

# Vogue goes Rogue : Tattoo complications, a case series

Akanksha Malik<sup>1</sup>, Shruti Sharma<sup>1</sup>, Geeti Khullar<sup>2</sup>, V. Ramesh<sup>2</sup>

1- Department of Pathology, National Institute of Pathology ICMR New Delhi

2- Department of Dermatology, VMMC and Safdarjung Hospital New Delhi

## Introduction

Tattoos on the skin are a common practice, the underlying reasons ranging from fashion to socio cultural. The adverse reactions to these may appear from days to years later, which have profound medical and psychological effects on the patients.

## Aim

A prospective case series over a period of three years was undertaken to document the complications arising in the setting of tattoo application.

## Material and methods

Fifteen cases of tattoo related complications were selected from the archival records in the department of pathology. Clinical history and images were obtained from the requisition forms and patients respectively.

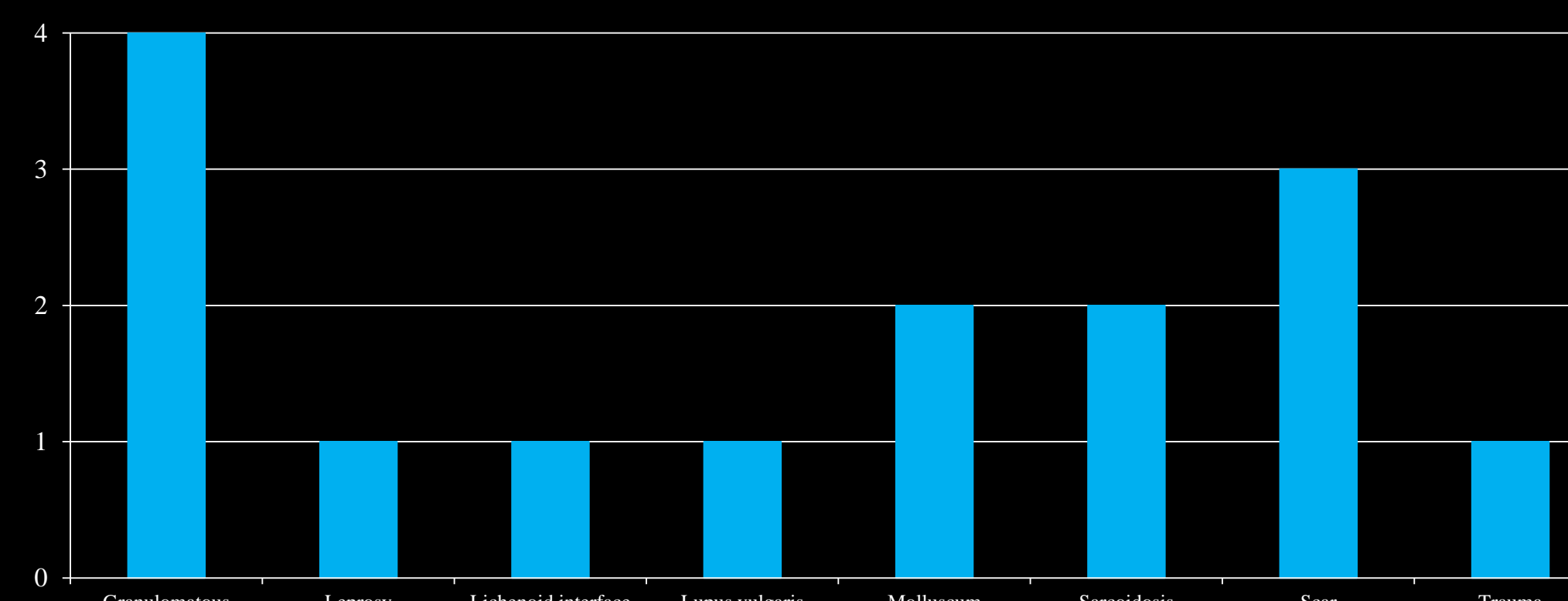
## Results

Out of 15 cases, the mean age of patients was 29 years. The male to female ratio was 1.4. Tattoo associated lupus and leprosy accounted for one case each, whereas, sarcoidosis and molluscum inoculation accounted for two cases each. Tattoo associated granulomatous reaction was found in four cases. Tattoo associated scarring was seen in three cases, lichenoid reaction and trauma due to the needle was noted in one case each.

The time of development of these reactions from the date of application of tattoo ranged from 15 days to 20 years.

## Discussion

Tattoo reactions can be divided into three broad categories of inflammatory infectious and neoplastic. In the present series, there was no neoplastic sequelae.



