

Physical Torture

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Key Points

- Modern torture is often sophisticated intending not to leave physical marks.
- Physical symptoms after torture, including pain, often have characteristic features.
- Some torture produced lesions are characteristic, the majority are unspecific.
- Paraclinical examinations are relevant for the assessment of consistency of torture allegations, but most often they are unavailable immediately after torture.
- Absence of lesions does not prove that physical torture did not take place.
- The appraisal of the consistency/veracity of torture allegations should comply with the guidelines of the United Nations (UN) Istanbul Protocol (IP).
- Training of relevant groups of health professionals in the IP principles is essential in the fight against torture.
- A full assessment of torture allegations must comprise both physical and psychological aspects.
- Many factors complicate the assessment of examinations of torture survivors.
- It has been documented that some doctors violate international law and medical ethical codes through direct or indirect participation in torture or by covering-up evidence of torture.

Introduction

Torture is a severe human rights violation. There exist several definitions of torture, however for the purpose of this article the definition of torture in the United Nations Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (UNCAT) §1 (UN, 1989) is quoted here: "For the purposes of this Convention, the term "torture" means any act by which severe pain or suffering, whether physical or mental, is intentionally inflicted on a person for such purposes as obtaining from him or a third person information or a confession, punishing him for an act he or a third person has committed or is suspected of having committed, or intimidating or coercing him or a third person, or for any reason based on discrimination of any kind, when such pain or suffering is inflicted by or at the instigation of or with the consent or acquiescence of a public official or other person acting in an official capacity. It does not include pain or suffering arising only from, inherent in or incidental to lawful sanctions". Its four key elements are the severity of suffering, intentionality, purpose and involvement of authorities.

The Inter-American Convention to Prevent and Punish Torture (IACPPT, 1985) § 2.1 has an important additional element: “Torture shall also be understood to be the use of methods upon a person intended to obliterate the personality of the victim or to diminish his physical or mental capacities, even if they do not cause physical pain or mental anguish.”

Torture is explicitly prohibited in international conventions and the prohibition is absolute. No exceptional circumstances whatsoever, whether a state of war or a threat of war, profound lesions political instability, or any other public emergency, may be invoked as a justification of torture (UNCAT §2.1). Thus, any alleged case of torture should be investigated by independent authorities and, whenever relevant, prosecuted under the appropriate national or international rule of law. The medical-psychological forensic examination can provide crucial forensic evidence. A medical-psychological assessment is important in criminal prosecutions and in application of asylum when torture was alleged to have happened. Likewise, truth commissions establishing historical facts, a collective memory and the basis for compensation and reparation for victims may also need relevant subject matter expert assessments.

Torture is most often committed in the early phases of detention (APT. The Association for the Prevention of Torture, 2013; Carver and Handley, 2016) against detainees when the perpetrators are in full control without external independent scrutiny; independent investigators including doctors will rarely have access to gather evidence and an independent forensic medical investigation is often delayed for a long period of time until the victim is released. Moreover, officers implicated, and their colleagues will rarely be cooperative in an investigation; hence, the investigation will very much depend on the testimony of the victim and the results of a medical and psychological examination.

Contemporary torture is often designed to avoid leaving physical signs using physical methods that do not produce scars or mutilation. In some countries a shift from physical to psychological methods has been observed. No matter the nature of inflicted torture the psychological element will always exist, e.g., the fear of more infliction of pain and suffering, permanent health consequences or death, and harm to others. Many physical signs of torture will vanish within days or weeks and acute psychological symptoms may be pronounced and different from persisting psychological sequelae. Doctors working in places of detention caring for detainees should be able to identify torture victims, make an examination report describing alleged abuses, symptoms and clinical findings and initiate necessary follow-up according to local possibilities, which underlines the importance of training and professional independence. Very often assessment of torture allegations takes place with a long delay when most physical signs have disappeared. Psychological sequelae are normally much more persistent. The importance of involvement of examiners with psychological expertise has become increasingly recognized with the better understanding of psychological aspects of torture achieved over the last decades and for the reasons mentioned. An assessment of torture allegations without expert evaluation of psychological aspects is incomplete and may be misleading.

Ideally, examinations of persons who allege torture should be performed by experts with specialized training in both forensic medicine and in forensic psychology/psychiatry. However, in many countries this possibility does not exist. Practitioners, including those working in places of detention and concerned Non-Government Organizations (NGOs), who encounter torture victims, should be familiar with the standards for reporting torture and ill-treatment and make reports of good quality, if possible, with the support from more experienced colleagues.

The international standard for the examination of persons who allege having been tortured is the Istanbul Protocol (IP) adopted by the United Nations (UN) in 2000 (UN, 2004). The aim of the IP is to clarify fact about possible torture, to determine individual and state responsibility, to determine means to prevent repetitions, to facilitate prosecutions or disciplinary sanctions, reparation, compensation, and treatment/rehabilitation for the victim. The IP gives guidelines how to interview and examine persons who allege torture exposure and how to analyze and interpret interview results and clinical findings. Currently (April 2021) a new IP version has been prepared by many concerned organizations and experts and it is under review by the UN. It gives more detailed explanations on how to conduct the medical and psychological examination and how to conclude on history, symptoms, and findings. Training in the use of the IP by health professionals who are to evaluate torture allegations should be part of the forensic service.

In this article there is no distinction between torture and intentional and purposive ill-treatment. Their characteristics are often alike, and torture may be considered as an aggravated form of ill-treatment (other cruel, inhuman, and degrading treatment or punishment). The evaluation of the severity of suffering depends, not only on duration and the methods of torture applied, but also on characteristics of the victim, e.g., age, gender, and the pre-torture physical and psychological health status. In many cases the distinction is difficult and relies on a concrete appraisal of all facts by the court.

Physical Torture Methods

Torture always consists of application of different methods in combination. A “torturing environment” has been defined as a milieu that creates the conditions for torture. It is made up of a group of contextual elements, conditions and practices that obliterate the will and control of the victim, compromising the self (Pérez-Sales, 2017) and it may in itself amount to torture. Torture exposure is highly complex and cumulative. Physical and psychological methods are applied simultaneously or successively. A recent example from Northern Ireland in the eighties is “the five techniques”, the combination of (1) prolonged standing, (2) deprivation of sleep, (3) hooding, (4) restriction of food and water, and (5) exposure to noise. Investigations from Spain have concluded that a few days of sophisticated modern torture, which in addition to blows and sleep deprivation included, inter alia, humiliations, forced nudity, threats, forced witnessing of torture of others, and coercive interrogation techniques, is enough to break the resistance of most victims and obtain information or confession, true or false, without using methods that leave physical marks (Pérez-Sales *et al.*, 2016). The forensic assessment should not only deal with torture methods that produce pain, but also methods that break the will and identity without necessarily causing physical pain.

