E-ISSN: 2360 – 6754; ISSN-L: 2360 – 6754

European Journal of Law and Public Administration

2020, Volume 7, Issue 1, pp. 61-67

https://doi.org/10.18662/eljpa/7.1/114

CRIMINALISTIC HUMAN IDENTIFICATION FROM SCAR AND TATTOO MARKS

Lăcrămioara BĂLAN

Covered in:

CEEOL, Ideas RePeC, EconPapers, Socionet, HeinOnline

Published by:
Lumen Publishing House
on behalf of:
Stefan cel Mare University from Suceava,
Faculty of Law and Administrative Sciences,
Department of Law and Administrative Sciences

CRIMINALISTIC HUMAN IDENTIFICATION FROM SCAR AND TATTOO MARKS

Lacramioara BĂLAN[1]

Abstract

The concern in the study of human identification has been present for centuries. Although the interest has undergone transformations over time, it has connected multiple disciplines from anthropology and archeology to criminology and forensic science to cultural heritage and medical sciences. Scar evidence of identity should be considered in association with alternative points for identification, although there are cases where the nature, presence or even position of a scar/mark is odd or uncommon, and therefore its value gets greatly enhanced. Lately, we have witnessed an increase in the use of such marks as a means of identification within criminal forensic investigations. Tattoos can lead to recognition when their pattern, placement and color are analyzed and interpreted. In this respect, tattoos, decisively, starting from the singularity and individuality and distinctive patterns, corroborated to the placements which differ from one another can be used to ascertain identities. The recognition of an individual may appear as a primary precept of humankind and consequently, the accurate capacity to acknowledge the fact that identification is a genuine continuous phase.

Keywords:

Human identification; scar; tattoo marks; medico-legal importance.

JEL classification: L60, K22

Identification is an associative exercise in which various observations are matched with information culled from a variety of sources. In this way a comprehensive picture is put together that lets us to accredit an identity to an individual.

The physical presentation of an individual is one part of the process, at least in standard circumstances, but occasionally they may be our only method of asserting identity.

[1] Lecturer PhD, "Ştefan cel Mare" University of Suceava, Faculty of Law and Administrative Sciences, Suceava, Romania, lacramioara.balan@fdsa.usv.ro

The most successful approach utilizes close co-operation between the investigating experts and other interested parties (family and friends) with pooling of efforts and information.
Experts who can make contributions towards solving identity include pathologists, physicians and dentists, anatomists, physical anthropologists and experts in evaluation of various trace evidences.

Scar

A scar or cicatrix is a fibrous tissue covered by epithelium formed as a effect of the healing process of a wound [1]. It lack the presence of hair follicles, pigment and sweat glands. A known scar on a particular part of a person's body may help in identification, though multiple scars are more convincing.
Scars being formed of fibrous tissue with less vascularity resist decomposition and as such can help in identification of grossly decomposed body.
In any injury where the dermis has been affected, recovering implies the organization of granulation tissue and blood thereby resulting in formation of scar.
Injuries involving only epidermis heal without any scar formation.

Examination of Scar

Scar must be examined under adequate lighting. The description must include number, location, size and form, its specific location upon the body, fixed or loose, the smoothness or irregularity of the surface, colour and the occurance/lack of glistening and tenderness. The state of the ends (whether they are tapered or not) and the apparent direction of the original wound should be established. The use of heat, filtered ultraviolet light or surface friction has proved to be useful in making dim scars promptly visible.
A magnifying glass is also very effective. Suspected scar in a corpse can be proved by microscopy by examining for the presence/absence of elastic tissue that is absent in a scar.
(Scar evidence of identity should be considered in association with alternative points for identification, but where a scar/mark is odd or uncommon; it is significance gets greatly increased.)