Graph 1 Diagnosis



Fig 1a Erythematous plaque with white yellow adherent scale

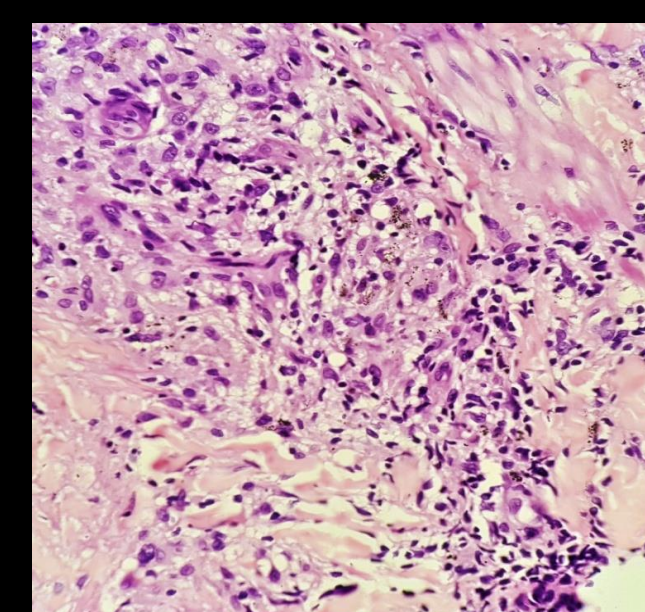


Fig 1b and 1c Granulomatous reaction to black tattoo pigment (HE x100 and HE x200)

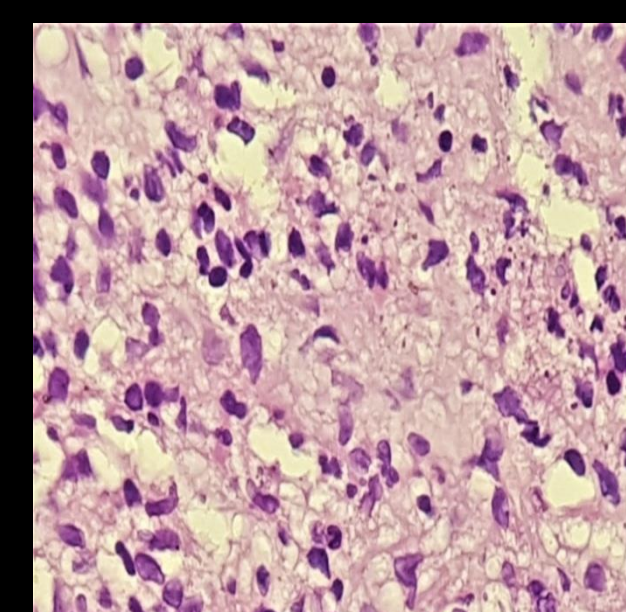


Fig 2a Raised plaques at the tattoo site

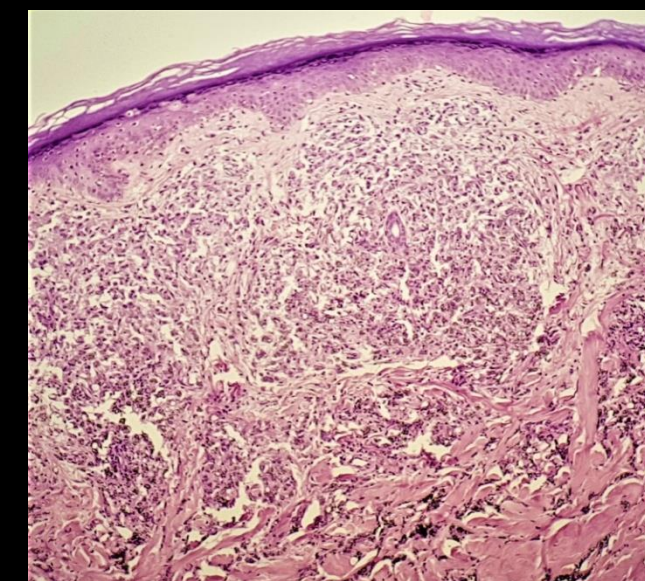


Fig 2b LL Hansen's disease : sheets of foamy macrophages(HE x100)

