

# Red Tattoo Ink Granulomatous Reactions: Clinical Patterns and Response to Nd:YAG Laser and Adjunctive Therapy

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## INTRODUCTION

- Adverse reactions to tattoo pigments are uncommon but occur most frequently with **red ink**, often presenting as **granulomatous** or **lichenoid dermatitis**.
- These reactions can be persistent and resistant to standard therapies and conventional treatments—including **topical** or **intralesional corticosteroids**, **CO<sub>2</sub> laser ablation**, **surgical excision**, and **systemic agents** such as **allopurinol** or **hydroxychloroquine**—have produced inconsistent results, with risks of recurrence and cosmetic distortion.
- Management is further complicated by patients' desire to maintain the aesthetic integrity of their tattoos, highlighting the need for effective yet conservative therapeutic strategies.

## METHODOLOGY

- Study design:** Case series of **10 patients** presenting over a **6-month period** with reactions to red tattoo pigment.
- Clinical features assessed:** Erythema, induration, pruritus, and ulceration confined to red-pigmented areas.
- Diagnostic workup:
  - Detailed clinical evaluation
  - Histopathological confirmation
  - Exclusion of infectious etiologies and systemic sarcoidosis

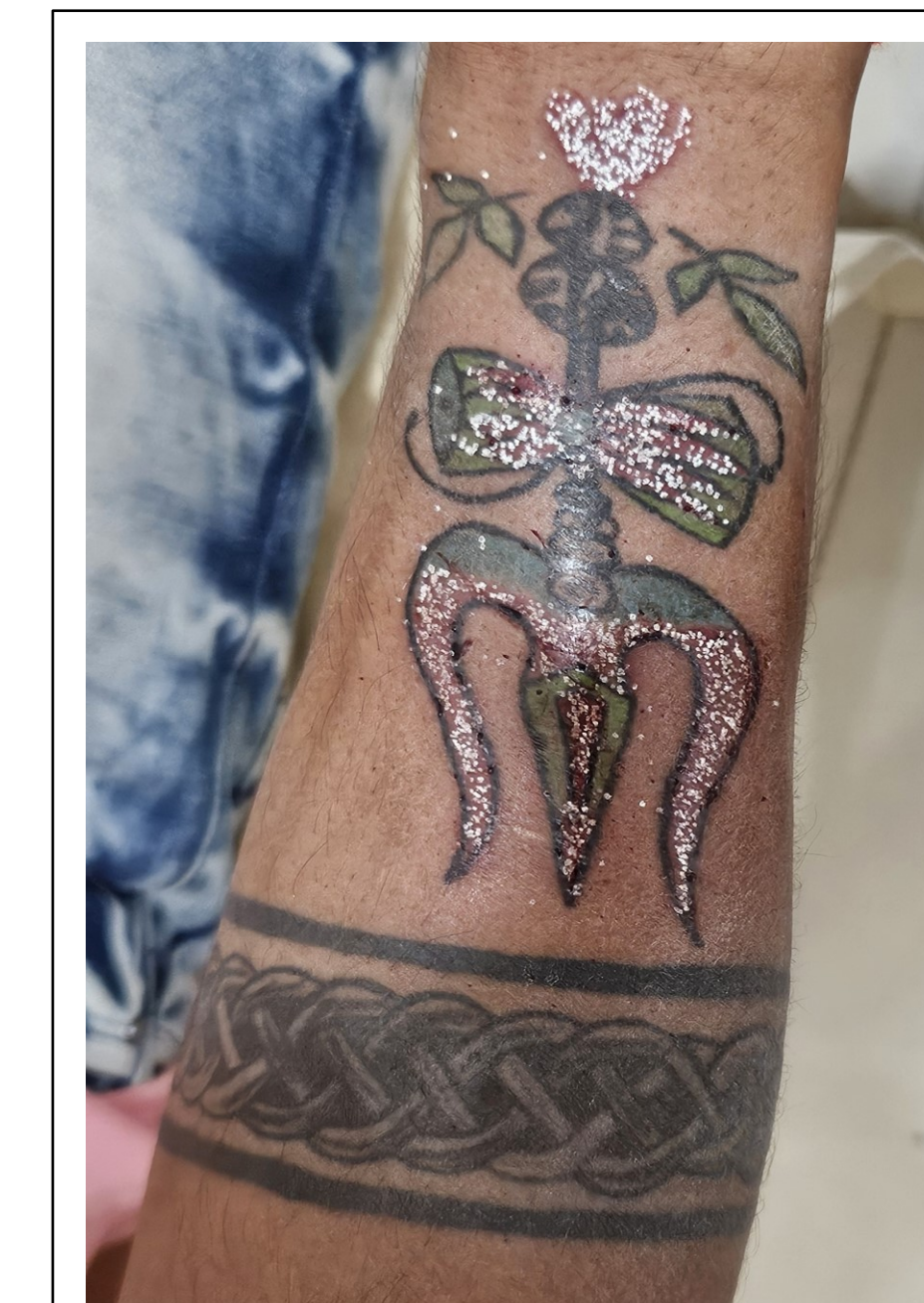
### Treatment protocols:

- Low-dose intralesional corticosteroids (for moderate lesions)
- Q-switched Nd:YAG laser (532 nm) (for steroid-refractory or extensive lesions)
- Topical tacrolimus 0.1% (for localized or chronic plaques)
- Combination therapy in selected cases



BEFORE Nd YAG session

## RESULTS

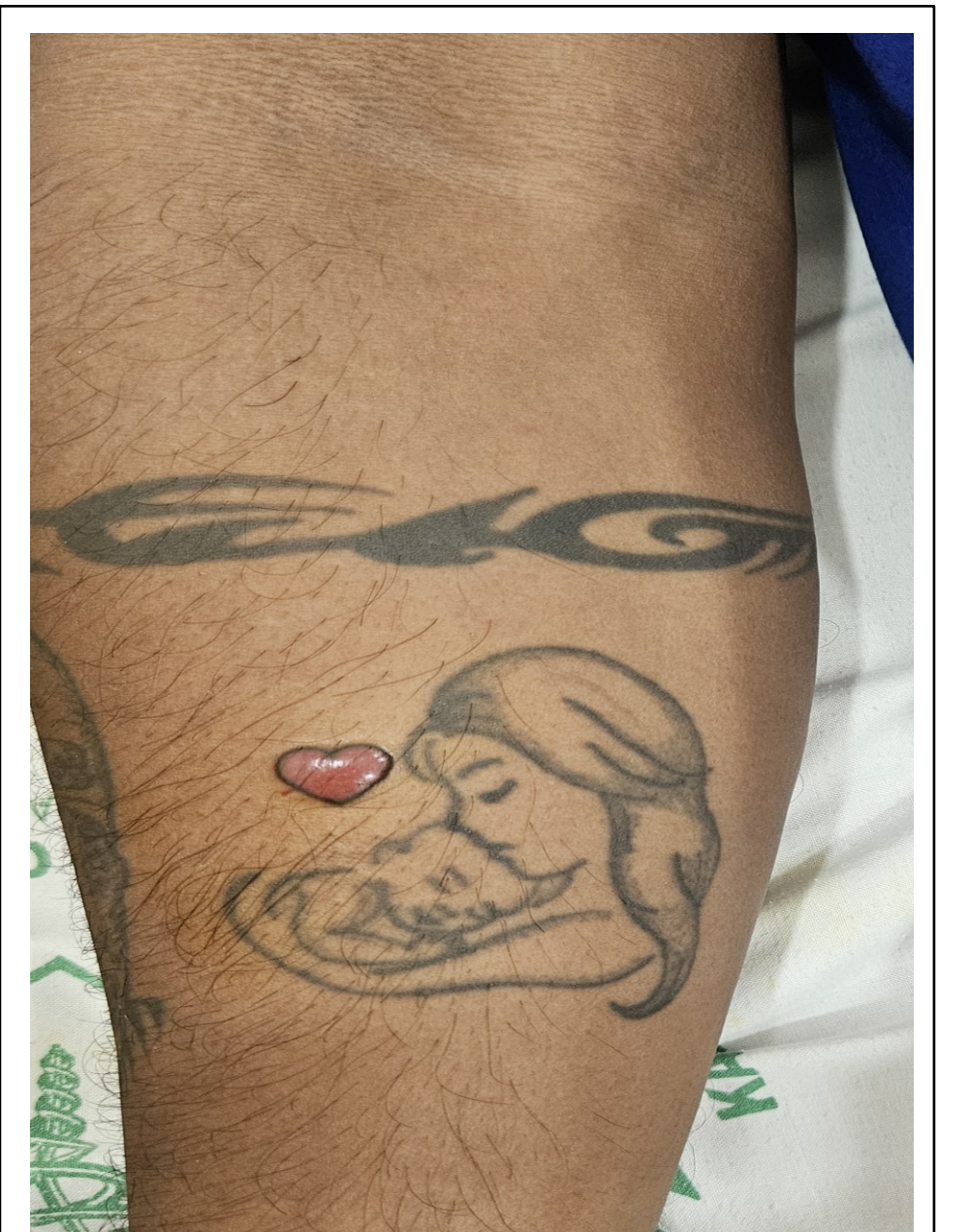


Immediate post procedure  
Treated with Nd YAG laser  
532 nm



after 2 sessions of Nd YAG  
laser 532 nm and topical  
tacrolimus

- Intralesional corticosteroids**  
Partial regression of erythematous granulomas; symptoms reduced but not fully resolved.
- Nd:YAG laser**  
Significant flattening and symptomatic relief, preservation of tattoo outlines.
- Topical tacrolimus ± Nd:YAG**  
Good response in localized and mixed lesions; combination therapy yielded optimal outcomes.



treated with 0.1 %  
tacrolimus for a period of  
2 months

## CONCLUSION

- 8 patients remain under review with sustained improvement; **2 lost to follow-up**; no systemic adverse effects noted.
- Red ink tattoo granulomas** are uncommon but therapeutically challenging reactions.
- Standard treatments often yield incomplete or cosmetically unsatisfactory results.
- A **multimodal regimen** using **Nd:YAG laser**, **low-dose corticosteroids**, and **topical tacrolimus** was effective in most patients, with good cosmetic preservation.
- Larger controlled studies are needed to establish standardized management protocols

## REFERENCES

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