Characters of Scar

- A scar generally assumes the shape of the wound causing it. A scar resulting from an incised wound (which has healed by primary union) is usually linear and straight. However, a scar following an incised wound of axilla or upon the genitals may be irregular on account of loose folds of the skin and may also be smaller than the original wound [2].
- Lacerated wounds result in broad and irregular scars.
- Suppurated wounds also produce irregular and large scars, which are attached to the deeper tissues.
- In a case of stab wound, depending upon the shape of the blade of the weapon, scar may be elliptical, oval or irregularly shaped.
- Large irregular scars accompanied often by keloid patches result from extensive burns and scalds.
- Scars resulting from bullet wounds are generally irregular, depressed and adherent to the underlying tissues.
(Occasionally, bullet-wound scar may become matter of controversy as happened in 1989 when doubts have appeared over the accuracy in the identification of a war prisoner, namely the Nazi Rudolf Hess, due to the absence of a scar cause by an old riffle bullet wound which should have been visible on the chest).
- Scars formed where vaccines had been applied are circular or oval, flat or slightly depressed.
- The old marks left by wrist- or throat-slashing indicate previous suicide attempts.
- Scar causing permanent disfiguration of head or face amounts to grievous hurt.
- Scar causing constriction in the area of a joint restraining the movements or functions of the joint amounts to grievous hurt.
- Scar over cornea amounts to grievous hurt by way of causing permanent (total or partial) loss of vision.
- Scars at cubital fossa or dorsum of hand may indicate drug addiction.
- Striaegravidarum indicate past or present pregnancy.

Age of the Scar

It is difficult to establish the exact age of a scar as it will differ depending on nature, extent and position of the original lesion, the presence or absence of sepsis, the method of healing and the vascularity of the part. The latter factor is influenced by age, physical status and pathological conditions of the blood vessels.

Therefore, a medical witness must be careful in answering this question. The age of the scar becomes materially important towards ascertaining the time elapsed since infliction/ sustaining of injury in an assault or otherwise. A rough idea about the age of the scar may be gathered from the following:
- An uninfected superficial cut (as for example, a shave-cut) usually heals with formation of a scar by 5th or 6th day. In case of clean aseptic wound as produced by a surgical knife and heals by first intention, the scar usually appears in a fortnight while in a suppurating wound, it may take from2 weeks to 3 months or more.
- Freshly formed scar appears reddish or bluish but is tender and soft. The age of such a scar is up to a couple of weeks.
- As the vascularity diminishes, the scar becomes pale but is still tender and soft. The age is up to a couple of months.
- With age, the scar contracts but still little tender and soft. The age is between 2 and 6 months.
- As the scar further contracts, it becomes tough, white and glistening. The age probably is not less than 6 months to an indefinite number of years.

Erasure/Disappearance of Scar

- Scars resulting from wounds or skin diseases involving whole thickness of skin are always permanent, but superficial linear scars involving epidermis may disappear in a few years.
- A scar may be removed by plastic surgery or its shape and size may be altered by surgical operation.
- Tattooing and infliction of incisions on the scarred area to efface it can sometimes be practiced

Tattoo Marks

The term 'tattoo' comes from the Polynesian '*ta tau*', which means 'to mark'. Intentional decoration of the skin by the insertion of pigments has been practiced all over the world.. Various tribes, such as the Ibans of Sarawak have tattoos covering extensively their bodies. At the same time, in most countries, many men and some women wear localized tattoos which come in handy as a means of identification.
Tattoo marks are the designs created by the infliction of multiple small puncture wounds made through the skin with needles or similar penetrating tools dipped in colouring matter (dye).

Permanency of the tattoo marks depends upon the type of dye used, its depth of penetration and the part of the body tattooed

Commonly used dyes are indigo, cobalt, finely divided carbon, China ink, cinnabar, vermilion, cadmium selenide and Prussian blue, etc. Unusual substances such as soot or gunpowder have also been used. Over several years or decades, the colours blue, green or red may be leached into the lymphatic system by tissue cells.

Black pigments (usually deriving from carbon particles in the form of Indian ink) proved themselves to be very resistant, virtually life-long, though some may be transferred into the lymph nodes from the vicinity.

The optimum depth of penetration is up to superficial layers of dermis. If the dye is deposited in the epidermis, it will slowly become fainter and disappear in due course of time due to wear and tear of superficial epithelium. In cases where the dye is planted into more profound layers of the dermis, it will be eliminated by phagocytes.

