ORİJİNAL GÖRÜNTÜ ORIGINAL IMAGE

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A Massive Heart Injury Due to Military Firearm

Askeri Silaha Bağlı Masif Kalp Yaralanması

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While the life-threatening cardiac injury is rare, surgeons must maintain a high index of awareness for the extend of the injury. We report a 36-year-old male with a rank of captain, serving in troops of Turkish Armed Forces who was shot by the terrorist elements during a hot conflict in the Kars province of north-east territory of Turkey. The purpose of this report is to demonstrate the severity of the impact of a high-velocity military bullet over the thoracic and mediastinal region and its eventual destructive capacity on the heart tissue.

Traumatic injury of the heart can be due to blunt or penetrating trauma. Penetrating cardiac injuries are mostly the result of stab or firearm injuries.[1] Among those with penetrating thoracic injuries, cardiac injury occurs in only about 6 percent.[2] Although firearm injury and related deaths decline through the years, gunshot trauma remains a significant cause of morbidity and instant mortality as many as 40.000 deaths per year. Missile injuries typically are classified as low-velocity (<2000 feet/second) and high-velocity (>2000 feet/second).[3]

A 36-year-old male was taken to the emergency unit with a bullet entry in his right midclavicular line of the third intercostal space (Figure 1). He was unconscious with no palpable pulses. He has been under cardiopulmonary resuscitation for at least forty-five minutes during transportation. Endotracheal intubation was performed, and he was directly transported to the operating room with no delays. An emergent left thoracotomy revealed a gross hematoma in the thorax. After performing median sternotomy and pericardiotomy, a gross injury of the heart was seen (Figure 2). The right ventricle, inferior vena cava, superior vena cava, aorta, and right pulmonary veins were destructed (Figure 3). The left side of the heart was relatively unaffected (Figure 4). He was accepted as exitus, and this massive heart injury was photographed in detail for a scientific report (Figure 5).

The bullet was assumed to enter the thoracic cavity from cranial to caudal following an inferomedial route with the destruction of the right heart cavities and major vessels down to the left diaphragm. No exit

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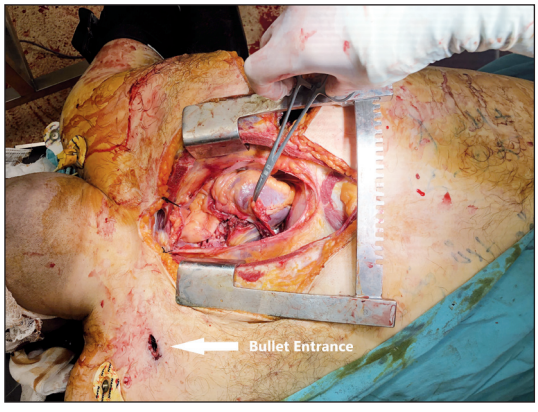

FIGURE 1: Bullet entry site on the right third intercostal space. Median sternotomy reveals heart injury.

hole was detected. The captain was thought to be in a prone position in the trench while he was shot. The bullet was said to be a 7,65 mm in caliber originated from an AK-47 assault rifle by the eyewitnesses.

Whatever the type of missile, more important is the entrance profile, the path traveled through the body, the physical features such as kinetic energy, fragmentation, the stability of the missile, and the biological characteristics of the tissues in determining the extent of the injury. Thus, the exploration of the wound should not be based only on the involvement of a high-velocity or low-velocity weapon.[3]

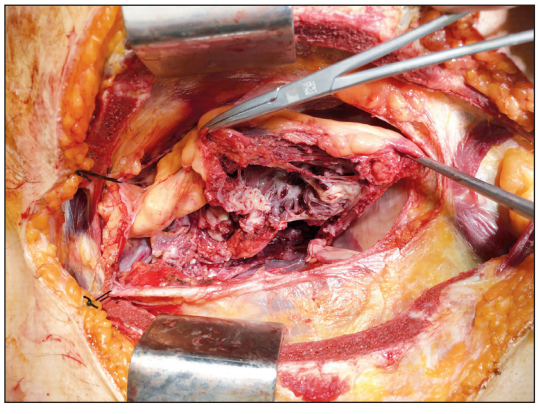

FIGURE 2: Median sternotomy and pericardiotomy, a gross injury of the heart.

FIGURE 3: The right ventricle, inferior vena cava, superior vena cava, aorta, and right pulmonary veins were destructed.

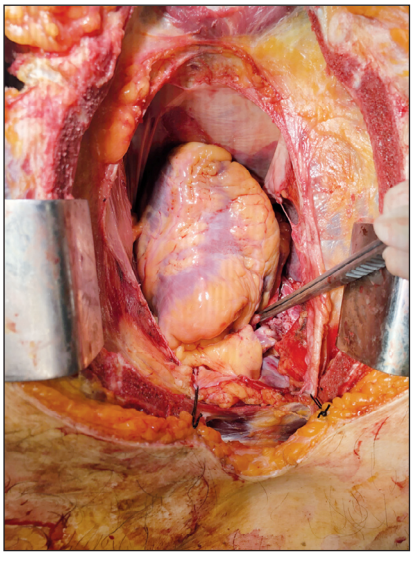

FIGURE 4: The left side of the heart was relatively intact.

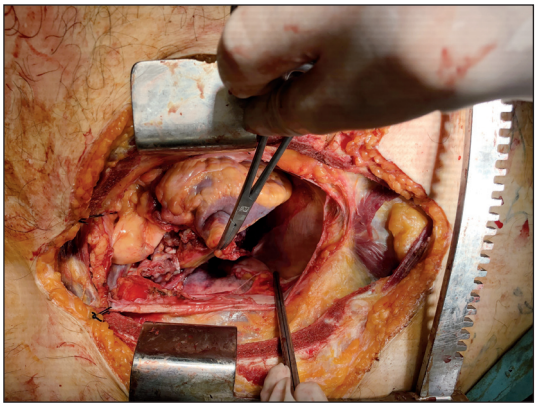

FIGURE 5: Ruptured inferior vena cava.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Hamit Serdar Başbuğ;* ***Design:*** *Hamit Serdar Başbuğ;* ***Control/Supervision:*** *Kazım Ergüneş;* ***Data Collection and/or Processing:*** *Hamit Serdar Başbuğ;* ***Analysis and/or Interpretation:*** *Hamit Serdar Başbuğ;* ***Literature Review:*** *Hamit Serdar Başbuğ;* ***Writing the Article:*** *Hamit Serdar Başbuğ;* ***Critical Review:*** *Kazım Ergüneş;* ***References and Fundings:*** *Hamit Serdar Başbuğ;* ***Materials:*** *Kazım Ergüneş.*

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