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The Newsletter of the International Academy of Legal Medicine

Dear Members,

After the introduction of the document: "Teaching of Legal Medicine to medical undergraduate students (The "Perugia document" as modified in Cologne in July 1992)" in our previous Newsletter 2·95, we continue with the introduction of the next ECLM document: "*Harmonisation of the Performance of the Medicolegal Autopsy*". Because the space available for us is limited we will not be able to give the complete document here. Hence, the last part of it: "Addendum" will appear in the next Newsletter together with the third and last of the ECLM documents "*Syllabus of Postgraduate Specialisation in Legal Medicine*".

Prof. P. Saukko, Secretary of IALM,
Editor of the IALM Newsletter

Contributions to this Newsletter should be sent to: Professor P. Saukko, Department of Forensic Medicine, University of Turku, Kiinamyllynkatu 10, FIN-20520, Finland; Tel. (+358)-21-6337543; Fax (+358)-21-6337600; e-mail psaukko@utu.fi

Harmonisation of the performance of the medico-legal autopsy

§ 1 Types of Medico-legal autopsies

The reasons why medico-legal autopsies are instigated can be subdivided into three categories according to their aims:

(1) A primary suspicion of another party's involvement (deliberate or negligent)

(2) A primary aim of identification (mass disasters, human and skeletal remains, etc.)

(3) Exclusion of another party's involvement and/or establishment of the cause of death (e.g. sudden unexpected death, obvious suicide, occupational and traffic death, other accidental deaths, drowning etc.)

Autopsies can also be performed with more than one aim, and transitions between these categories can occur.

§ 2 Specialists involved

To § 1 (1): this type of medico-legal autopsy should preferably be carried out by two experts, at least one of whom should be a qualified medico-legal expert. To § 1 (2) and (3): this type of autopsy can be performed by one expert only.

§ 3 Time of autopsy, storage of the body

In all instances, medico-legal autopsies should be performed without any unnecessary delay and, if a delay is unavoidable, with the body being stored appropriately and in an undisturbed state. The body should not be embalmed. For storage and transportation of bodies and during autopsy procedures, hygienic precautions must be established to protect the staff from the risk of infectious diseases.

The appropriate legal documentation and authorisation for the autopsy should accompany the body and be retained with it.

§ 4 General procedures, circumstances and previous history

(1) The investigation, description, documentation and sampling during a medico-legal autopsy must follow medical principles with due consideration for local judicial requirements and procedures

(2) Whenever possible the pathologist(s) should be precisely and comprehensively informed of the weapons and/or mechanisms that may have been involved in the causation of death. This would include data concerning the site where the body was found and circumstantial factors such as clothing, furniture, etc. Especially when homicide is suspected, knowledge of all such facts should be a basic and regular component of the procedure. Particularly important in the last instance is the inspection of the scene of crime and the distribution of biological stains.

(3) Examinations to estimate the time of death must be performed immediately after the finding of the body and must be fully documented.

(4) All findings and both positive and negative information relevant to the case must be fully documented and complemented by other appropriate methods and investigations (photographs, drawings, X-rays, etc.).

(5) Identification of the deceased must be carefully checked and documented.

§ 5 External examination

(1) Examination of the clothing is an essential part of the external examination and all findings therein must be clearly described. This is especially important in cases where the clothing has been damaged or soiled: each area of recent damage (tears, cuts, specifically shaped blood stains, areas soaked with blood, etc.) must be fully described and relevant findings must be physically related to the sites of any injuries on the corpse. Discrepancies in such findings should also be described.

(2) The description of the corpse should include:

- Age, sex, build, height and weight (measured); nutritional state, skin colour, special characteristics (e.g. ulcers, scars, tattoos, amputations, malformations).
- Signs of death and their patterns (including details relative to rigor and livor mortis distribution, intensity, colour and reversibility , and putrefaction) and environmentally induced changes.
- The findings on a primary external inspection and description which, if required should include sampling of stains and other trace evidence on the body surface (faeces, blood, hairs, body fluids, etc.), and a re-inspection after removal and cleaning of the body.
- Inspection of the skin of the posterior surfaces of the corpse.
- Description and careful investigation of the head and the facial orifices must include: colour, length, density of hair (head and beard); nasal skeleton; oral mucosa, dentition and tongue; ears, retro-auricular areas and external meati; eyes: colour, regularity and width of pupils, sclerae, conjunctivae, palpebral skin (presence and absence of petechiae to be described); if fluids have been evacuated from facial orifices, their colour and odour.
- Neck: excessive mobility; presence and absence of abrasions, other marks and bruising (including petechiae) after checking circumferentially.
- Thorax: shape and stability, breasts, their shape, nipples, pigmentations, etc.
- Abdomen: external bulging, pigmentation, scars, abnormalities, bruising, etc..
- Genitalia and anus.
- Extremities: their shape and abnormal mobility, abnormalities; injection marks and scars; palmar surfaces; finger- and toenails.

(3) All injuries, including abrasions, bruises and also other marks (including tattoos) must be described by shape, exact measurement, direction, edges, angles and location relative to anatomical landmarks. Signs of vital reaction around wounds, foreign particles inside wounds and in their surroundings (e.g. powder particles), and secondary reactions such as discoloration, healing, infections must also be included. The description of cutaneous/subcutaneous bruising necessitates local skin incision. Where appropriate specimens from wounds should be removed for further investigations (e.g. histochemistry, immunohistochemistry).

