

**HARMONISATION OF MEDICO-LEGAL AUTOPSY RULES IN EU -
RECOMMENDATION No. R (99) 3
Part 5**

Appendix to Recommendation No. R (99) 3

Specific procedures (selected examples)

1. Constriction of neck (hanging, manual and ligature strangulation)

The examination of the scene where the body was found is extremely important: for example the presence of a chair or similar platform; fastening of the strangulation device; technique of tying of the knot; adhesive taping of hands and objects for trace evidence:

- Strangulation marks: depth, width, intermediate rings, direction, suspension point, raised ridges of skin, zones of hyperaemia, presence of duplicate strangulation marks; further specific neck injuries: dried excoriations due to slippage of the implement, marks due to textile weave pattern and structure, distribution of petechiae in the skin, bruising, scratch marks, blisters in the strangulation mark.
- Bleeding from facial orifices.
- Differences in widths of the pupils, localization of hypostasis, presence and distribution of congestion.
- Injuries due to convulsions, defensive injuries, injuries due to being held forcibly.

Dissection of the soft tissues, of the musculature and of the organs of the neck in a bloodless field is essential.

2. Drowning / Immersion

Note carefully the following findings: foam at the mouth, cutis anserina, maceration, mud and algae, lesions due to water animals, injuries due to surroundings (for example rocks and ships), loss of nails, skin, localization of livor mortis.

Technique: sampling of gastric contents, precise description of the lungs (weight, measurement, extent of emphysema), sampling, lung fluid, liver and other tissues, for the possible demonstration of diatoms and other contaminants.

If required, sampling of drowning medium (for example river, bath water) should be carried out.

3. Sexually motivated murder

The inspection and documentation of the scene of crime, e.g. relative to the injury pattern, is especially important. All injuries must be photographed together with a scale. If required, the body surfaces must be investigated under UV light and taped. Search for and sampling of foreign biological material must include pubic hairs and secretions on the body surface as for instance originating from bites. Such material must be preserved carefully for DNA investigation and protected against contamination. "En bloc" dissection of the genital organs is strongly recommended. It is also necessary to proceed to the careful removal and sampling of material under the fingernails and control hairs.

4. Death from child abuse and neglect

State of nutrition and general care, thorough description and documentation of external injuries and scars, thorough examination for bone fractures (X-ray), must be evaluated.

Consider the removal of a variety of tissues: for example all injuries, regional lymph nodes in malnutrition, endocrine organs, immuno-competent tissues, specimens from different parts of the intestine.

5. Infanticide / still-birth

Special techniques of dissection are necessary to expose the falx cerebri and the tentorium cerebelli; describe the site of caput succedaneum; remove all fractures "en bloc"; investigate all bone

centres of ossification (size and presence). Special care is to be applied to the thoracic organs: degree of inflation of the lungs, flotation test "en bloc" and "en detail". However, the limitations of the flotation test must be appreciated. All malformations must be described. As regards abdominal organs, gas content of the intestine must be investigated. The umbilical cord and the placenta must be subject to morphological and histological examination.

6. Sudden death

A subdivision into three main categories relative to the further strategy after gross examination is useful:

- a. findings that obviously explain the sudden occurrence of death (for example haemopericardium, aortic rupture). Cases belonging to this category can usually be regarded as sufficiently solved;
- b. findings that could explain the death but allow other explanations. Cases belonging to this category necessitate the exclusion of, for example, poisoning and possibly histological proof of recent or chronic alterations relative to the cause of death;
- c. findings are either nil/minimal or do not explain the occurrence of death. Cases belonging to this category will usually require extensive further investigations. This is especially so with sudden infant death cases. In such cases a more comprehensive investigative scheme is essential.

7. Shooting fatalities

The following should be carried out:

- extensive account on the scene of the incident, of weapons involved, of types of bullets, of sites of "environmental" damage, of cartridge cases and of relative positions of persons involved;
- thorough examination of the clothing and description of relevant damage and careful sampling;
- thorough investigation and documentation of any blood (splashes) on the body surfaces (including clothing and hands);
- precise description of bullet entry and exit wounds relative to anatomical landmarks and distances from the soles of the feet and bullet tracks within the body;
- description of any impression marks of the muzzle;
- excision of uncleaned skin specimens surrounding entry and exit wounds;
- X-ray before and/or during autopsy (where necessary);
- determination of bullet tracks and their direction(s);
- final determination of direction(s) of fire, of the succession of shots, of intra-vital occurrence, of the victim's position (s).

8. Death caused by explosive devices

- a. As well as evaluating the cause of death, autopsy is essential to assist in reconstructing the nature of the explosion and identifying the type and maker of the explosive device, especially in aircraft sabotage or other terrorist actions.
- b. Full X-ray of the body must be made to detect and localise any metallic objects, such as detonator components, which may lead to the identification of the explosive device.
- c. The pattern of injury may indicate that the dead person was a perpetrator of the explosion, for example maximum injury in the lower abdominal region suggests that he or she carried the device on his or her lap during a premature explosion.
- d. At autopsy, all foreign objects in the tissues, identified on X-rays, must be carefully preserved for forensic examination.
- e. Samples of tissues, clothing, etc., must be retained for chemical analysis to identify the type of explosive.

9. Blunt and/or sharp force injuries

The following should be carried out:

- examination of the weapons or objects that are possibly involved (especially their dimensions);
- extensive examination and inspection of clothing (including damage, stains);
- careful dissection and description of all tracks (layer by layer) including their dimensions and weapon-related traces, signs of vitality.

10. Fire Deaths

The following should be carried out:

- examination of remains of clothing, - specific types and shapes of skin combustions;
- search for heat-related alterations and peculiarities;
- demonstration/exclusion of fire accelerants;
- search for signs of vitality: carbon monoxide, HCN, soot inhalation, skin lesions.

11. Suspicion of intoxication (General Outlines)

11. 1. Where anatomical findings do not reveal a cause of death and/or there is vague suspicion of poisoning, basic sampling should include peripheral blood, urine, stomach contents, bile, liver and kidney.

11.2. If specific suspicion arises, sampling should be group-related as follows:

- hypnotics, sedatives, psycho-active drugs, cardiac drugs and analgesics, pesticides: as aforementioned under (11.1);
- drugs of abuse: as aforementioned under (11.1) and additionally cerebrospinal fluid, brain tissue, injection marks, hairs;
- volatile fat-soluble substances such as fire accelerant and solvents: as aforementioned under (11.1) and in addition: blood from left ventricle, brain tissue, subcutaneous fat tissue, lung tissue, clothing;
- nutritional intoxication: as aforementioned under (11.1) and in addition: intestinal contents, if possible taken from 3 different sites;
- suspicion of chronic intoxication (heavy metals, drugs, pesticides etc.) as aforementioned under (11.1) and in addition: hairs (tufts), bones, fat tissue, intestinal contents.

12. Decomposed bodies

The presence of decomposition does not remove the need for a full autopsy.

Radiological examination will exclude bony injury, the presence of foreign bodies, for example bullets.

Toxicological studies (particularly estimation of alcohol concentrations) should be carried out but interpreted with great caution.