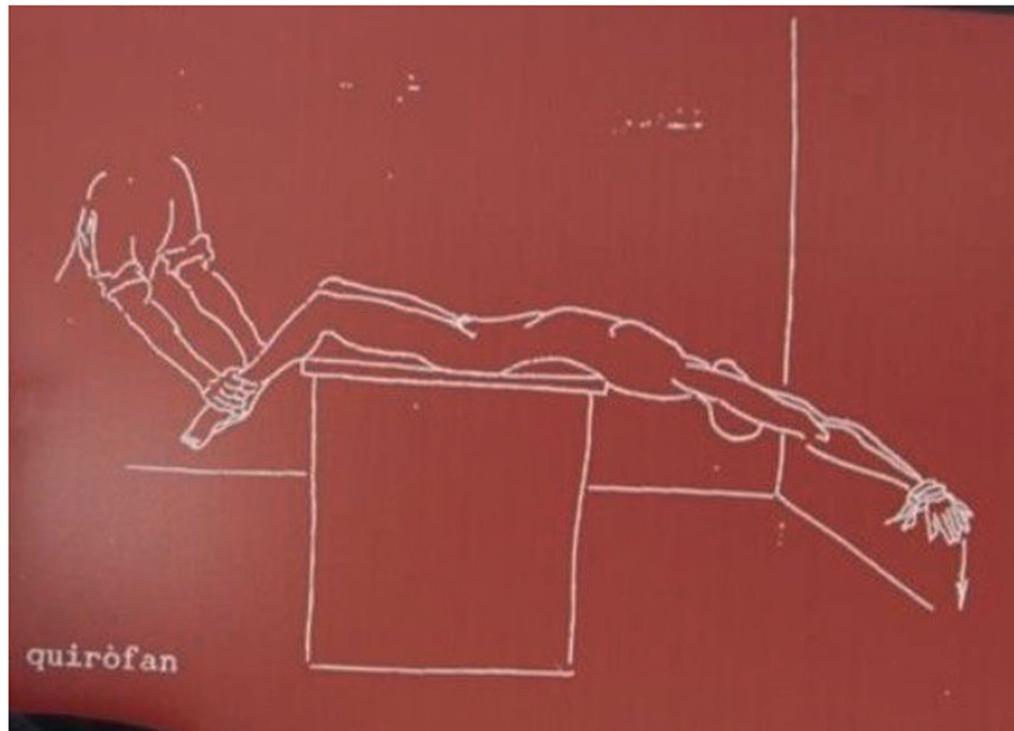


Fig. 1 “The operating table”. Hyper-extension of the spine is achieved through fixation to a table of the victim’s lower part of the body in supine position with the upper part hanging in the air while being forced downwards.

International law and most often national law criminalize torture and the UNCAT, ratified by most countries, requires states to prevent torture, investigate cases, and prosecute perpetrators. Hence, torture methods that are mutilating or leave scars are most often avoided, e.g., it is often reported that beatings were performed with truncheons wrapped with cloths. Nevertheless, mutilating torture still happens, particularly during war and civil uprising.

Physical torture is used to cause severe pain, exhaustion, confusion, fear, panic, and loss of all control, aiming to break down the victims’ will and resistance, i.e., diminish their physical or mental capacities, with the purpose to, e.g., obtain a confession or information, to punish or to intimidate and thereby achieve social control.

Physical torture methods are numerous and diverse. Practically anything may happen. Torture methods vary between countries, security forces, and periods of time. Some types are universal, e.g., blunt force, while other methods are typical for a region. Hence, knowledge of regional practices is important for the forensic examiner. Some well-known torture methods shall be mentioned here.

- Blunt trauma, first of all beatings with hands or instruments or banging the victim’s head against a hard object, occurs in most torture sessions. Repetitive low intensity blows to the head with soft or flat objects are intended to cause both pain and confusion without producing marks. Falanga or falaka is still widely used; it consists of repeated blows to the soles of the feet. Violent shaking of the body and head may, like whiplash injuries, cause symptoms from the cervical spine, the brain, and the eyes.
- Positional torture comprises forced unnatural movement of a joint, suspension, prolonged constraint of movement e.g., prolonged standing or maintenance of awkward postures. “The operating table” (Fig. 1) consists of a hyper-extension of the back; the victim’s lower part of the body is fixed in supine position to a table with the upper part hanging in the air while being forced downwards. Another way to forcibly hyperextend the spine is “the banana”. Objects may be placed between fingers that subsequently are forced against each other.
- Suspension, eventually combined with beatings or electric shocks, may be performed in many ways. “Palestinian hanging” where the victim is suspended from the wrists or forearms tied behind the back may cause injuries to the shoulder joint, bones, muscles, and peripheral nerves. Suspension from or the ankles or legs may compromise the blood flow.
- Burns may be applied with cigarettes, cigars, burning or heated objects/liquids, or exposure to fire. The way e.g., a cigarette is applied (touching, moving while applying, stubbing out) will influence the shape, size and depth of the injury and the resulting scar. A heated object may cause lesions that depict the shape of the object. However, if the object was applied partially, e.g., to a prominent area or to a region that in the moment of application was held in an awkward posture or moved, the resulting lesion may be quite different.
- Electric torture may be applied, e.g., with battery-driven shock batons, stun guns, remote controlled stun belts, tasers, or simple wires/cables plugged into a wall socket. Often it is applied to sensitive areas, e.g., lips, tongue, nipples, and genitals.
- Asphyxiation executed by placing a plastic bag over the victim’s head is widely used; another method is to force the head into water that sometimes is contaminated with urine and feces (sometimes called dry and wet submarine respectively).

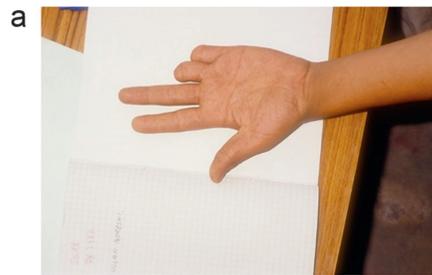


Fig. 2 (a) Amputation of fingers of a girl (Kashmir) allegedly done with a bayonet by soldiers to obtain information from her father. Consistency between history and findings that could have been caused by an accident. (b) Tip of nose allegedly amputated with a bayonet during torture (Kashmir). Given the aspects of intentional mutilating injury and the violent context the consistency between history and finding is assessed to be very high. Reproduced from Petersen, H.D., Wandall, J.H., 1994. Evidence of organized violence among refugees from Indian-held Kashmir. *Torture* 4, 90–95.

In waterboarding water is poured over the immobilized victim's nose and mouth covered with cloths or with a cloth in the mouth to keep it open. Asphyxiation performed by compression of the neck may compromise the blood flow to the brain and cause damage to the brain, vessels, larynx, and hyoid.

- Crush injuries, e.g., produced by severe beatings, stomping on the victim, or rolling a heavy pole over the thighs of the victim, may produce damage to inner organs, bones, joints, muscles, and skin. Compression of e.g., fingers may be done with all sorts of instruments.

