

Fatal wounds due to usage of pneumatic weapon with bullets of Flaubert type caliber 4mm

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Abstract

Taking into consideration the increased demand and prevalence of issuing permits for unrestricted usage of weapons with bullets of Flaubert type caliber 4mm for self-protection, the number of investigations of fatal wounds due to application of this type of weapon has been recently constantly increasing.

Keywords: Flaubert, bullet, death, fatal wound

Smrteľné zranenie pri použití plynovej pištole s nábojmi typu Flaubert kaliber 4 mm

Abstrakt

Vzhľadom k vzrastajúcej požiadavke a prevahe povolení použitia zbrane pre sabaobranu s nábojmi typu Flaubert kaliber 4 mm, došlo nedávno k nárastu vyšetrení smrteľných zranení spôsobených kalibrom tohoto typu.

Kľúčové slová: Flaubert, náboj, smrť, smrteľné zranenie

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Introduction

Nowadays in our country means of individual defense which do not require appropriate registration in law enforcement are more common and popular. In particular, bullet of Flaubert type revolvers (of ring flash) which are classified as Airguns Weapon Type according to the Law of Ukraine on arms are of particular interest. Airguns Weapon Type is understood as hand guns, which discharge bullets by means of the pressure of embossed air or another gas. Such weapon, according to the manufacturers, is designed for training shooting outside special areas and sites (shooting ranges etc.). The most popular for usage are bullets of ring flash caliber 4mm (mainly lange, less typically – kurz, manufactured by Dynamit Nobel (Germany) and Selier & Bellot (Czech Republic), which do not belong to the category of ammunition and can't be recognized as firearm.

Characteristics of the cartridge of the bullet "4 mm long" are the following (Figure 1): bullet mass – 0.005 kg; diameter of the bullet's front part – 4.3 mm; cartridge length – 10.5 mm; muff length – 8.5 mm; bullet specific kinetic energy at a distance of 1.0 m –

no more than 0.5 J/mm². Above-mentioned characteristics do not meet the definition of a firearm as an autonomous energy of the bullet at 1 m does not exceed 0.5 J/mm². According to the experimental researches conducted by the experts of Lugansk Forensic Center of the Ministry of Internal Affairs of Ukraine the maximum kinetic energy as a result of the experimental fire was recorded at the level of 0.53 J/mm² that provides a formal basis to recognize the revolvers of caliber 4 mm (Flaubert type) as firearms. With the aim of a comprehensive and objective investigation of the degree of striking ability of the ring flash bullets of Flaubert type caliber 4 mm comprehensive biomedical and forensic surveys were conducted by the Ministry of Internal Affairs of Ukraine together with the forensic medical experts of Department of forensic examination of the corpses of Kiev bureau of forensic medicine, which gave opportunity to register the average figures of the specific kinetic energy in the range of 0.34-0.47 J/mm², and the formation as a result of their application of injuries of different degrees of severity on the bodies of the corpses.



Fig. 1. Cartridge of the bullet of Flaubert type
"4 mm long"

The investigation was **aimed** at the detailed analysis of the case report as for the possibility of the appearance of body injuries, which according to the basis of "danger to life" belong to severe body injury, due to the exposure of airgun of bullets type Flaubert caliber 4mm. The topicality of the survey was conditioned by the fact that similar cases are rare in everyday practice of the Department of forensic examination of corpses, but can be more commonly found in the practice of the Department of victims, defendants and others.

Methods

A case report of the Department of forensic examination of corpses of Chernivtsi regional bureau of forensic medicine was analyzed. A corpse N., 1940 year of birth, was sent by the experts of Chernivtsi Regional Department of Ministry of Internal Affairs of Ukraine for the forensic medical autopsy. The known circumstances of the event and the results of the scene of death inspection were the following: "according to the words of his wife the corpse was found on the threshold of his own house in a sitting position, with his trunk and head bent to the front, with his upper limbs arranged in front of the body with the revolver in the left hand". 6 used cartridges of bullets caliber 4mm were found near the body. According to the Order №6 dated from 17.01.1995 "About development and improvement of the forensic service of Ukraine" the autopsy of the corpse was conducted and the samples of the received material were collected for the further criminalistics and forensic-histological researchers.

