

MEDICOLEGAL EXAMINATION OF MATERIAL EVIDENCES

Lecturer

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According to the 78th clause of Ukraine Criminal Code the material evidences are the objects that were used as the implements of crime and remained its signs of a crime; it is also any other object of criminal acts, money, jewels and other things, that were got through the criminal acts, and also all the objects, that will assist the exposure of a crime and find out the guiltiest, or they can be the means of refutation or extenuation (mitigation) the amenability.

Forensic medical examination of the material evidences is made only by doctors, which have not only general forensic medical training, but also a special theoretical and practical training in forensic medical analysis of material evidences.

According to the clause 75 of CC of Ukraine, doctor as a specialist can be drawn to the examination of the scene of a crime. In this case a doctor should help the investigator to disclose the material evidences, to withdraw them, describe, pack them and send to the forensic immunological department of the forensic medical bureau.

Blood examination.

Each blood track can indicate the mechanism of its production and do some an extent to reflect the circumstances of a crime. Depending on the shape, size and peculiarities the blood can be:

- 1) gouts, that is from falling on the horizontal plane;
- 2) spouts;
- 3) splashes – spots from the falling of the blood drops on the inclined plane;
- 4) bots and dabs;
- 5) imprints (of fingers, soles and other things);
- 6) spots that trickle through different objects;
- 7) blood puddles;
- 8) blood marks in liquids, which were used to clear it.

Very often such questions are raised before forensic medical examinations:

- 1) is there blood in a spot;
- 2) if there is blood in spot, whom does it belong- to a human or an animal;
- 3) individual blood group;
- 4) dripped out blood;
- 5) sex group;
- 6) regional origin of blood;
- 7) newborn's or adult's blood;
- 8) remoteness of spots's appearance.

Blood spots. Rounded shape of the sports shows that blood drops were falling on the horizontal plane; the degree of losing of its borders dependents on the neight of the fall. In the case of falling the drops on the inclined plane or under the acute angle, the spots in the from of splashes appear and they have a form of exclamation mark, or pyriform (pear-shaped), the narrow end of which is durned to the direction of the drop's falling.

Blood sponts. They appear in the cases, when the blood flows on the vertical surface or inclined plane. The upper part of the drakes is nider and lighter, while the lower one is narrower and darker due do the bigger thickness, sometimes it ends with the dry drops. By the directions of the spounds one can define the position of the victim after a trauma and also the succession (consecution) of wounds.

Imprinds of the blooded hands, feet, soles – are the marks that reflect (repeat) the form, relief or other peculiarities of the object that touched any surface.

Blod slops affirm a big bleeding and keep on the horizontal surfaces that do not absorb a moisture. Blood tracs can have a dark-red, brown-red, amber or brown-amber colour depending on the remotenessof its appearance and the actions of environmental factors. If the blood marks ungerwent any physical or chemical actions to its destructions or concealment of a crime, they can become yellow, grey and even black.

To settle the question about the presents of blood, the preceting (tentative) and conclusive (evidential) testing are used.

Preceding testing:

- 1) testing with hydrogen peroxide;
- 2) testing with benzidine;
- 3) testing with luminal;

4) examination in ultraviolet rays (irradiation).

Conclusive testing:

- 1) spectrum analysis;
- 2) microcrystalline reactions.

The percent of precise expert conclusions as for exclusion of possible paternity is in direct proportion to the scope of research works. The basis of expert conclusions about the paternity is the analysis of the complex of characteristics genetic determinancy of blood systems, its qualitative invariability during the whole period of life, its self independence, the time of blood system formation till the birth of a child etc. The accuracy is considered to be 99.9%.

Hair examination.

The exposed hair and selected samples are packed in a special envelope (cover), where it should be mentioned the object, by whom and when it was withdrawn, and then together with investigation officer's resolution this envelope is sent to the forensic immunological department of the forensic medical analysis bureau to solving the following questions:

- 1) whether this object is hair;
- 2) whether this hair belongs to a human or an animal;
- 3) if it is animal, what animal;
- 4) if it is human hair, what part of human body does it belong to;
- 5) whether it is came out or pulled out;
- 6) whether the influence of environmental factors was observed;
- 7) group and sex belonging of the hair;
- 8) possible parentage of the hair from a particular person.

The main method of hair examination is microscopic investigation, which helps to study its structure, cuticle of hair, lesions; peculiarities of cross-cuts; and to carry out the comparative investigations. After the object is proved to be a hair, its type is usually being defined. It should be taken into consideration, that the human hair and animal one differ in the structure and correlation of all the layers. The human cuticle of hair consist of the small, thin and close adjoining cells. The optic border of it is legible, flat (straight), with the feebly marked cogs. The cuticle's picture is complicated, it makes loops and zigzags. The cuticle of the human hair is considered to be the main mass, medullary substance is narrow, and rended in some areas, it can also not be found. The proportion of the cortex and core is 8:1.

During the defining of the regional origin of the hair usually they pay attention to the length of hair, its thickness, shape of cross section. To solve the question whether the hair is came out or pulled out, usually its bulb is examined. Came out hair has keratinized and wrinkles bulb and it has a shape of retort (flask), and no vaginal capsules. Sexual belonging of hair is identified by the growing of sex chromatin (Barr's bodies and Bertram's bodies) in the nucleus of vaginal capsules of the pulled out hair.

Sperm examination.

Forensic medical examination of sperm marks is conducted under the examination, connected with the investigation of sex crimes. These tracks (marks) can be found on the body of a victim, and also on the other objects of a scene of a crime. Smears, taken from vagina and rectum are also examined.

During the sperm examination the forensic medical analysis give the answer on the following questions:

- 1) If there is sperm on the material evidences;
- 2) Its group belongin;
- 3) Can this sperm belong to the defendant (accused).

The majority of men during the ejaculation excrete about 4-5 ml. of sperm, sometimes 10 ml and more; and sometimes - even 0.2-0.5ml. spermatozoon consists of 3 parts: head, cervix (collum) and tail. The length of spermatozoon is 52- 62 mkm. Its mobility is stipulated by the contraction of a tail. On a scene of a crime the object, where sperm tracks can be found, are examined with the naked eye and with the help of a loupe.

If the sperm tracks are too or they are placed on the dirty objects, the ultraviolet irradiation method can be used. If it is necessary to examine the content of a vagina to define the presence of sperm, it should be taken into consideration the fact, that spermatozoon remain there in general to 7 days depending on the reaction of vaginal medium, activity of microflora and ferments. In the vaginal medium of a dead body the duration of sperm preservation is bigger (about 2 months) because of cessation of ferment's action.