

SHORT REPORT

Postinflammatory hyperpigmentation following torture

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SUMMARY. Hyperpigmentation after torture in darker skinned patients has regularly been noted, although its pathophysiology, and thus its forensic importance, has not previously been documented. Hyperpigmentation is not well described in the dermatological literature. It is the result of inflammation. Any inflammation can cause hyperpigmentation, and the shape of the resulting lesion can closely follow the contours of the site of original inflammatory response. This can be important in correlating the lesion with the alleged cause. It also helps to establish the differential diagnosis of the lesion, which also assists in assessing the degree of consistency between the lesion and the alleged cause. Patterns of hyperpigmentation can therefore, be helpful in assessing allegations of torture months or years after the event.

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HYPERPIGMENTATION FOLLOWING TRAUMA

Many texts describing skin findings following torture have referred to hyperpigmentation remaining long after bruising.^{1–3} Lesions that follow blows from blunt objects such as batons and whips can be shaped in the pattern of the original blow (Fig. 1). Tramline patterns may be seen (Fig. 2). Hyperpigmentation can last up to 10 years, but generally fade gradually (Fig. 3). It is sometimes suggested that the lesions are caused by the blood pigments remaining in the skin, staining it for a prolonged period. However, bruising spreads during consolidation, and it seems unlikely that the staining would retain its first pattern. Hy-

perpigmentation is also seen after other types of trauma such as burns (Fig. 4), in which blood does not settle in the tissues. Such lesions can be found in all except those with pale or very dark skin. The response is a non-specific one to inflammation.

POSTINFLAMMATORY HYPERPIGMENTATION

A Medline search of postinflammatory hyperpigmentation shows few articles on the subject, and most recent research is about treatment rather than cause. However, the few papers that review the condition indicate that melanocytes migrate to the site of injury, perhaps as part of the immunological response.⁴ The melanocytes then deposit pigment which is generally taken up by keratinocytes which, over a period of time (a few months to a few years) carry it to the surface where it is desquamated.⁵ Sometimes it is migrate up by dermal macrophages that become immobilised at the site of the injury, leading to indefinite discolouration. Not all dark skins respond to inflammation in this way, and it has been suggested that there is an inherited tendency to develop hyperpigmentation “strongly” or “weakly” after inflammation.⁶

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Fig. 1 Male in his mid 20's from west Africa, beaten with a whip, photograph taken about four months after the incident – whip marks clearly visible on upper back.



Fig. 2 Male in his early 30's from west Africa, beaten with a truncheon, photograph taken about four years after the incident – tramline hyperpigmentation seen on the arm.



Fig. 3 Male in his early 30's from west Africa – struck on mid forehead by butt of gun – photograph 3 years after injury, shows dark lesion at site of butt impact.



Fig. 4 Male in his early 40's from southern Africa, caustic liquid poured over leg during interrogation, photograph taken about eight months after the incident – flow pattern shown.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of hyperpigmentation attributed to torture includes endogenous and exogenous inflammation. Nutritional deficiencies, such as are common in some places of detention, can cause irregular pigmentation. Hyperpigmentation can be caused by almost all conditions in which inflammation

occurs, although the pattern of pigmentation in systemic diseases may differentiate it from trauma. Skin infections and infestations, and itchy conditions will generally cause multiple irregular patches of hyperpigmentation. However, such skin infections can also be associated with poor hygiene in places of detention.³

The other main differential to injury is phyto-dermatitis. Contact with plant sensitizers can cause

linear inflammation that is similar to that left by, for example, whips,¹ although it can often be possible to separate the two by history and from the pattern of lesions. It should be noted that whipping with an irritant plant is a form of torture in Nepal.⁷

CONCLUSIONS

Hyperpigmentation is an important consequence of inflammation of almost every type. It can be caused by both mechanical and chemical trauma, and the pattern of the pigmentation can follow the shape of the original trauma. It can therefore assist in forming an opinion on the likely causation of the lesion in support of allegations of torture.

REFERENCES

1. Danielsen L. Skin changes after torture. *Torture* 1992; Suppl. 1: 27–28.
2. United Nations High Commissioner for Human Rights. *The Manual on Effective Investigation and Documentation of Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (The Istanbul Protocol)*. Geneva: UN, 2001, page 35.
3. Kirschner R, Peel M. Physical examination for late signs of torture. In: Peel M, Iacopino V (eds.) *The Medical Documentation of Torture*. London: Greenwich Medical Media, 2002; 150–158.
4. Epstein JH. Postinflammatory hyperpigmentation. *Clin Dermatol* 1989; 7: 55–65.
5. Norlund JJ. Postinflammatory hyperpigmentation. *Dermatol Clin* 1988; 6: 185–192.
6. Ruiz Maldonado R, Orozco-Covarrubias ML. Postinflammatory hypopigmentation and hyperpigmentation. *Semin Cutan Med Surg* 1997; 16: 36–43.
7. Amnesty International. *Nepal: make torture a crime*. London: Amnesty International, 2001.