



## Case Report

Volume 1 Issue 4 - May 2019

DOI: 10.19080/JOJDC.2019.01.555570

JOJ Dermatol &amp; Cosmet

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# Late Onset Granulomatous Skin Reaction Secondary to Red Tattoo Ink: Is there an Effective Treatment?

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Submission: December 12, 2018; Published: May 21, 2019

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**Abstract**

Tattoos are common and are extensively used as body art, cosmetic make-up or camouflage. Its popularity has grown in such a way that it has been observed that between 3 & 8% of the general population has had a tattoo and this statistic is around 23% in adolescents. An increase in associated complications has been observed parallel to the increase in popularity. The complications are mainly caused by two circumstances: the material used and the peculiarities of the anatomical area where they are placed. We present the case of a 63-year-old female patient, who had a cosmetic tattoo of red ink on her lips 3 years ago that presents to the ambulatory clinic with a 2-month history of pruritus, edema and elevation of lip edges.

**Keywords:** Foreign body skin reaction; Granulomatous skin reaction; Tattoos; Dermatitis; Granulomatous**Introduction**

Tattooing implies the implantation of ink granules in the skin [1]. They can be made for several reasons amongst them cosmetic, medical or accidental [1]. They are very popular nowadays depending on the age group, demographics, with a prevalence varying between 5 & 40% in adults [2]. The complications after tattooing can be either cutaneous or systemic and they have an impact in quality of life [2]. These include bacterial infections, viral infections, mycoses, allergic disorders, outbreaks of skin diseases and tumors [1,3]. Skin reactions due to tattooing are infrequent considering the quantity of tattoos that are being made and they can be immediate or delayed and although there is no universally accepted classification, these can be classified in accordance with the clinical and histological features with an overlap amongst them [2].

**Case Report**

A 63-year-old female patient, with a personal pathological history of Sjogren's syndrome and osteopenia, who 3 years ago underwent a red cosmetic tattoo on the lips and 2 months ago presented an intense erythema and burning, accompanied by linear nodules on the edge of the lips over the tattooed area. On physical examination, we observe various segmented lineal hard nodules on the margin of the lips tinted red. We decided to take a skin biopsy and the pathologic report read slightly thinned epidermis, in the dermis there are few deposits of blackish brown material, surrounded by compact granulomas with vacuolated

histiocytes and multinucleated giant cells (foreign body type), peripheral lymphocytic infiltrate and concludes as chronic inflammation associated with tattoo. Clinically and histologically we classified this case as a late-onset red ink granulomatous skin reaction and treated with triamcinolone acetonide infiltrations, systemic minocycline and KTP 532 laser. The response so far has been adequate but only time would tell as for its duration.

**Discussion**

The adverse cutaneous reactions resulting from tattooing transform them into a problem for both the patient and the physician, either due to the complications and its treatment or the consequences derived from them. The most common reactions after tattooing include pain 3.8%, infection 3.2%, pruritus 21.2%, regret 16.2%, wish to have the tattoo removed 21.2 and received the tattoo while intoxicated 21.1% [4].

Reactions to tattoos are described with all colors, but those associated with red ink are the most frequent [3]. Historically, red pigment as achieved with the use of cinnabar (mercuric sulfide) which is a known sensitizer. Nowadays, cinnabar is much less often used, and it has been replaced by cadmium selenide, sienna, ferric hydrate and organic dyes [4]. Skin reactions are more frequent to inorganic red pigment as mercury, cadmium selenide and ferric hydrate [5]. The patterns of red pigment tattoo reaction include dermatitis, lichenoid, pseudo lymphomatous, granulomatous and miscellaneous [2]. It is interesting to note that patch testing is

unsuitable to identify the allergen because these reactions develop slowly and are unlikely to be caused by an allergen in the ink [6].

Granulomatous reactions result from a delayed hypersensitivity reaction to the presence of red pigment [2]. The time of appearance is very variable and can be triggered by re-tattooing [1]. In fact, the skin lesions are typically limited to the area of color of the tattoo and they occur after a variable time that can go from weeks, months and years after the tattoo was made [4] as the clinical case shown. However, its management is difficult, and it seldom responds to the first treatment tried.

Treatment of foreign-body granulomas is directed at removal of inciting trigger or reducing the inflammatory response. First line treatment is super-potent topical and intralesional injection of corticosteroids and the use of lasers [7]. It has been observed improvement of the symptoms with the use of allopurinol with regression of the symptomatology after its suspension [2]. In the case presented there was little response with corticoids, for this reason a systemic anti-inflammatory and laser were used with a better reaction Figure 1.



**Figure 1:** Hard linear tender nodules in margin of lips tinted red in color.

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DOI: [10.19080/JOJDC.2019.01.555570](https://doi.org/10.19080/JOJDC.2019.01.555570)

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