

Secret Intelligence Service

Room No. 15

Notes from Brief

Operative Field Skills

The destructive effect of a bullet (I)

(C-I)

As per what most people think, a wound from a bullet seems a kind of flat channel in diameter commensurate with the caliber of the bullets hit the human body. How nice it would be if it were true, but unfortunately, the reality is somewhat stiffer misconceptions and even shell bullets, which in theory should really do a lot less damage, but injuring woman/man, in most cases, instead of killing, if it enters the human body cause damage even more than the expansive. No wonder there is an expression - Bullet - a fool.

Here to consider the behavior of the most common bullet if it enters the human body, and make the appropriate conclusions. In the meantime, take a look at the terminology.

The bullet, passing through the human body reserves the wound channel, or, to put it another way, the wound profile. In turn, the bullet wounds are divided into:

- Through. The through-hole in the body, where the bullet does not leave behind fragments and moves completely out of the body;
- Blind. With a blind gunshot wound the bullet remains in the body, thus it can be moved inside the human body, especially if in hollow organs;
- Partially through or partially blind. Partially blind or partially through wounds are wounds formed after the bullet enters hits several parts, some of which move out of the body, while others remain in the body;
- Wounding bullet does not penetrate deep into the body, damaging the upper fabric.
- On-the blind. Regarding the wound-blind wound tangent characterized in that the bullet fragments applied from one to several blind wounds.

- Bruises. Contused wounds from firearms when the bullet has lost its speed during the flight, as well as in contact with a bullet in the bullet-proof vest or any other barrier that transmits energy, is not excluded fractures, ruptures of internal organs, damage to major blood vessels.

In addition, gunshot wounds are divided into penetrating and not penetrating, which have easy to guess from the name.

It should be noted that the predicted behavior of the bullet is really impossible, since it will depend on many factors, such as encountered in the path of the projectile; muscular tissues, bones, items of clothing and so on.. Do not forget about the "secondary projectiles." So the bullet passing through the clothing, the contents of her/his pockets, and so on destroying objects in its path, fragments of these items take the energy from the bullet and also can cause serious damage.

Of course, the main damage is dealt to by a bullet, and the damage depends not only on the projectile penetration into the body, but also on the parameters of the bullets hit: weight, shape, length, caliber, bullet device, the speed of the speed, and so on. A shot of a rifled barrel sets the pool, not only the direction of movement in the horizontal plane, but it spins around its axis to stabilize it in flight, allowing precisely striking targets at long distances, it is a rotary motion called precession. It should be borne in mind that the bullet speed reaches 3000 rpm, and since, centering in bullets rather conventional (with the exception of a bullet for high-precision sniper guns), its bullet also makes a small oscillatory motion relative to the path of flight. Meter amplitude fluctuations are very small and rarely exceed one millimeter. However, these fluctuations can have a significant impact when hit bullets into the human body, so the bullet will start to slow down their rotational motion, the amplitude of the oscillations increase as a result of the munition itself is experiencing strong internal stress, and often, not withstanding, is split.

But that's not all, if after being hit by a bullet the body starts to rotate, it forms a temporary cavity, which can be manifold greater with size bullet itself.

The temporary cavity begins to form after 0.0005 seconds, after contact with the body; its maximum size is attained at 0.005 seconds after falling. Temporary cavity formation due to the sharp pressure drop in contact with the striking element at high speed into the body, in this case the bullet. That is, with increasing time increasing cavity pressure, and collapses. The effects of the formation of the temporary cavity is felt significantly. Volume and time of the temporary cavity life largely depends on bullets parameters.

The most stable in flight if it enters the body, the bullet with big weight, caliber and length, with blunt bullet when hit, almost immediately transfers energy to the body, causing the so-called stopping effect, while a pointed bullet often spends one-tenth of its energy if it enters the human body. The greatest damage to the tissues can occur when a bullet in flight forms a supersonic flow. So much for the formation of a pointed bullet supersonic flow characteristic at speeds in excess of 1300 meters per second, for a bullet with a rounded head - 800 meters per second. Thus it is necessary to allocate a separate soft bullet, which when hit spend much energy on something that would be deformed, thereby increasing the time effects on the body and causing much more damage compared to bullets with a hard shell or a steel core.

A significant role is played in the same balance of the bullet, as a bullet with the displaced center of gravity in its rear portion is less stable not only in the air but also in contact with the human body, with a maximum striking effect of such bullets may occur if it touches bone, because contact with hard tissue further trajectory of its movement is unpredictable, and begins to write bullet acrobatic high complexity of the human body.

Thus, the totality of all the above parameters the most damage is caused by small caliber bullets. So the bullet cartridges NATO 5.56 when released into the soft tissue of the wound channel generates more than double hollow-point bullet cartridges Magnum-caliber 11.2 mm.

It should also briefly address the action of damaging bullet when it enters the body of protected body armor. Actually if it enters the body armor scenario two - a bullet hits him/him or not. In the first case, the bullet spends a significant part of energy on something that would penetrate the armor plates, and the fragments armor plate with a high probability will penetrate into the body with a bullet in the case of the formation of the temporary cavity can cause serious injury, literally flown apart in all directions.

The second case is no less dangerous than the first, as the bullet passes completely all energy armor plates, the blow falls with the same energy, but on a larger area, thus can be broken, as well as the momentum transferred from the armor plates to the body, the bone fragments can injure the soft tissues and internal organs. This is the momentum transferred from the pool to the armor plates, and armor plates from the body, can lead to rupture of hollow viscera, but, of course, if the momentum is strong enough. You also need to take into account one scenario, the bullet hitting the armor plates and not breaking it, may split into many small fragments which rebound can injure unprotected parts of the body. Thus, it can be concluded that even the highest body armor protection class does not guarantee one hundred percent protection even in the case of bullets hitting it.

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