LETTER TO THE EDITOR

Efficacy of low-dose methotrexate in a short-regimen for granulomatous sarcoid-like reaction on permanent make-up during COVID-19 infection

Editor

Granulomatous reactions on tattoos and permanent make-up (PMU) are not uncommon.[1,2] They may be associated with sarcoidosis and should prompt a complete check-up.[3] However, distinction between foreign-body granuloma and sarcoid reaction can be challenging, mainly when other manifestations of sarcoidosis are lacking.[3] Abstention is possible if lesions are wax and waning or if they have no impact for the patient. Regression can spontaneously occur, sometimes after a punch biopsy. In other cases, active treatments usually include local corticosteroid ointments, intralesional corticosteroids, topical calcineurin inhibitors or oral treatments such as hydroxychloroquine, tetracyclines or allopurinol.[4,5] We report the efficacy of low-dose methotrexate in a case of granulomatous sarcoid-like reaction on PMU of the eyebrows in the setting of COVID-19 infection.

A 46-year-old woman with a history of alopecia areata since childhood, presented to our 'Tattoo consultation' in Bichat – Claude Bernard Hospital, Paris, France for a 6-month history of complete infiltration of both eyebrows. She has had PMU of both eyebrows for the past 15 years and underwent a touch-up every year. Reaction occurred 4–5 months after the last touch-up. She also mentioned concomitant mild COVID-19 infection (rhinitis, loss of taste and smell) at onset of the symptoms. Infection has been confirmed retrospectively by positive SARS-CoV-2 serology. The ink (Medium Cool Brown) contained four pigments, namely C.I. 77 492, 77 499, 77 891 and 77 491 according to the data sheet of the manufacturer (Laboratoire BIOTIC Phocea, Marseille, France). Both eyebrows were completely infiltrated and itchy, but without any erythema or scales (Fig. 1). Physical examination was otherwise unremarkable. Granulomatous reaction was suspected. Analysis of a punch biopsy showed multiple sarcoid-like epithelioid and giant-cells granulomas without necrosis and a discrete lymphocytic infiltrate. Ziehl-Neelsen and Grocott stains were negative. White blood count showed a mild lymphopenia (1040/mm^3). Kidney and liver functions, calcium levels, calciuria and C-reactive protein were within normal ranges. Serum angiotensin-converting enzyme was not analysed. Chest X-ray showed no abnormalities.

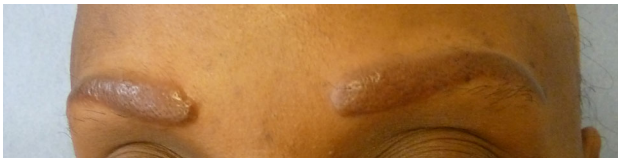

Figure 1 Infiltration of both brown-tattooed eyebrows.

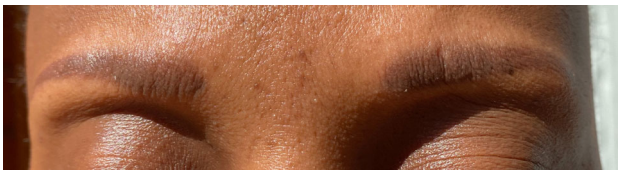

Figure 2 Eyebrows 6 months after methotrexate withdrawal.

Successive lines of treatment included clobetasol propionate 0.05% ointment (2 months), oral hydroxychloroquine 400 mg/day (3 months), topical calcineurin inhibitor (tacrolimus 0.1% twice a day, 1 month) and had all been inefficient. Oral methotrexate was initiated at the dose of 10 mg the first week and then 15 mg weekly for 3 months along with folic acid 5 mg, once a week, 24 h after methotrexate intake. Tolerance was good. The patient had already noticed improvement after 2 weeks of treatment. After 3 months, infiltration of the eyebrows had completely subsided, and methotrexate was halted. Six months after treatment withdrawal, her symptoms are still in remission, except a slight residual itch from time to time (Fig. 2).

We report here the efficacy of a short-regimen of methotrexate on a refractory case of granulomatous reaction on PMU. The role of SARS-CoV-2 infection in the occurrence of the reaction is purely speculative, even though cases of sarcoid reaction after COVID-19 have been described on tattoos[6] and on plain skin.[7] Methotrexate is usually restricted to more severe cases of granulomatous reactions, such as systemic sarcoidosis or uveitis.[8] In our case, the next choice has been guided by a stepwise approach after failure of three lines of treatments over the last 7 months.[4] Combination of treatments is also a possibility, such as hydroxychloroquine and intralesional injections.[9] Intralesional corticosteroid injections were discarded because of the non-negligible risk of local depigmentation in a dark-skinned patient. Methotrexate showed here a rapid efficacy without relapse after treatment discontinuation. Methotrexate can be used on a short-

term regimen without fear of rapid relapse of symptoms after withdrawal.

Funding sources

None.

Conflicts of interest

Dr Nicolas Kluger has received fees from Bioderma NAOS. Pr Vincent Descamps declares no conflict of interest.

Data availability statement

Data available on request from the authors.

N. Kluger,[1,2,*] V. Descamps[1]

[1]« Tattoo Consultation », Department of Dermatology, Bichat-Claude Bernard Hospital, Assistance Publique-Hôpitaux de Paris, Paris, France, [2]Department of Dermatology, Allergology, and Venereology, University of Helsinki and Helsinki University Hospital, Helsinki, Finland

*Correspondence: N. Kluger. E-mail: nicolas.kluger@hus.fi

References

1 Kluger N. Cutaneous complications after tattooing in Finland from 2016 to 2021. *J Eur Acad Dermatol Venereol* 2022; **36**: e72–e73.
2 van der Bent SAS, Rauwerdink D, Oyen EMM, Maijer KI, Rustemeyer T, Wolkerstorfer A. Complications of tattoos and permanent makeup: overview and analysis of 308 cases. *J Cosmet Dermatol* 2021; **20**: 3630–3641.
3 Kluger N. Sarcoidosis on tattoos: a review of the literature from 1939 to 2011. *Sarcoidosis Vasc Diffuse Lung Dis* 2013; **30**: 86–102.
4 Kluger N. Tattoo skin reactions: Management and treatment algorithm. *Ann Dermatol Venereol* 2016; **143**: 436–445.
5 Huisman S, van der Bent SAS, Wolkerstorfer A, Rustemeyer T. Granulomatous tattoo reactions in permanent makeup of the eyebrows. *J Cosmet Dermatol* 2019; **18**: 212–214.
6 Steadman L, Mastacouris N, Eilers D. Cutaneous sarcoid-like reaction on tattooed skin after recovery from coronavirus disease 2019. *J Clin Aesthet Dermatol* 2021; **14**: 16–17.
7 Behbahani S, Baltz JO, Droms R *et al*. Sarcoid-like reaction in a patient recovering from coronavirus disease 19 pneumonia. *JAAD Case Reports* 2020; **6**: 915–917.
8 Maijer KI, van der Bent SAS, Vercoutere W, Rustemeyer T. Granulomatous tattoo reaction with associated uveitis successfully treated with methotrexate. *J Eur Acad Dermatol Venereol* 2018; **32**: e338–e339.
9 Schumann T, Peitsch WK, Géraud C, Goerdt S, Leverkus M. Ultraviolet light tattoo complicated by granulomatous inflammation. *J Am Acad Dermatol* 2011; **65**: e124–e126.

DOI: 10.1111/jdv.18252