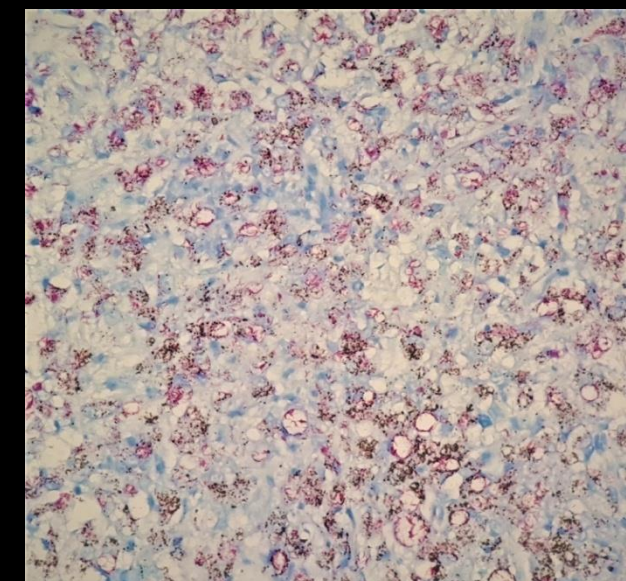


Fig 2c LL Hansen's disease: Fine stain 6+ (x400)



Fig 3a Plaque at the tattoo site

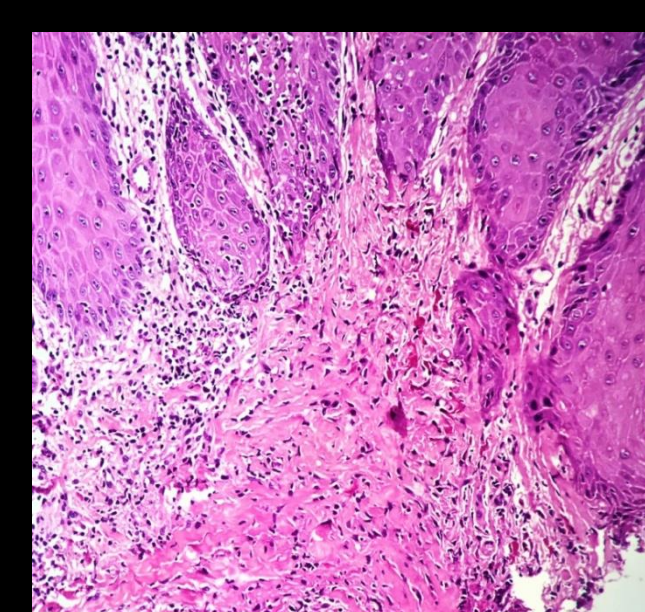


Fig 3b and 3c Scarring with red tattoo pigment (HE x200 and HE x400)

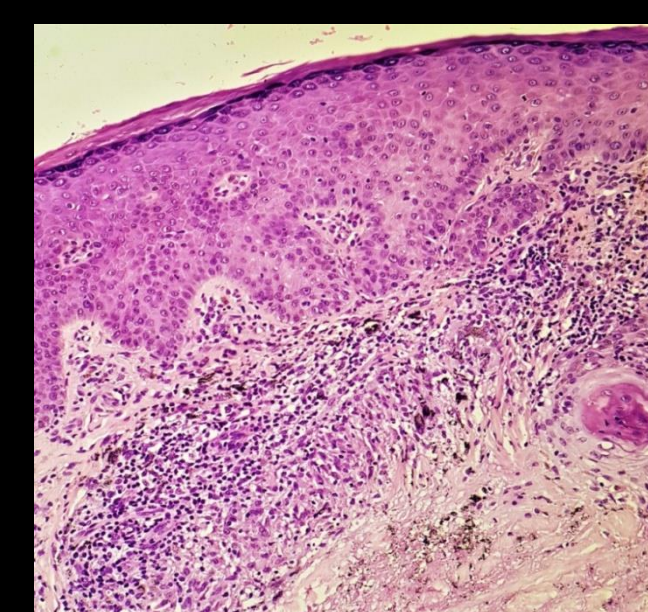
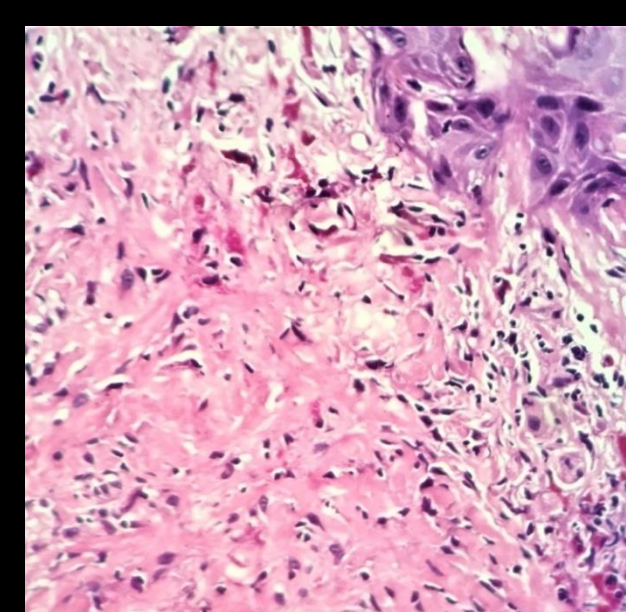