Other methods include:

- Forced physical exercise until exhaustion is a commonly used method.
- Penetrating injuries comprise, cuts, stabs, gunshots, insertion of pins under the nails, and bites.
- Chemical exposure to, e.g., salt, pepper, or gasoline in wounds or body cavities.
- Sexual torture may consist of all kinds of humiliations including touching genitals or breasts, nudity, penetrating the vagina or rectum with e.g., truncheons or bottles, rape, blows or kicks to the genitals, electricity, and squeezing/twisting of testicles.
- Digits, limbs, the nose (**Fig. 2a & b**) or ears may be amputated, and nails extracted.
- Pharmaceuticals may be administered aiming to diminish the victim's self-control and judgement.

The conditions of detention with, inter alia, limited space, overcrowding, filthiness and inappropriate provision of food and water, increase the physical and psychological stress and may propagate various illnesses.

Deprivation of sleep, food, water, access to toilet, bath, motor activities, medical care, and social contacts are common. Like psychological methods, e.g., sensorial deprivation, hooding, threats, mock executions, humiliations, and solitary confinement, mentioned in the article on psychological torture, it diminishes the victim's physical and mental capacities.

Physical Symptoms Caused by Torture

When taking the history of a survivor's symptom the examiner should systematically deal with all organ systems. Acute physical symptoms depend on the duration and methods of torture used and the injuries sustained. Chronic symptoms may have their own course and be influenced by many factors, cf. below.



Fig. 3 Multiple fresh hematomas forming tramlines allegedly after beatings with truncheons. Very high level of consistency between history and findings.

Pain is the predominant symptom. The location of pain in the acute phase is not only related to direct traumas and injuries but may also be caused by maintaining awkward body positions and forced physical exercise. Headache is reported by most torture victims regardless the nature of exposure. Muscles may be sore and tense, which may lead to, e.g., torticollis. Generalized and referred pain is common.

Pain in the back and joints is commonplace and may be caused by many different torture methods, e.g., direct violence or positional torture. More specifically, as examples, low back pain, often persistent, has been reported frequently after exposure to forced hyperextension of the spine; falanga may cause chronic superficial burning/stinging pain in the soles and a deep cramping pain that intensifies with strain or when walking and it may irradiate to the lower leg; Palestinian hanging causes chronic pain in shoulder girdle and neck, particularly at activity (abduction, inward rotation, lifting), in combination with reduced mobility. (Rasmussen *et al.*, 2005).

Pain may increase days after the traumatization, as, e.g., a subperiosteal hematoma dissolves and osmosis increases its volume causing pain by raised pressure in a closed compartment. Chronic pain is present in most torture survivors studied (e.g., Olsen *et al.*, 2007). Headache, soft tissue pain, hypersensitivity, and allodynia may persist long after an injury has healed or occur in absence of injuries. It can result from altered nociceptive function and might be considered a disease. Emotional, cognitive, behavioral, existential, and cultural factors influence pain experience and response (Amris *et al.*, 2020). Pain, particularly the diffuse pain without detectable organic fundament, can go underdiagnosed.

It is useful to indicate pain localization, characteristics and intensity (Visual Analog Scale) on a body diagram and compare it with similar sketches on physical torture and clinical findings, which should include soreness.

Torture may cause a range of general symptoms, which include:



Fig. 4 Healed tramline scars. Lesions were allegedly caused by beatings with cables months previously. Very high level of consistency between history and findings and the violent context (Zimbabwe).



Fig. 5 Ring-shaped bruise caused by the impact of a rubber ball; tramline mechanism.

- General malaise, vertigo, dizziness, fatigue/exhaustion, nausea/vomiting, and loss of appetite are all common symptoms.
- A substantial weight loss due to insufficient intake/provision of food and water, vomiting, and extensive forced physical exercise may occur within a few days torture.
- The gait may be impaired due to pain, injuries, exhaustion, and dizziness.
- Muscular contractions and fits, which may lead to fractures and soft tissue lesions, often accompany the localized/generalized pain caused by electrical shocks.

Short- and long-term symptoms from the brain, nerves and sensory organs include:

- Loss of consciousness caused by direct traumas against the head, asphyxiation, exhaustion, or fits provoked by electric shocks is not uncommon. Concussion symptoms are common and repetitive sub-concussions and violent shaking may affect the neuro-ophthalmological function at least in the short term (Nowak *et al.*, 2020).
- Brain ischemia and traumatic brain injuries may cause persisting brain damage with impairment of cognition and emotions (Filley and Kelly, 2018). Traumatic brain injuries may contribute to development of depression and Post Traumatic Stress Disorder (PTSD) (Mollica *et al.*, 2002).
- Peripheral nerve damage causes paresthesia, hypaesthesia and paralysis.



Fig. 6 Intradermal bruises depicting a bootheel.



Fig. 7 Woman who has tried to protect herself during assault. Localization of bruises on forearm highly consistent with the history. A typical localization of a defense fracture is the shaft of ulna. Reproduced from Eriksson, A., Ormstad, K., 1992. The reality behind the bruises. *Nordisk Medicin* 107, 141–145.

- Reduced hearing, tinnitus, and vertigo are common after blows to the ears. A direct blow against the ear with open hand will raise the pressure in the auditory canal and may cause a rupture of the tympanic membrane and damage the inner ear. A hearing loss may be permanent.
- The eyesight may be impaired due to direct injuries causing bleeding, retinal detachment or cataract. Violent shaking may cause retinal damage in the same way as whiplash injuries and impair vision for weeks or months (Kelly *et al.*, 1978; Villard *et al.*, 2019).
- Sedation, hallucinations, and anterograde amnesia may be produced by pharmaceuticals.

Other organ related symptoms include:

- Bleeding from body openings indicates injuries to inner organs and depend on nature of traumatization. Bleeding from the nose and ears may be signs of local tissue damage or cranial fractures. Bleedings in connection with urination indicates kidney



Fig. 8 Parallel bruises in transverse orientation allegedly after falanga. Very high consistency between alleged torture method and findings. Reproduced from Hougen, H.P., 1996. Retsmedicinsk dokumentation af tortur. *Nordisk Rettsmedisin* 2, 43–47.

or urethral lesions. Bleeding from rectum or vagina often indicates tears caused by insertion of objects or rape but may also be caused by constipation (fissures) or menstruation.

- Vomiting blood may be a sign of extreme complex stress causing esophagitis, tears of lower esophagus caused by violent vomiting, gastritis, or curling ulcers. Other gastrointestinal symptoms are dyspepsia, nausea, vomiting, abdominal pain, constipation, diarrhea and incontinence.
- Sexual symptoms are common and often long-lasting, e.g., decreased libido, dyspareunia, irregular menstruations, and impotence. Incontinence and infections may occur after genital violence. Erectile pain and urethral strictures have been described after torture (Norredam *et al.*, 2005; Khawaja *et al.*, 2020).
- Muscular damage by traumas or forced extreme physical exercise may release myoglobin and hemoglobin causing red or dark discoloration of the urine.
- Asphyxiation procedures cause a feeling of imminent death and sometimes loss of sphincter control.

