7.

<sup>a</sup> Percentages of the total number of ocular adverse effects reported by Fraunfelder.<sup>10</sup>