Results

After conduction of the above-mentioned external and internal forensic research of the corpse N., 1940

year of birth, the following injuries were detected: the wound of the left temporal area of the head at the distance of 6.3 cm from the left edge of the eyebrow and at the distance of 10.7 cm from the left mandibular angle with relatively straight non-comparable dense abrasive dried edges of round shape, with circular band of severe abrasion to 0.1 cm, with tissue defect in its central part; wound was of 0.5 cm in diameter, marked gray-bluish coloration of the skin, with the remains of dry blood. Wound channel of the revealed cutaneous injury of the left temporal area was accompanied by the affection of the following structures: the skin of the left temporal area of the head; subcutaneous fascia; subcutaneous fat; the thickness of the front ear muscles; left temporal muscle fascia; the thickness of the left temporal muscle; outer plate of the left temporal bone with its sequestered fracture of the round shape, 0.5 cm in diameter with relatively smooth edges on the outer plate and the defect of the spongy substance and on the inner plate with its basis rotated to the cranial cavity. We also detected linear rupture of the dura mater with the subdural hemorrhage in the left temporo-parietal area, of dark red, elastic structure, with shiny surface, which is easily decomposed due to compression, not fixed to the dura mater, of 95.0 ml in the volume. In its thickness in the projection of convex surface of the left temporal part of the brain we revealed a soft metallic structure of gray color, round in shape, flattened in the antero-posterior direction, 0.5 cm in diameter, 0.3 cm in width; its wound channel was linear, single, blind all throughout with bleedings in a damaged anatomical structures, clearly directed from left to the right, slightly down, with a total length of 1.3 cm. We also detected hemorrhages under the pia mater of convex and basal surfaces of the left fronto-temporal parts of the brain spreaded to the area of the medulla oblongata on the left, partially left lateral surface of the left hemisphere of the cerebellum, the area of the circle of Willis' artery, interhemispheric surface of parietal and basal regions of the right frontal lobe, 12.0x13.0 cm in size, 2.0 cm in depth, in the left temporal area of the brain; in the thickness of the brain tissue of which marked accumulation of a small number of dot-like hemorrhages of dark red color were found.

The results of the forensic-criminalistics investigations of the left temporal bone indicate the following:

- 1) the injury in a form of the tissue defect of round shape, 0.5 cm in diameter, with irregular, small-jagged, overhanging edges of the external surface, and irregular, crumble shape of the inner surface, 1.0x1.2 cm in size, with irregular sloping walls descended into the lumen of the damage, which is typical for the perforating fracture. Crumble character of the damage of the edges of the inner surface and irregular form of its walls suggest that the traumatic object relatively to the bone fragment was directed

from the side of the external surface, slightly angled, left-to-right and slightly internal (Fig. 2, 3).