A tattoo disappears early from the parts of the body subjected to constant friction and remains for a longer period over the parts of the body protected by clothing.

The patterns are so diverse as to defy classification

Varieties of patterns reflecting personal details, religious beliefs and sexual fantasies are available [3]. Designs of all sorts varying from initials to Gods of worship and even those indicating emblems of moral depravity may be encountered.

In the notorious German Concentration Camp at Auschwitz, prisoners had their prison numbers tattooed upon their arms.

The blue bird design on the back of hand between basis of the thumb and forefingers is commonly used by homosexuals.

Some persons have their blood group/social security number/ date of birth/date of marriage, etc. tattooed on them.

Natural Disappearance of Tattoo Mark

If the pigment has been placed just under the epidermis, it will gradually become fainter and certain pigments such as vermilion, cinnabar and ultramarine will ultimately disappear after ten years minimum.

However, even when the less persistent dyes have disappeared from the skin, they may be demonstrable in the regional lymph glands. The marks are

indelible if pigments such as Indian ink, gunpowder or powdered charcoal have been used and have penetrated deep into the fibro-elastic tissue of the skin. Such marks may be recognized even in the decomposed body after the skin has peeled off.

Revealing Latent Tattoo Mark

A discolored tattoo mark may be revealed by ultraviolet light or may be rendered visible by rubbing the part and examining it with a magnifying glass in strong light. As already stated, even when the tattoo marks have disappeared from the skin, evidence of this may be obtained at autopsy by examining the regional lymph glands.

Artificial Removal or Alteration of Tattoo Mark

A tattoo mark may be altered or eliminated or a second one may be superimposed in an attempt to conceal identity. The design may be altered by over-tattooing with titanium oxide (a white pigment) causing reduction in intensity of the original colour [4]. Various methods/devices that may be employed for removal of tattoo marks include the following:
- Surgical removal and skin grafting [5]
- Electrolysis that releases and dissolves the pigments to be washed out
- Applying carbon dioxide snow
- By derm-abrasion
- Application of caustic substances
- Exposure to laser beam, etc.

Importance of Tattoo Marks

- The design could be of an idol, obscene figure, a flower, etc., representing the mental make-up, desire/inclination, etc.
- Tattooing at times may cause infection and keloid formation, etc [2].
- Drug addicts, especially intravenous drug users, may conceal the site of infection by a tattoo design.
- They may indicate behavioural characteristics - erotic tattoos of the sexual fanatic, blue bird design on the extensor surface of the web of the thumb in homosexuals.
- The tattoo mark could be helpful in giving clue towards identity in the form of race, religion, nationality, occupation, name of the person or of his beloved ones, date of birth, date of marriage, etc.

The assertion of identity may represent a essential precept of humanity and consequently, the accurate capacity to acknowledge the fact that identification is a genuine continuous phase. As we live in a time and place where it happens that physical security and identity find themselves continuously in the way of danger, it comes only natural for the multidisciplinary subject of biological human identification to meet various challenges and demands.

The precise establishment of the biological identity of a person (alive or departed) falls in the field of expertise of the forensic specialists to conform to the obligations stated by the international humanitarian law, to endorse human rights and to assist the humankind.

REFERENCES

[1]. Armstrong M. Tattooing, body piercing, and permanent cosmetics: A historical and current view of state regulations with continuing concerns, Journal of Environmental Health. 2005; 67(8): 38–43.
[2]. Beerman, H, Lane R. Tattoo: A survey of some of the literature concerning the medical complications of tattooing, The American Journal of the Medical Sciences. 2011; 227(4): 444–465.
[3]. Fisher J. Tattooing the body, marking culture, Body and Society. 2002; 8(4): 91–107.
[4]. Roenigk H. Tattooing- history, technics, complications, removal, Cleveland Clinic Quarterly. 1971, 38: 179–186.
[5]. Wollina U, Kostler E. Tattoos-surgical removal, Clinics in Dermatology. 2014; 25: 393–397.