

# A Case of Death as the Result of Firing from Self-Made Firearms

Yu.V. Zbrueva<sup>1</sup>, D.V. Bogomolov<sup>2</sup>, V.A. Putintsev<sup>2</sup>

<sup>1</sup>Federal State Budgetary Institution “Astrakhan State Medical University” of the Ministry of Health of the Russian Federation, Astrakhan, Russia

<sup>2</sup>Federal State Budgetary Institution “Russian Center for Forensic Medical Examination” of the Ministry of Health of the Russian Federation, Moscow, Russia

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## ABSTRACT

Forensic medical examination of a gunshot injury is one of the most difficult types of examinations in the practical work of forensic doctors. The constant improvement of firearms, the emergence of new models of weapons lead to the fact that gunshot injuries at the present stage are characterized by the multiplicity, combination and severity of injuries, the appearance of morphological signs that did not exist before. In the process of expert work, a large amount of knowledge and practical observations has been accumulated regarding the particular characteristics of injuries caused by certain types of hand firearms. Despite this, there are injuries from self-made firearms in practice which cause scientific research interest of both the crime scene investigator and the forensic doctor. Thus, the forensic medical examination of gunshot injuries is one of the most complex types of examinations in the practical work of forensic doctors. This article describes the observation of a study of a corpse

injured as a result of a suicidal act caused by a shot from the self-made firearms. In the research process, standard research methods were used that were used to study corpses with gunshot injuries. New research methods should be applied prospectively for the analysis of such observations.

**Key words:** gun shot injury, self made firearms, forensic medical examination, thanatogenesis, the topic of death coming.

### Correspondence:

Yu. V. Zbrueva  
Federal State Budgetary Institution, Astrakhan State Medical University of the Ministry of Health of the Russian Federation, Astrakhan, Russia

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## INTRODUCTION

Firearm injuries in the structure of violent death occupy an insignificant share. However, their expertise is still complex and not studied to the full, especially in the presence of certain features.

Due to the significant severity of firearm injuries and the specifics of forensic medical examination, a lot of attention should be paid to their study. The constant improvement of firearms, the emergence of new models of weapons lead to the fact that gunshot injuries at the present stage are characterized by the multiplicity, combination and severity of injuries, the appearance of morphological signs that did not exist before. Thus, the forensic medical examination of gunshot injuries is one of the most complex types of examinations in the practical work of forensic doctors.

In recent years, an increase in the number of crimes associated with the use of various types of hand firearms has been observed. Currently, within the forensic examination of a gunshot injury, a large amount of knowledge and practical observations has been accumulated regarding the particular characteristics of injuries caused by certain types of hand firearms. Despite the small percentage of gunshot injuries throughout the Russian Federation as a whole, according to a number of authors, there is a significant increase in gunshot injuries from atypical weapons [1]. Therefore, the necessity for new statistics, the abundance and prevalence of morphological traits of gunshot injuries in the regions of the Russian Federation [3]. As a rule, self-made firearms are made from improvised materials on the simplest equipment. The purpose of our study was in assignment of cause of death in a 47-year-old man who was found at the place of residence with a gunshot injury to his chest.

The methods of research

In writing this work, the results of a forensic medical examination of a corpse were used with application of the

morphological method, namely, sectional and histological, thanatogenetic analysis and the method of assignment of the rate of death.

## RESULTS

According to the examination material, it was established that this citizen committed a suicidal action with the help of atypical firearms. The gunshot object represented a metal tube of cylindrical shape with a truncated cone and a through longitudinal channel having two face free diametrical ends. The length of the object was 113 mm, the width was from 12 to 12.6 mm, the width of the socket hole was from 6 to 5.8 mm. A hammer was used for firing by hitting a metal plate of the face end of an object.

An external examination of the corpse found a rounded injury with a diameter of 0.6 cm, with ragged edges, sheer walls on the front surface of the chest to the left in the 4th intercostal space, 3.5 cm to the left of the midline, the injury contains a zonule of dark gray color along the edge. Between the “3” and “6” hours of the conditional hourplate at the distance of up to 0.3 cm, the skin is dark gray, finely uneven, with punctulate fossae. This injury is surrounded by the ring-shaped abrasion with a diameter of 1.9 cm, a width of 0.2 cm, with a red wet surface, located below the level of the surrounding skin.

