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Accidental Silver Clay Tattoo: Mystery Finding in a Jewelry Smith

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Accidental Silver Clay Tattoo: Mystery Finding in a Jewelry Smith

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Tattoos result from the introduction of insoluble pigments into the dermis. The mechanism can be intentional for cosmetic or medical purposes, as with professional tattooing; or accidental as seen with carbon-related traumatic tattooing. Pigments are generally composed of various inorganic salts or metals. Pathology in non-inflamed tattoos will show dermal pigment granules of different sizes and shapes. Local inflammatory reactions can occur. Unintentional tattooing related to trauma involving asphalt, carbon, graphite, and gun power are well known. Other cases involving jewelry and fireworks have been reported in literature. Similar issues arise with accidental placement of amalgam in the oral mucosa during dental procedures.

Our case involves a 40-year-old jewelry smith who presented to dermatology clinic with several blue-gray 1-2mm diameter round macules on her bilateral hands, especially the fingertips. The macules were painless and not evolving. There was no surrounding erythema or lesions elsewhere on her body. Of note, she used a silver powder as part of her jewelry fabrication process. Review of the silver clay package insert did not reveal any mention of dermatologic side effects such as exogenous tattooing. She had not had any recent cuts, burns, or puncture wounds to her hands. Initial differential consisted of blue nevi, malignant melanoma, graphite/carbon tattoo, or other accidental tattooing. A 3mm punch biopsy was completed over one of the macules, and pathology revealed exogenous small black granules in the mid-dermis. Iron stain was negative, but silver stain highlighted the granules. Deeper cuts of the specimen did not reveal atypia or a melanocytic process.

The diagnosis of accidental silver clay tattoo was made and explained to our patient. This occurrence is well-known within the jewelry smithing community, and it is suspected that the clay powder introduced in the dermis is through unappreciated small cracks or fissures in the skin. After review of the literature regarding accidental and traumatic tattoos, we could not find any case reports of similar issues from jewelry clay staining particles. After instituting hand protective measures when using the silver clay powder, the patient experienced no further tattooing. The original macules are still present and not distressing to the patient after 10 years. Despite this being a well known phenomenon in the jewelry making community and an occupational hazard, it is not reported on the package insert from the manufacturer of the silver clay. This case could generate knowledge of the occupational side effect, and lead to preventive measures to avoid further accidental tattooing cases in the future.