Duration of symptoms depends on the nature of the injuries, personal, psychological, and social factors, including treatment. Persistent pain is common and dominates the long-term clinical picture together with psychological symptoms, including PTSD.

Torture Produced Lesions

Torture may cause injuries to any organ. The presence of injuries depends on the torture methods and the time span from torture to examination, i.e., the healing. Modern sophisticated torture often does not leave physical marks or only small unspecific scars. The characteristics of injuries sometimes facilitate the assessment of their origin and age and thereby their relation to alleged torture.

External Lesions

Visible skin lesions may be caused by a variety of traumatization, most often blows but also e.g., tight handcuffing, grips, burns, electric shocks, and penetrating injuries. Skin lesions are described by their localization, size, shape, color/pigmentation, surface, periphery/demarcation, level (hypertrophic/atrophic) and soreness and classified as erythema, bruises, excoriations, cuts/stabs, lacerations, and necrosis. The localization of lesions may corroborate allegations of torture. Torture may be directed towards regions not normally exposed to everyday traumas, e.g., the back, lower abdomen/genitals, or medial aspects of the thighs.

The shape of lesions may reflect the shape of the causing instrument; a blow with e.g., a truncheon may cause injury to the skin and vessels at the borders of the impacted area forming bruises or lacerations in parallel lines, tramlines (Figs. 3 and 4). Lesions produced by this mechanism may take a variety of forms (Fig. 5). Blunt traumas will normally cause irregular lesions whereas sharp instruments tend to cause well demarcated lesions. Most lesions are quite unspecific.

Erythema and swellings will normally fade within 1–2 days. Swellings may be caused by direct traumatization and by forced standing for prolonged periods of time (feet and ankles). Bruises are initially dark purple and change to green and yellow over the next days. If it is only purple, it is not more than 1–2 days old. Yellow discoloration indicates an age of at least 1–2 days, but there



Fig. 9 Two groups of parallel scars with sharply demarcated borders allegedly caused by cuts with a bayonet during torture. Their arrangement excludes natural trauma. They could have been caused by self-infliction or as a ritual, but they are highly consistent with the history, particularly given the violent context (Kashmir). Reproduced from Petersen, H.D., Wandall, J.H., 1995. Evidence of physical torture in a series of children. *Forensic Sci. Int.* 75, 45–55.

may be great individual variations and age determination is uncertain. Small bruises will fade and disappear within a week, larger ones may take several weeks. Bruises may appear 1–2 days after the traumatization as blood and hemoglobin move from deeper layers of subcutis to the surface. Likewise, bruises may move in loose tissue, e.g., around the eye. If the bruise is intra-dermal it may persist much longer than subcutaneous bruises; if produced by impact of an object with a patterned surface the intradermal bruise may look alike (**Fig. 6**). The size and fading of a bruise vary with the age, health status, medication, e.g., blood thinners, and personal factors of the victim. The location of bruises, as well as their size and shape, may corroborate the alleged history (**Figs. 7 and 8**).

Petechiae may be present a few days in sclerae and skin and mucosae of the head after compressing suffocation procedures. Excoriations will after 1–2 days be covered by crusts that will fall after approximately 8–10 days. The skin will then be pink; after some weeks, the skin will normally be fully recovered. However, there may be long-lasting dyspigmentation, particularly in dark-skinned persons. Persistent hyperpigmentation may have the shape of the original lesion (Peel *et al.*, 2003).

Cuts will cause full skin damage and leave a wound with sharply demarcated edges. If not treated the scar may be broad (**Fig. 9**). Stabs with e.g., bayonets may leave more irregular scars (**Fig. 10**), maybe because the lesion is a mixture of a cut and a laceration since a bayonet may not be sharp and be twisted while stabbing. Lacerations are full skin damage, normally irregularly demarcated, caused by blunt violence. Healing may take weeks and the scars may be irregular, depending on tissue loss and infections.

Burns or chemicals may cause full thickness damage/necrosis of the skin, initially covered by crusts and leaving scars after weeks (**Figs. 11 and 12**), regular, irregular, hypo-/hypertrophic or keloid forming depending on the way of traumatization and loss of tissue. Cigarette burns are characteristic, but not specific (**Figs. 10 and 13**) and may be irregular if several burns were applied to the same area. Scars after burns will often be pigmented at the borders. Electric shocks cause small red/brown lesions eventually with



Fig. 10 Irregular $1\frac{1}{2} \times 2$ cm scar on right side allegedly after stab with bayonet and several round scars (arrows) with hyperpigmented borders of different size allegedly caused by cigarette and cigar burns. Very high level of consistency between history and findings, particularly given the violent context (Myanmar).



Fig. 11 Multiple scars allegedly after burns with a heated metal object. Slightly irregular hyperpigmented borders and slight excavation indicating loss of tissue. The variation of shape and size could be due to different body positions during torture and uneven application of the same heated object. Very high consistency between history and findings, considering their appearance, localization and the violent context (Kashmir).

crusts and surrounded by a small zone of erythema (**Fig. 14**). The skin will heal within days or a few weeks unless the current has produced necrosis. Characteristic histological changes may persist (Danielsen and Rasmussen, 2006).

Scars are initially pink; after months they become pale and subsequently, they do not change much. Scars from lesions infected or with loss of tissue may become irregular, hypertrophic, or form keloid. The depth of a scar is difficult to assess clinically;



Fig. 12 Large irregular hypertrophic scar on shin of a girl allegedly after application of burning cloths aimed at extracting information from her father. Findings highly consistent with the history and the violent context (Kashmir). Differential diagnosis: burns after domestic accident.



Fig. 13 Cigarette burns? Grouped multiple rounded scars each approximately 1 cm with hyperpigmented borders. Their origin was allegedly small abscesses acquired under extremely unhygienic cell conditions with bed linen contaminated with the person's own diarrhea. High consistency between alleged origin and findings. Reproduced from Petersen, H.D., Rasmussen, O.V., 1992. Medical appraisal of allegations of torture and the involvement of doctors in torture. *Forensic Sci. Int.* 53, 97–116.

ultrasound evaluation may be helpful (Gniadecka and Danielsen, 1995). Injuries to hairy areas may leave traumatic alopecia. Extraction or injuries to a finger- or toenail will often cause deformation of the nail and/or scar tissue.

Repetitive blows against the head with soft objects may cause edema of soft tissue hard to detect. After violent blows, the edema and hematomas may extend to the face (**Fig. 15**).



