

# Accidental Silver Clay Tattoos: Mystery Finding in a Jewelry Smith

Christina Borchers, MD<sup>1</sup>, Tom Selby, MD<sup>1</sup>, Samia Borchers, MD<sup>2</sup>



Wright State University Boonshoft School of Medicine, Dayton, OH<sup>1</sup>, Samia Borchers Dermatology, Dayton, OH<sup>2</sup>

## Background & Objective

Permanent 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.<sup>1</sup> Local inflammatory reactions can occur.

Unintentional tattooing related to trauma involving asphalt, carbon, graphite, and gun powder are well known. Other cases involving jewelry and fireworks have been reported in the literature.<sup>2,3</sup> Similar issues arise with accidental placement of amalgam in the oral mucosa during dental procedures.<sup>4</sup> We present an interesting case of a jeweler with a silver clay tattoo to increase awareness of this occupational disorder.

## Conclusion

- Tattooing can occur from intentional or unintentional introduction of pigment into the dermis.
- This case illustrates an interesting occurrence of accidental occupation-related permanent tattooing.
- Reviewing literature regarding accidental and traumatic tattooing did not find any case reports of similar issues from jewelry clay particulate.
- Despite this periodically occurring in the metal smithing community, no caution exists on the package insert instructions.

## Learning Points

1. Occupational and exposure history can provide critical information for developing a differential diagnosis, especially in asymmetric distributions on hands.
2. Accidental tattooing can occur with seemingly minor or inconsequential traumas.
3. Important to give dermatopathologist relevant exposure clinical history for appropriate staining to be done.

## Case Report & Results

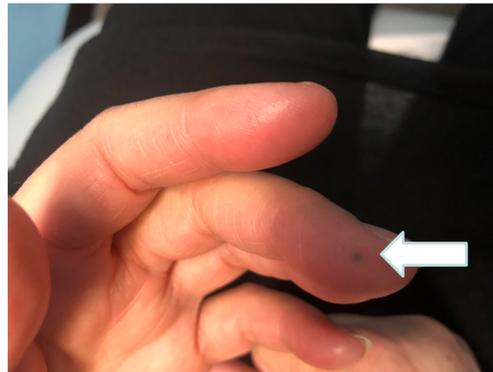


Figure 1. Gray Macule on Lateral Finger

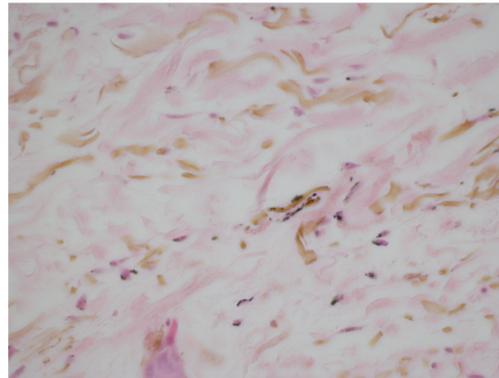


Figure 2. H&E Specimen with black granules



Figure 3. Art Clay Package Insert

- 40 year old right-handed jewelry smith presented to dermatology clinic with multiple blue-gray 1-2mm diameter round macules. Eight were noted on her left hand and fingers, and three on her right hand and fingers.
- Macules are painless and not evolving.
- No surrounding erythema, no change with diascopy, no lesions elsewhere on her body.
- She uses a silver powder as part of her jewelry fabrication process. Review of the package insert did not reveal any mention of dermatologic side effects.
- She had not had any recent cut, burns, or puncture wounds to her hands.
- No fatigue, fevers, lymphadenopathy, personal or family history of malignant melanoma or non-melanoma skin cancer

- Initial differential consisted of blue nevi, malignant melanoma, graphite/carbon tattoo, other accidental tattooing.
- 3mm punch biopsy was completed. Pathology revealed exogenous small black granules in the mid-dermis. Iron stain was negative, silver stain highlighted the granules. Deeper cuts of the specimen did not reveal atypia or melanocytic process.
- Diagnosis of accidental silver clay tattoo was made and explained to the patient. After further discussion with her colleagues, it seems that this occurrence is not uncommon among metal smiths using this material, but etiology was not widely understood within the community.
- The patient did not recall any specific trauma to cause tattooing, but her work does involve small sharp instruments that commonly accidentally traumatize her hands.

## References

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