Fig 4a and 4b Lupus vulgaris with Langhans giant cells (HE x100 and HE x200)

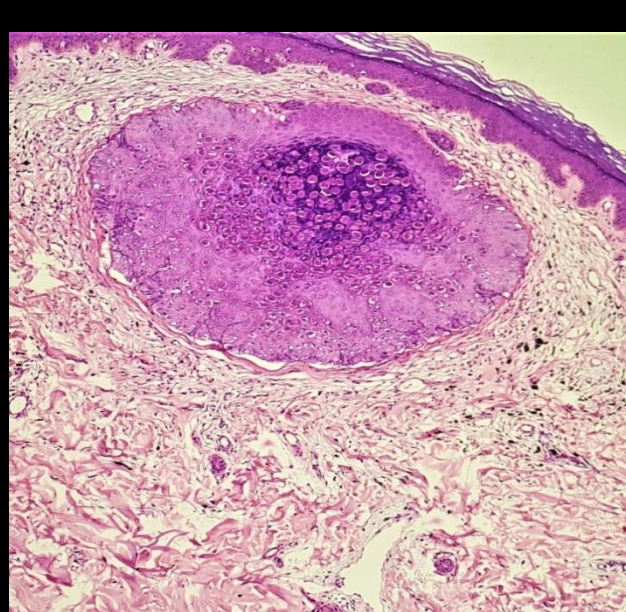
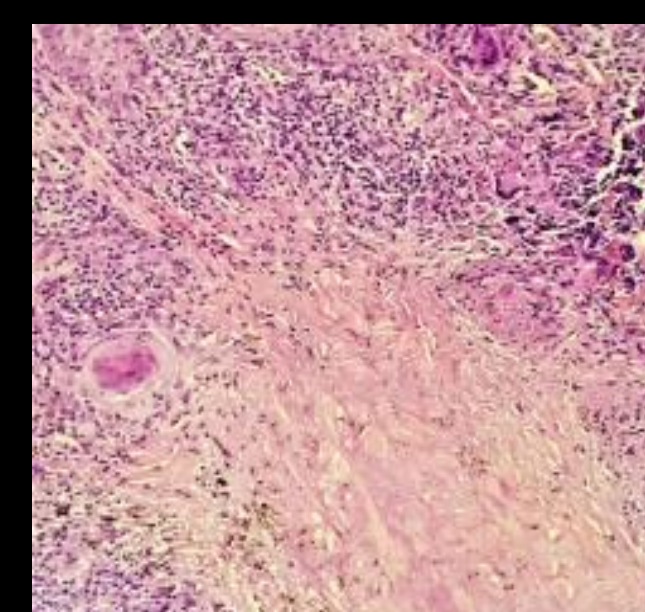


Fig 5 Molluscum contagiosum with tattoo pigment (HE x100)

Red tattoos have been implicated for the largest number of adverse reactions. In our study only one case had presence of red pigment, whereas, the others were blue or black pigment. In a study from Denmark where 259 biopsies were studied, granulomatous and sarcoidal patterns accounted for 12% and 8% percent, whereas, in our study the same was found to be 28.57 and 14.3 percent respectively. Infectious causes in our study constituted 28% of the cases. Infection at the tattoo site may be due to contaminated tattoo needles, ink or due to inadequate disinfection of the tattoo site or due to increased chances of superinfection in a background of pruritis.

It has been hypothesised that tattoo pigment on exposure to sunlight in a series of chemical events lead to formation of oxygen free radicals, which contribute to the adverse reactions. All our cases had tattoos on the sun exposed areas. The treatment of complications constitutes steroid therapy for allergic reactions or appropriate antibiotic and antiviral therapy for infections .

## Conclusion

Our study highlights the complications which may arise in the setting of tattoos, which though are relatively rare, however require prompt and accurate diagnosis.

## References

1. Bassi A, Campolmi P, Cannarozzo G, Conti R, Brusolino N, Gola M, Ermini S, Massi D, Moretti S. Tattoo-associated skin reaction: the importance of an early diagnosis and proper treatment. *BioMed research international*. 2014;2014.
2. Serup J, Sepehri M, Carlsen KH. Classification of tattoo complications in a hospital material of 493 adverse events. *Dermatology*. 2016;232(6):668-78.
3. Khunger N, Molpariya A, Khunger A. Complications of tattoos and tattoo removal: Stop and think before you ink. *Journal of cutaneous and aesthetic surgery*. 2015 Jan;8(1):30.
4. Vellaisamy G, Tirumalae R, Inchara YK. Histopathologic spectrum of reactions to black tattoo pigment: a report of five cases from India. *Egyptian Journal of Dermatology and Venerology*. 2018 Jan 1;38(1):18.