Fig. 14 Electric torture. Basque woman with a history of a variety of torture forms inclusive electric shocks to both sides of the thorax applied with a battery-driven device. A dermatological examination in hospital revealed an area 20×10 cm on the right side with a network consisting of small red/purple/brownish lesions, some with small vesicles. Infections incl. herpes, other inflammatory condition, and medication caused dermatitis were excluded. Similar lesions on a smaller area of the left side. Very high consistency between history and findings and the documented local context. Reproduced from TAT Torturaren Aurkako Taldea, 2002. Tortura en Euskal Herria. Informe 2001. Lizarra . ISBN 2-914743-09-2. CPT. The Committee for the Prevention of Torture and Cruel, Inhuman and Degrading Treatment or Punishment 1996c. Report to the Spanish government on the visit to Spain 10–14 June 1994. Available from: <https://rm.coe.int/1680697dec>.

The differential diagnosis to everyday traumas may be difficult since most marks and scars after torture are non-specific. Stretch marks (**Fig. 16**) are very different from whip marks (**Fig. 17**).

It may happen that a person fabricates a torture history based on existing lesions. On the other hand a torture victim may be suspected of having betrayed others under torture and consequently be ostracized and discriminated; being aware of that the victim may try to conceal facts and fabricate an innocuous origin of a torture produced lesion, cf. text to (**Figs. 18** and **19**) showing nail deformations. Hence, the forensic evaluation of torture allegations must be based on a full examination and not limited to assessment of lesions, cf. section on assessment of the credibility of torture allegations.

Infection of lesions contributes to tissue damage and irregularities of the scars. Most torture victims only have few non-specific scars, but absence of physical injuries does not prove that physical torture did not take place.

A forensic report should include photos of all lesions alleged to have been caused by torture.

profound lesions/profound lesions

Internal lesions may occur after violent physical torture; they consist of hematomas, swellings, and lacerations /destruction of tissue. Diagnosing profound lesions should follow ordinary clinical practice guided by the torture history, existing symptoms, and clinical observations.

- Hematomas, swellings, edemas, and lacerations situated in deeper layers of subcutis, in muscles, joints, inner organs, body cavities, or the brain can be detected with ultrasound, Computed Tomography (CT), or Magnetic Resonance Imaging (MRI).
- Muscles and tendons may be torn or crushed leading to raised levels of muscular enzymes and myoglobin in serum – in extreme cases rhabdomyolysis with renal failure (Malik *et al.*, 1993). The acute injuries and ensuing atrophy and fibrosis may be detected with ultrasound, CT, or MRI.



Fig. 15 Extreme facial edema and hematoma after violent repetitive blows against the skull. See text to **Fig. 21**. Reproduced from TAT. Torturaren Aurkako Taldea 2003. Tortura en Euskal Herria. Informe 2002. Lizarra . ISBN 84-932882-3-3.

- Joints may have capsules and ligaments damaged by forced hyper-movements or by suspension. A clinical examination supplemented with ultrasound, CT, or MRI will lead to a diagnosis and facilitate the assessment of consistency with the history of torture.
- Bone fractures are normally detected with X-ray. Fractures of the head and very small fractures are better detected with CT. Subperiosteal hemorrhage and persisting periostitis may also be diagnosed by ultrasound or scintigraphy. Fractured ribs may cause pneumothorax. Remarkable lesions have been described after harsh beatings to the shins: endosteal fractures, medullary changes, subperiosteal hemorrhage and laminar periostitis that may persist for months or years (Vogel and Brogdon, 2003). The larynx cartilage may fracture and cause asphyxiation. Teeth may be loosened, fractured, lost, or discolored.
- Peripheral nerves may be damaged by direct traumas or by traction caused by suspension by arms (brachial plexus lesions) or by pressure from handcuffs (most often the radial nerve).
- Vessels may be damaged by direct violence or by constriction causing ischemia, necrosis (**Fig. 20**) or thromboembolism.
- The brain and the eyes may be affected by direct traumatization to the head or indirectly by violent falanga where the momentum propagates from the feet, via the spine to the head, or by violent shaking. Intracranial edema (**Fig. 21**) and hemorrhages and retinal damage (Villard *et al.*, 2019) may be diagnosed with CT or MRI. In later stages hygromas or atrophy may be diagnosed.
- Damage to the ears is frequent; rupture of tympanic membrane, e.g., caused by blows with open hand directly against the ear, is easily diagnosed (otoscopy), while damage to the inner ear with loss of hearing and vertigo necessitates specialist examination.
- Infections, including HIV, hepatitis and venereal diseases may be transmitted through rape, and female fertility may be impaired because of infection. Wet submarine may cause bacterial pneumonia.
- Traumas to testicles may cause hematocele, hydrocele, testicular torsion, and atrophy.
- Mixed tissue damage may result from e.g., falanga that initially may cause bruises and edema of the feet sometimes extending to ankles. Compartment syndrome may cause atrophy of muscles in the feet, bones may fracture, and the aponeurosis and heel pads may be damaged. MRI may show characteristic findings (Savnik *et al.*, 2000). Tight handcuffing, eventually combined with beating and suspension, may cause circumferential wounds, edema, fractures, and nerve injuries.

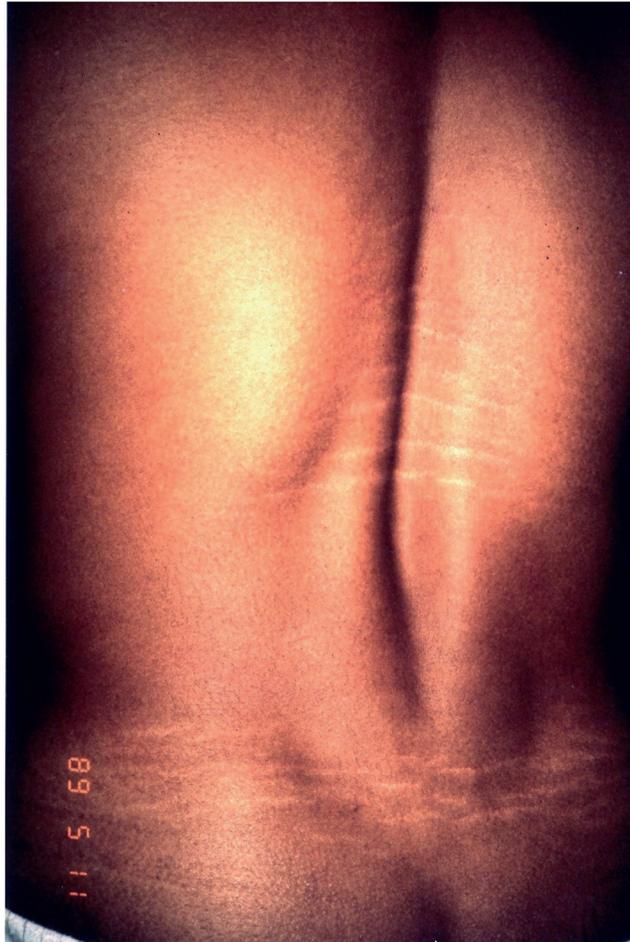


Fig. 16 Stretch marks. Note the uniformity, symmetry, and irregular borders of the marks, typically located on the lower back, thighs, buttocks, abdomen, and axillae. Reproduced from Petersen, H.D., Rasmussen, O.V., 1992. Medical appraisal of allegations of torture and the involvement of doctors in torture. *Forensic Sci. Int.* 53, 97–116.