An internal study found that there is a apparent dark red hemorrhage with a pinkish tinge on the front surface of the chest on the left in the projection of the injury in the soft tissues on the area sized 9.3 x 11.5 cm. The wound channel runs from front to back, from top to bottom through the soft tissue of the anterior surface of the chest on the left, with damage of the cartilaginous joint of the 4th rib along the parasternal line with the formation of an irregular triangular injury 0.8x0.9 cm in size, with uneven edges and the deposition of the substance of dark gray color (soot) at the edges of injury. When the edges are approximated, a minus

tissue defect is formed, then the wound channel penetrates into the left pleural space, where it passes through the front wall of the upper third of the pericardial sac with the formation of a round injury with a diameter of 0.6 cm. Next, the wound channel passes with through cardiac damage with the formation of wounds round in shape with a diameter of 1.2 cm with small uneven crushed, ragged edges on the front surface of the left ventricle, 10 cm from the apex and 5 cm medial to the left edge of the heart. The wound channel continues through the cavity of the left ventricle, leaves it with the formation of a wound on the posterior wall of the left ventricle 10 cm from the apex and 3 cm medial to the left edge. This wound is of irregular oval shape with a size of 2.0x2.8 cm with small-patched crushed edges, passes with the formation of injury to the lower posterior wall of the pericardial sac, where it forms a round wound with a diameter of 0.7 cm. The wound channel forms injury of the 12th rib on the left the paravertebral line in the form of a small fragment fracture and ends in the soft tissues of the rectus muscle of the back on the left at the level of the 12th thoracic vertebra. At the end of the wound channel, a foreign object of cylindrical shape made of dark gray metal with a height of 12 mm and a diameter of 5.6 mm is noted. One of the ends of a foreign object is sharp, the other one is semicircular. Closer to the flat end, this object has 3 circularly parallel mutually balanced linear sections of the imprint, one of the sides of the foreign object is deformed in the form of a slight flattening. The general direction of the wound channel is from the front to back from the top to bottom. The total length of the wound channel is about 30 cm, along which the apparent hemorrhages of a dark brown color are contained. In the left pleural cavity - about 2200 ml of dark red liquid blood and quaggy dark red clots in approximately the same ratio.

Histologically, a picture of extensive necrosis and acute hemorrhage along the channel both in the soft tissues and in the internal organs was observed. There were also hemorrhages in the soft tissues of the wound channel and foreign particles of black color, the presence of hair with fragments of hair follicles, fragments of bone tissue in soft tissues from the area of the wound channel. Soft tissue arteries in the area of molecular concussion presented a picture of spasm; fatty cysts were observed in the subcutaneous tissue. In the myocardium along the channel, there were fields of coagulation necrosis of cardiomyocytes, edema, and hemorrhagic stromal imbibition. According to the micromorphological picture, the most probable remoteness of the death coming is no more than 30 minutes at the time of its coming.

A forensic medical examination found that the nature and morphological traits indicate its formation as a result of a shot from bullet firearm and the impact of a projectile (bullet). A blaze test for the presence of powder grains gave a positive result. Shot distance was determined in the area of action of additional factors. During the forensic chemical blood test for the presence of ethyl alcohol, an average degree of intoxication was detected [2].

## DISCUSSION

Thus, the death of a 47-year-old man came from acute blood loss as a result of a gunshot nonpenetrating bullet wound to the chest, penetrating into the chest cavity with injury of the ribs, pericardium and heart. The shot was fired within the range of additional factors of the shot, which is confirmed by the presence of a roundish minus-tissue defect, powder grains and black soot overlay are determined around the defect circumference.

## CONCLUSION

The type of thanatogenesis in this case was cardiac. The rate of death coming is fast.

This observation confirms the relevance of a gunshot wound from self-made firearms. It would be promising to apply new research methods for the analysis of such observations [4,5].

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