(4) All signs of recent or old medical and surgical intervention and resuscitation must be described (e.g. surgical wounds, drainage marks, intravenous catheters, pacemakers, etc.).

(5) A decision should be made at this stage on the preferential strategies of investigation and the necessity of documentation by X-ray and other imaging procedures. Such investigations should be performed prior to dissection.

(6) Before the dissection is started all body orifices should be appropriately swabbed if this is necessary.

§ 6 Internal investigation

A. GENERAL

(1) All relevant artefacts which would be produced by the invasive investigative procedures (such as incisions) must be documented.

(2) Body walls and cavities
All three body cavities - head, thorax and abdomen - must be opened layer by layer. In addition the vertebral canal and/or joint cavities must be examined in relevant situations;

Examination and description of the body cavities must include: an examination for the presence of gas, measurement of volumes of fluids and blood; appearance of internal surfaces; intactness of anatomical boundaries; external appearance of organs and their location; adhesions and cavity obliterations; injuries and haemorrhages;

The 'in situ' demonstration and dissection of the soft tissues and musculature of the neck is a routine component of all medico-legal autopsies;

(3) Internal organs
All organs must be examined and sliced following established guidelines of pathological anatomy. If injuries are present the dissection procedure may have to vary from that in routine usage: this must be appropriately described and documented.

All lesions and injuries must be precisely described as to size and location, as must injury tracks, including the direction of the latter relative to the organ anatomy. The weight of organs should be listed.

B. DETAILED

(1) Head
Before opening of the skull, the periosteum must be scraped to show the presence or absence of any fractures/fissures; the head examination procedure must allow the inspection and description of the scalp, external and internal surfaces of the skull and of the temporal muscles. The thickness and appearances of the skull bones and sutures, the appearances of the meninges, the cerebrospinal fluid (CSF), the wall structure and contents of cerebral arteries and sinuses must also be described. The description of the bones should also include an examination of their intactness, including the connection between the skull and the first two vertebrae;

In selected cases (e.g. if a detailed examination is required or if autolysis is present) fixation of the whole brain is strongly recommended before its dissection;

The nasal sinuses and middle ears must be opened routinely according to the standard procedure;

The soft tissues and skeleton of the face should be dissected only when absolutely necessary and the technique selected must allow a cosmetically acceptable results.

(2) Thorax
The procedure applied for opening/preparation of the thorax must be performed using a technique which allows inspection of all its walls, including the postero-lateral regions.

(3) Abdomen
The procedure applied for opening/preparation of the abdomen must allow accurate examination of all layers of the walls, including the postero-lateral regions.

§ 7 Skeleton

Examination of the rib cage, the spine and the pelvis is part of the routine procedure.

Traumatic deaths necessitate precise dissection of the extremities, possibly complemented by X-ray examination.

§ 8 Special procedures

If there is any suspicion that pressure has been applied to the neck, the thoracic organs must be removed prior to dissection of the neck and after removal of the brains, to enable the neck dissection to take place in a bloodless field.

If there is any suspicion of air embolism, radiology should be considered. At autopsy the first step in such cases must be a careful partial opening of the thorax and dislocation of the lower three-quarters of the sternum with subsequent opening of the heart under water, allowing measurement and sampling of exiting air/gas.

For the demonstration of particular injury patterns, deviations from the normal procedure of dissection and preparation are acceptable (e.g. dorsal or dorsolateral opening of a cavity) - such procedures should be specifically mentioned in the written protocol;

In practically all cases of traumatic death the dissection must include a full exposure of the soft tissues and musculature on the back of the body. The same procedure is to be applied to the upper extremities (so-called peel off procedure), especially in all homicides, and to the lower extremities, especially traffic accidents.

In cases of suspected or overt sexual assault, the sexual organs must be removed "en bloc" together with the external genitalia, rectum and anus, before they are dissected. Relevant swabs of orifices and cavities should be taken prior to this procedure.

§ 9 Sampling

The scope of the sampling procedure is heavily case-dependent. It is difficult to produce strict guidelines for sampling, and these might have to be changed in the light of future developments. The general requirements are:

- the basic sampling scheme should include: specimens from the main organs for histology and peripheral blood sampling (e.g. alcohol, drugs, serology);
- if the cause of death cannot be established with any certainty, sampling should include specimens and fluid(s) for toxicology;

- if death is related to physical violence (gunshot injury, wounding, blunt violence), sampling should include the injuries, e.g. to determine the age of the wound and any foreign bodies in the wounds.
- if reconstructions are desirable, the removal of bones and osseous compartments may become necessary;
- if identification is the predominant aim, the removal of jaws and/or other bones may be necessary;
- if strangulation or the application of physical force to the neck is suspected or diagnosed, the entire block of neck structures, musculature and neurovascular bundles of this block should be preserved in case histology is required. The hyoid bone and the laryngeal cartilages must be dissected with great care;
- if intoxication is suspected see the procedure in addendum should be followed.

§ 10 Layout of the Autopsy Protocol / Report

(1) Preamble to include administrative features

(2) Identification procedures

(3) External examination (dressed, undressed, uncleaned, cleaned etc.)

(4) Internal examination (head, thoracic and abdominal cavities, soft tissues of the neck, thoracic and neck organs, abdominal organs, skeleton and soft tissues, organ weights)

(5) Preliminary expertise:

(5.1) Previous history, police report, death certificate information, findings at scene
(5.2) Autopsy diagnosis and cause of death
(5.3) Evaluation of all relevant findings
(5.4) Advice and authorisation for further investigations
(5.5) Sampling list
(5.6) Possible objections to cremation