Para-Clinical Examinations

A full evaluation of torture allegations sometimes requires additional examinations to diagnose correctly existing lesions and make the right conclusion. The selection of relevant para-clinical examinations should be based on the detailed history of alleged torture methods, symptoms reported, and clinical findings. The most useful para-clinical examinations are mentioned here.

Imaging techniques

- X-ray examination is normally sufficient to diagnose fractures and their sequelae. Fractures of the skull and face, small fractures, including of the spine are better diagnosed with CT or MRI.
- Ultrasound examination is useful to detect soft tissue lesions, inclusive inner organs, body cavities, muscles, tendons, and joints.
- By MRI and CT examinations practically all parts of the body inclusive the brain (**Fig. 21**) may be pictured. These techniques are useful to diagnose hematomas, inflammatory swellings, and tears in soft tissue structures.
- Scintigraphy may detect tissue inflammation in the first weeks after traumatization and later degenerative tissue changes. Examples are long lasting activity in bones without clinical findings (Ozkalipci *et al.*, 2013) and in the feet years after falanga (Lök *et al.*, 1991) and in squeezed testicles shortly after torture (Can, 2015; Vogel, 2016).



Fig. 17 Two days old crisscross lesions with crusts, asymmetric, mostly linear, allegedly caused by beatings with barbed wires. Very high consistency between history and findings and the violent context (Zimbabwe). Reproduced from Petersen, H.D., 2002. Zimbabwe 2002. *Ugeskr Læg* 164, 1236–1237.

Other techniques

- Electromyography can document and map peripheral nerve injuries.
- Histological skin changes occur after electric shocks and some histologic findings (deposits of calcium salts) are diagnostic of electrical injuries (Danielsen and Rasmussen, 2006). Taking biopsies may cause psychological problems for a torture victim and a negative result does not exclude electrical torture.

Blood and urine tests

- Muscular injuries caused by traumas, electric shocks, or excessive physical exercise (Alpers and Jones, 2010) may lead to raised levels of enzymes and myoglobin/rhabdomyolysis; rhabdomyolysis has been documented after forced strenuous physical exercise in detention (Garamendi Gonzáles, 2005) and after beatings and other physical torture (CPT. The Committee for the Prevention of Torture and Cruel, Inhuman and Degrading Treatment or Punishment, 1996c).
- Serum creatinine may be increased because of kidney injuries or impaired function stemming from myoglobin deposits after massive muscular damage (Malik *et al.*, 1993) or dehydration.
- The urine may contain blood from injuries of the kidneys or urethra, hemoglobin from tissue damage with destruction of red blood cells, e.g., from falanga, and myoglobin.
- Toxicology results may indicate ingestion of psychoactive drugs that may have been administered to manipulate the victim's will and ability to resist just like in drug-facilitated sexual assaults. Most of such drugs can be detected in the blood the first few days after ingestion and somewhat longer in the urine; after weeks or months they may be detected in hair (UN 2011).
- In the future acute blood markers (ubiquitin C-terminal hydrolase-L1 and S100 calcium-binding protein beta) may be helpful in the early detection of concussions (Meier *et al.*, 2017).

The limitation of paraclinical examinations is that abnormalities in blood and urine normally only last a few days and that sophisticated equipment most often is unavailable for the examiner.



Fig. 18 Longitudinal deformation of two nails, one with a covering skin flap, indicating damage to the nail bed, allegedly caused by insertion of pins under the nails. High level of consistency between history and findings and the local context. Refugee camp in Kashmir. Reproduced from Larsen, M., Petersen, H., Mannstaedt, M., Skytt, G., 1995. Prevalence of exposure to organized violence among refugees from Kashmir. *Torture* 5, 14–17.

Assessment of the Credibility of Torture Allegations

The assessment of the credibility/veracity of allegations of torture may be required in court procedures, in cases of asylum application, or for the purpose of establishing historical facts.

The basic IP principle for assessing the credibility/veracity of allegations of torture is to appraise the consistency between.

- (1) the nature of the alleged torture,
- (2) the immediate and persistent symptoms caused by the said torture, and
- (3) the results of an objective examination and para-clinical examinations.

The conclusion of the examination should be based on the agreement between those three elements and agreement with.

- well-known effects of the alleged torture methods; and
- existing information about local practices.

The history of torture must be meticulous to enable a comparison of the traumatization with the reported symptoms and lesions said to have been caused by it. Does the reported torture correspond to the alleged symptoms and their development over time, or are symptoms and signs expected to occur after the alleged torture absent? Normally examinations of torture victims take place after a long delay and both the symptoms during and shortly after torture, including the person's own observation of pathologies, and the symptoms present at the time of examination should be described and assessed.



Fig. 19 Longitudinal deformation of nails on both hands. The person from the same refugee camp said that the lesions were caused by trivial harvest traumas, which is possible. However, the similarity of findings (Figs. 18 and 19) is striking, and it could be that this person did not want to reveal that he had been tortured. Reproduced from Olsen, M.Z., Petersen, H.D., 2000. Taler torturofre sandt?. *Ugeskr Læg* 162, 96–97.

Physical pathologies are often lacking; the assessment will then rely on the alleged history of torture and symptoms and the psychological aspects of both the torture and the symptoms caused by it. When present, the lesions and their characteristics are compared with the history of torture. Absence of lesions may indicate that allegations were false if the alleged torture would have caused e.g., full skin injuries.

Individual lesions may have characteristics that substantiate the history of torture, cf. section on lesions and figures. The age of a lesion and the origin (nature of the trauma in relation to the lesion's characteristics, e.g., color, presence of hemorrhage or crusts) are the important features.

Assessment of the age of skin lesions has been mentioned in section on lesions. The assessment of age of fractures and deeply placed lesions depends on paraclinical findings. In general, the older the lesion, the more difficult is the age assessment, and after some months a precise assessment is impossible.

The assessment of the origin of a lesion depends on its nature and the localization.

In this text the consistency between the nature of a lesion and the alleged origin is classified as indicated in **Table 1**.

The task is to assess the consistency between alleged torture and the finding; speculations about the origin of a lesion for which the examinee does not give an explanation may be problematic.

The differential diagnosis to torture produced lesions, in particular skin lesions, are everyday traumas, accidents, and infections, but skin diseases, ritual and therapeutic scarification are other possibilities. Self-infliction may also be considered; such lesions will normally be located within the reach of the dominant hand (**Fig. 22**).

Fabrication of a torture history, e.g., based on existing scars, is always a possibility. However, a thorough examination including all aspects of the alleged torture will normally take several hours and details that initially seem unclear or inconsistent will be approached from different angles with additional questions, which will lead to clarification of discrepancies/inconsistencies.

