

Tattoos and Uveitis

Abstract

The association of skin tattoos and the latter occurrence of uveitis were first described in 1952. This article reviews the causation, presenting symptoms, physical examination, and work-up, histology, and treatment options. Ophthalmologists need to consider this etiology when patients present with uveitis and the public needs to understand the risks associated with skin tattoos.

Keywords: tattoo, uveitis, noncaseating granulomas, delayed hypersensitivity

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Uveitis

Uveitis associated with tattoos was first described by Lubeck et al in 1952.¹ It remains a rare entity with the development of ocular inflammation after placement of skin tattoos, however, it has been observed six months to 10 years after tattoo placement.² Tattoos with black ink have been associated with uveitis and ocular inflammation¹ as well as light blue ink tattoos especially with cobalt.³ Other metals that are present in tattoo ink which may incite an inflammatory reaction include nickel and iron. Tattoo ink may contain toxic immunogenic and carcinogenic agents such as carbon black, polycyclic aromatic hydrocarbons, and phenol.

Patients will often present with bilateral eye pain and redness, blurry vision, and photophobia. It is recommended to ask all patients who present with uveitis about a history of skin tattoos. Slit lamp examination often reveals anterior chamber cell and flare, posterior synechiae, keratic precipitates and occasionally hypopyon. Posterior uveitis has resulted in vitreous cells, retinal edema or hemorrhages, vasculitis, and neuroretinitis. Cases of severe vision loss due to cystoid macular edema, retinal detachment, glaucoma, and iris bombe have also been described.² Both nongranulomatous anterior uveitis and granulomatous panuveitis have been reported, as has recurrent uveitis.²

Patient work-up includes evaluation for sarcoid (angiotensin converting enzyme, serum lysozyme, and chest imaging) and evaluation for tuberculosis or syphilis as these conditions may be exacerbated by steroid or immune-compromising therapy. Excision of tattooed skin should be considered but may be impractical for large areas of tattooed skin.

Vitreous biopsy has revealed T-lymphocyte infiltrates and cellular atypia without granulomas.⁴ Histological examination of the tattoo may reveal inflammation with a delayed hypersensitivity reaction and histology of noncaseating granulomas and a high percentage of infiltrating cells staining positive for major histocompatibility complex class 2 antigens.^{5,6} Tattoo pigment is often found in the granulomas, suggesting an immune response to the heavy metal compounds in the tattoo pigment.⁷ The tattoo ink may cause an antigenic trigger for the development of granulomas in patients susceptible to sarcoidosis^{1,8,9} and in patients without sarcoidosis.^{2,10} Tattoo pigment has been isolated from regional lymph nodes and the Kupfer cells in the liver in animal studies, suggesting a systemic spread.^{10,11}

Conclusion

Treatment of tattoo induced uveitis includes topical steroids and topical cycloplegics, oral prednisone, and sub-tenon steroids may

be considered. Immunomodulating agents such as azathioprine, cyclosporine, methotrexate, adalimumab or TNF-alpha inhibitors may be required. Excision of tattooed skin has demonstrated resolution of the uveitis in select cases.³ Patients with a history of uveitis or sarcoid should avoid tattoos and all people considering skin tattoos should be aware of these potential complications.

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Conflicts of interest

Author declares there are no conflicts of interest.

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