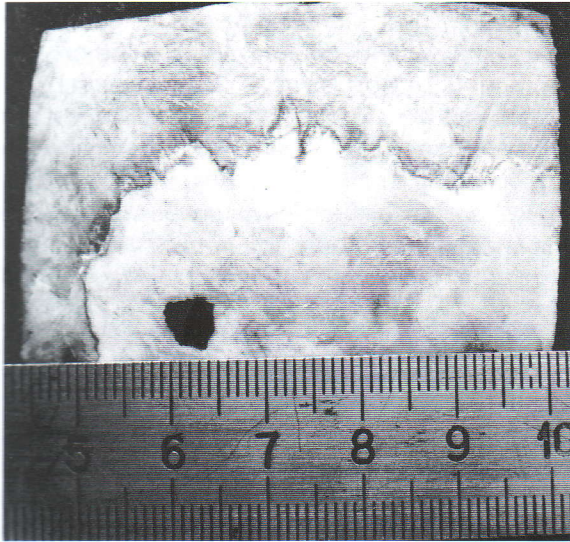


Fig. 2. Bone fragment of the external surface of the left temporal bone

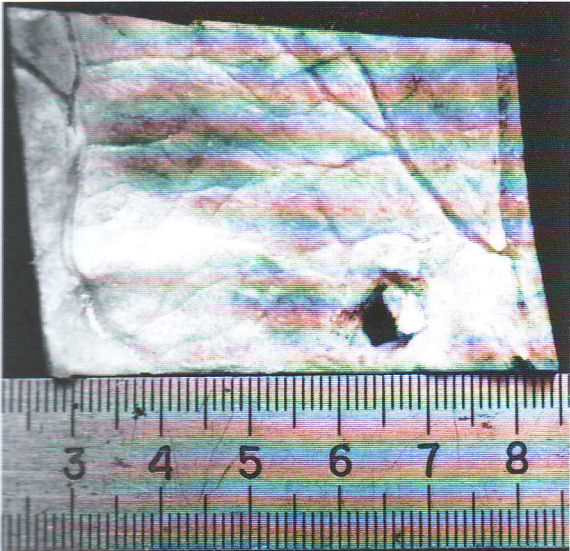


Fig. 3. Bone fragment of the internal surface of the left temporal bone

2) on the investigated fragment of the skin of the left temporal area we found a hole-like injury with the signs of tissue defect of irregular round shape, 0,4x0,4 cm in size, with features of abrasions up to 0,1cm, irregular walls, consisting of crushed cells and belt of metallization about 1,0cm in width which is typical for the incoming gunshot wound.

3) during the investigation of the skin flap in ultraviolet light the radiance in the form of bright white and blue spots, located around the injury like the oil on the background of luminescence dim skin, was detected on its surface.

4) on the received color imprint we detected the brown ring of irregularly rounded form with indistinct outlines of fuzzy dotted patterns corresponding to the projection of location of the parchment stain on the skin, which indicates the presence of trace metals, prints of lead (Fig. 4).

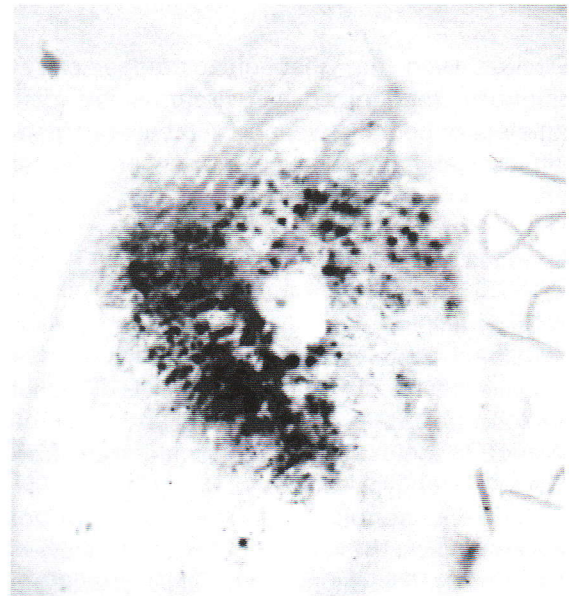


Fig. 4. The parchment stain on the skin, which indicates the presence of trace metals, prints of lead

The results of forensic-histological investigations indicate the subdural hemorrhage, subarachnoid hemorrhage, bleedings in the brain substance, circulatory, degenerative changes in the substance of the brain.

On the basis of the conducted forensic medical investigation of the corpse the following **forensic diagnosis** was established:

Main diagnosis: Fire, bullet, penetrating, blind injury of the left temporal area of the head with the left temporal bone fracture.

Complications: Massive subdural, subarachnoid hemorrhage with the slaughter of the brain substance.

The shot was made in not tight butt, as indicated by the presence of belts of abrasion and rubdown, deposition of the particles of metal oxides and oils on the skin around the wound, the effect of "minus tissue" of the wound entrance of the left temporal area of the head, perforating fracture of the left temporal bone scale, damage of dura mater of the brain, development of the subdural hemorrhage (95ml in volume) and the massive subarachnoid hemorrhage with appearance of the deformed, flattened, lead bullet in the subdural hematoma. The above-described injuries according to the Order №6 dated from 17.01.1995 "About development and improvement of the forensic service of Ukraine" on the basis of "danger to life" belong to severe body injuries.

The above-described case report is of great practical interest in terms of the formation of body injuries, which on the basis of "danger to life" belong to severe body injuries due to the exposure of air gun of bullets type Flaubert caliber 4mm. In the forensic medical diagnosis this fatal injuries was considered as gunshot due to the peculiar characteristics of the gunshot entrance wounds.

Conclusion

Devices with the Flaubert cartridge can't be traditionally recognized as firearms by certain parameters of both the weapon and bullet properties, but in clinical practice such incidences are rarely found.

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