Assessing torture allegations is often difficult. The reasons for this are many. Many torture methods are often applied simultaneously and causing confusion is an intention of torturers. The victim may have lost consciousness and impaired memory is a common symptom in torture survivors. Shame (e.g., after sexual torture), guilt (e.g., for having provided information about others), and fear for not being believed regarding apparently absurd torture methods may impede the victim's willingness to tell details. Such lack of trust towards the interviewer or the interpreter may be countered if the examiner possesses and expresses knowledge about torture related health issues and the specificities of the local pattern of torture and conduct the interview in a respectful and empathic manner and the interpreter is neutral and not related to the examinee or the torturers' community. The time span between the torture event and the examination is often long and details may be hard to recall precisely. Translation during interviews may be imperfect, all of which may explain minor discrepancies in the narrative (**Fig. 23**).

Detailed description of alleged torture and ensuing symptoms and signs substantiates the authenticity of the examinee's history. Peer-reviewing information about physical torture based on a qualitative/semi-quantitative/quantitative multi-step analysis leads to robust credibility assessments (Petersen and Morentin, 2019).



Fig. 20 Deep circumferential lesions of both shins and gangrene with dark discoloration and edema of both feet after lengthy suspension from the ankles. Very high consistency between history and findings and the local context (Kashmir). Reproduced from Petersen, H.D., Vedel, O.M., 1994. Assessment of evidence of human rights violations in Kashmir. *Forensic Sci. Int.* 68, 103–115.

Ultimately, it is the overall evaluation of all physical and psychological aspects of the examination that forms the basis for the global conclusion that may be classified as indicated in **Table 2**.

If the physical and the psychological assessment are performed separately it must be the highest level of consistency of the two assessments that prevails in the overall conclusion (Petersen and Morentin, 2019).

Medical forensic documents concerning allegations of torture can be of poor quality (UN, 2004; Miles, 2020) for different reasons, e.g., lack of training, fear of repression in case torture is documented and lack of neutrality (cf. under medical ethics), underlining the need for training and professional independence of doctors working in places of detention. The problematic medical reporting of torture is probably widespread but only systematically documented in a few cases such as in Turkey (Iacopino et.al. 1996) and in Spain (CPT. The Committee for the Prevention of Torture and Cruel, Inhuman and Degrading Treatment or Punishment, 1996a,b,c). Evaluation of a large number of medical documents from Spanish police stations showed flaws in most documents regarding all four basic elements: (1) the history about torture, (2) description of symptoms (3) description of findings, and (4) the conclusion (Morentin *et al.*, 2008).

Medical Ethics

In many countries police and prison doctors examine detainees upon arrival to the institution and later during detention. In theory such examinations, which should include documentation of torture, are important means to prevent torture and fight impunity, provided that the examinations are of good quality and that documentation of torture will have legal consequences for implicated officers and the institution. In this key role doctors may be threatened to cover-up facts about torture, and they may be dismissed or abused if they do not comply. Detainees may be threatened with further torture if they tell the doctor about torture and punished if they do so or if the doctor document evidence of torture (Iacopino *et al.*, 1996).

Health professionals may be directly or indirectly complicit in torture (Miles, 2020). They may.

- design torture programs,
- participate in torture, inclusive performing amputations as punishment,
- neglect to take steps to stop ongoing torture,

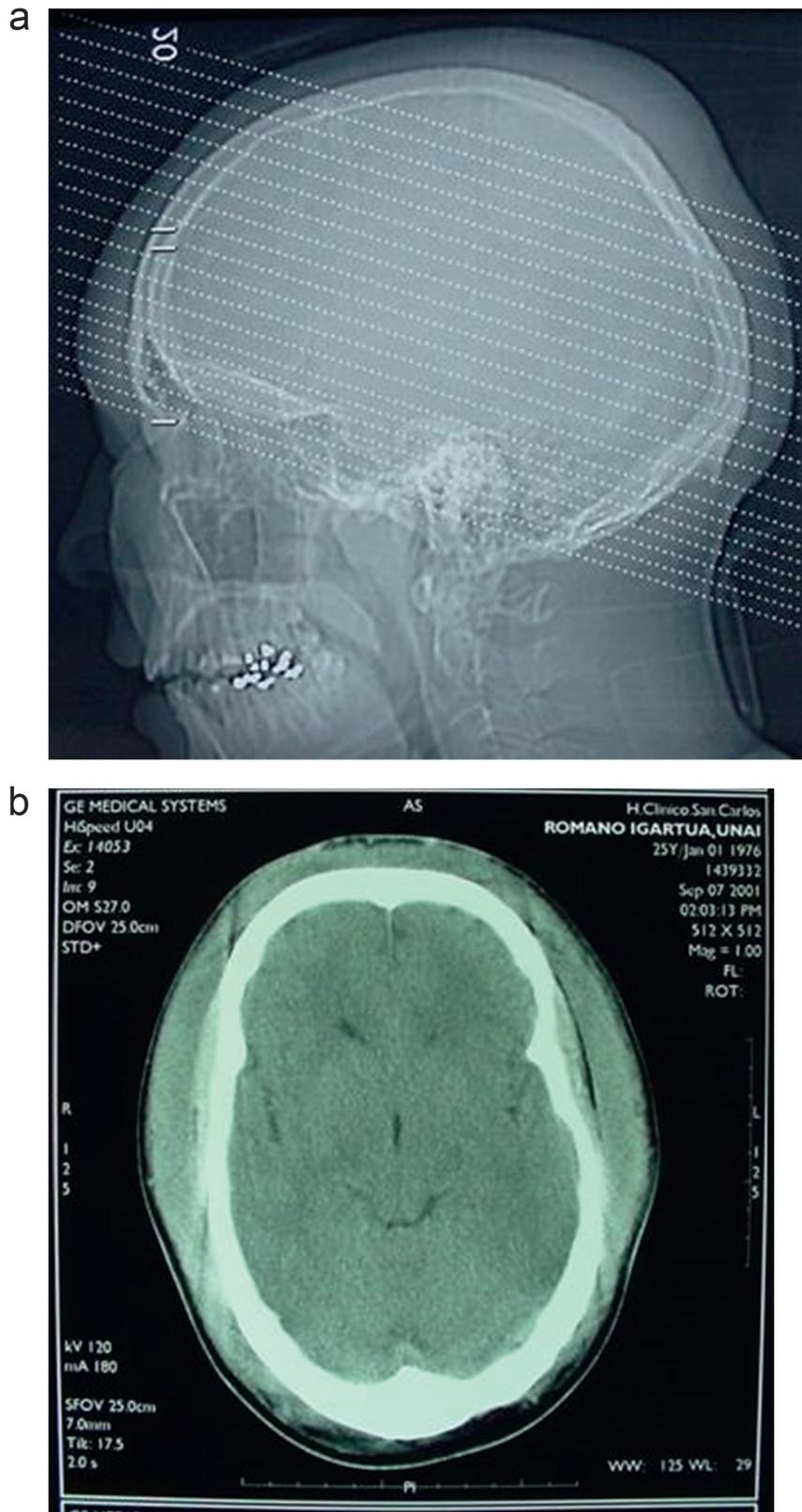


Fig. 21 a & b. Young Basque (same as in Fig. 15) allegedly tortured by the Guardia Civil with dry submarine, electricity, forced physical exercise, hooding, and violent repetitive blows with unidentified objects to the skull, but not the face. CT profile (a) shows severe subcutaneous edema/hematoma, most pronounced frontally and occipitally; (b) shows severe diffuse inhomogeneous brain edema. Very high consistency between history and clinical (Fig. 15) as well as paraclinical findings.

Table 1 Classification of consistency between torture history and the characteristics of the individual lesion

<i>Level of consistency</i>	<i>Agreement between history and findings</i>	<i>Nature and/or localization of findings</i>	<i>Specificity of findings</i>
Not consistent	No	Lesion or absence of lesion not compatible with the alleged torture history	Not relevant
Consistent	Yes	Unspecific lesion compatible with the alleged torture history	Many other causes than the alleged torture are possible
Highly consistent	Yes	Remarkable or typical lesion after the alleged form of torture	A few other causes than the alleged torture are possible
Very highly consistent	Yes	Very remarkable and typical lesion after the alleged form of torture	Other cause than the alleged torture is hardly possible

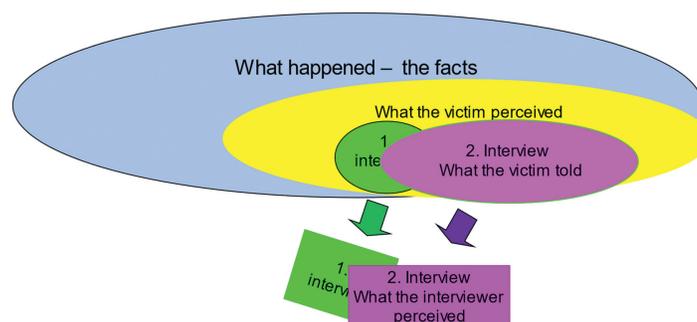
**Fig. 22** Crust covered linear excoriations self-inflicted with a buckle of a belt. Right-handed person. Very high consistency between history and findings.**Fig. 23** The blue area represents all events during torture; the yellow area represents what the victim perceived; many details were not captured, and some were misinterpreted, which is why it is smaller, and the overlap is incomplete. In a first interview many details may be concealed or not recalled, cf. text, which may be less pronounced in a second interview revealing more details; the history from two examinations may differ. The interviewer may not understand everything right leading to discrepancies between what was told and what comes out in the report. A health focused interview may come out different from an interview focused on legal aspects. Two interviews may have differences, which does not necessarily indicate untrustworthiness. However, discrepancies should be explored with the examinee for possible explanations.

Table 2 Classification of the level of global consistency between torture history and findings

<i>Level of consistency</i>	<i>Agreement between torture history, symptoms and findings</i>	<i>Exploration of disagreements/ discrepancies</i>	<i>Specificity of physical and psychological findings</i>	<i>Level of details in history</i>
Not consistent	Many or serious ^a disagreements	Further questioning does not explain all serious discrepancies/most of the minor ones	None or unspecific or inconsistent findings	Not relevant
Consistent	Eventually some minor discrepancies	Most discrepancies can be elucidated with further questioning	None or unspecific findings	Not very detailed
Highly consistent	Eventually a few minor discrepancies	All discrepancies can be elucidated with further questioning	Some typical findings. A few other causes than torture may be possible	Detailed history with significant particulars
Very highly consistent	Eventually a few minor discrepancies	All discrepancies can be elucidated with further questioning	Significant findings that hardly can be attributed to anything, but torture as reported	Very detailed history with significant particulars

^ae.g., absence of lesions from alleged traumas that would cause full skin injury.

- accept the (intimidating) presence of police officers during medical examinations,
- hand over medical reports to interrogators who can use them to exploit prisoners' weaknesses and vulnerabilities,
- treat torture victims at the instigation of torturers in order to achieve fitness for more torture,
- omit to inform higher authorities about evidence of torture,
- falsify death certificates or medical documents omitting evidence of torture,
- issue certificates of fitness for isolation or torture/flogging, and/or
- deny existence of torture where it takes place thereby manipulating the public opinion.

There are numerous examples from many countries of various forms of medical complicity in torture (e.g., Miles, 2020).

The UN Standard Minimum Rules for the Treatment of Prisoners (UN, 2015) specify that prison doctors shall have full clinical independence and keep medical files confidential. Clinical decisions may not be overruled by other staffs. Doctors shall identify torture and ill-treatment and report it to higher authorities. Proper procedural safeguards shall be followed in order not to expose the prisoner or others to foreseeable risks. The prohibition for health professionals to engage, actively or passively, in torture and ill-treatment is absolute.

Evidently, some situations in very repressive settings may be difficult for the individual doctor to handle. An example of an ethical dilemma is the situation where a victim requests treatment of injuries caused by torture risking becoming fit for more torture. Another ethical dilemma for a state employed doctor is the clash between the patient's interests and institutional interests/ the common good for the state. The function as carer for a patient and the function as forensic doctor should be clearly separated and the person must be fully informed about the nature of all interventions, their purposes, benefits, and risks. Any procedure for the benefit of the health of a patient must be done with informed consent.

In case of doubt whether a procedure contravenes international standards, the doctor should seek advice and support from national or international medical associations or human rights institutions. In case of the dilemma regarding treatment of the injured victim where time constraints impede consultations, a pragmatic solution could be to give the needed treatment and report the case to higher authorities, medical associations and human rights institutions - all of this with informed consent and the information provided should include the risk of reprisals/further torture if relevant.

Conclusion

Torture is still widespread, but it is becoming more sophisticated with the purpose of obliterating the victims physical and mental capacity, will, and judgement without leaving physical marks. Physical torture always has psychological components. Physical torture methods are numerous and diverse; practically anything may happen, and any part of the body may be injured.

Forensic medical-psychological assessment of allegations of torture and clinical findings are important in many contexts. Such assessment should follow the guidelines of the UN Istanbul Protocol. A full assessment must comprise both physical and psychological aspects.

When assessing the history of torture information about the local pattern should be considered. The most prominent physical symptom is acute and chronic pain that may have characteristic features. Some physical findings may strongly corroborate the consistency of torture allegations, but most are unspecific. The history of physical torture, ensuing symptoms and the clinical findings, together with psychological aspects, constitute the fundament for the assessment of torture allegations. Many personal, social, environmental, physical and psychological health factors complicate this assessment.

Absence of lesions does not prove that physical torture did not take place.

Health professionals are bound by international law and ethical codes not to take part in torture in any way. Nevertheless, some health professionals are directly or indirectly involved in torture.

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