

A Case of the Surviving From Gunshot Injury Without Operation

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Abstract

Introduction: Cases of gunshot injuries among trauma patients admitted in the emergency room are fatal cases in Turkey as much as all over the world. It is perhaps the most complex group among trauma patients. Because the route of the bullet fragment, how much damage it causes on its way and which organ or organs will be harmed cannot be understood immediately so long-term follow-up may be required.

Case report: A 48-year-old civilian male patient brought to our hospital after gunshot injury. It was found that he was injured with pellets in many parts of his body. He was not operated on to prevent possible bleeding and to remove the pellets. Instead, vital signs were followed.

Results and Conclusion: Most of the patients who are injured by guns die. The most important reason for this is acute and large amount of bleeding. In this article, we will present a patient who has been exposed to multiple pellet shots but survived.

Key words: Emergency Service, Gunshot injury, multiple injury, trauma

Introduction

Cases of gunshot injuries among trauma patients admitted in the emergency room are fatal cases in Turkey as much as all over the world. It is perhaps the most complex group among trauma patients. Because the route of the bullet fragment, how much damage it causes on its way and which organ or organs will be harmed cannot be understood immediately so long-term follow-up may be required. In this article, we will present a patient who has been exposed to multiple pellet shots but survived.

Case Presentation

A 48-year-old civilian male patient was brought to our emergency department by ambulance after exposure to firearm injury. In the first examination, multiple pellet entry holes were found on the right side of the thorax and abdomen. Patient's GCS was 15, he was orientated and cooperative. He had spontaneous respiration, 15-18/minute, sPO₂:96, right lung examination had rales and right abdomen tenderness. Blood pressure was 170/120 mm/Hg, pulse 92/minute. Two veins were opened for blood test and hydration. We started antibiotic treatment and tetanus vaccine.

Multiple pellet was seen on the x-ray taken (Figure-1). Thorax and abdomen tomography were reported as 'pellet

fragments were seen on right and left thorax subcutaneous skin, intercostal area, in right atrium, atrioventricular septum, mediastinum right paracardiac area, axillary, left liver and portal hilus around, near gall bladder (Figure-2a-b), right upper kidney (Figure-3a), right intestine-mesentery (Figure-3b), right abdomen skin, pelvis right side, femur upper right side skin and muscle.' It has also determined that minimal pneumothorax and hemothorax in the right lung, sixth cost fracture, minimal laceration on the liver (Figure-2b), minimal liquid in the morrison pouch, minimal hemorrhage in the right rectus muscle, expansion of the right inguinal canal (hernia?). The patient was admitted to the intensive care unit, no operation planned.

Orthopedics, General Surgery, Cardiology, Cardiovascular Surgery have examined the patient during his follow-up at the intensive care unit.



Figure-1. Multiple pellets in X-ray

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Accepted: 15.01.2021 • **Orcid:** <https://orcid.org/0000-0002-5580-6015>

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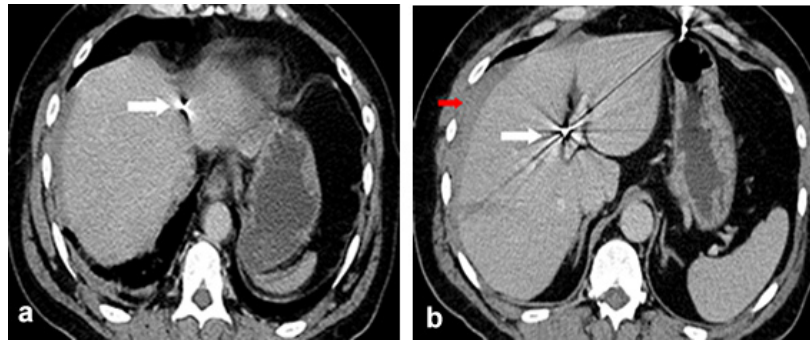


Figure-2a. Bullet in the liver (white arrow), b: Bullet in the biliary tract (white arrow), hemorrhage around the liver (red arrow)

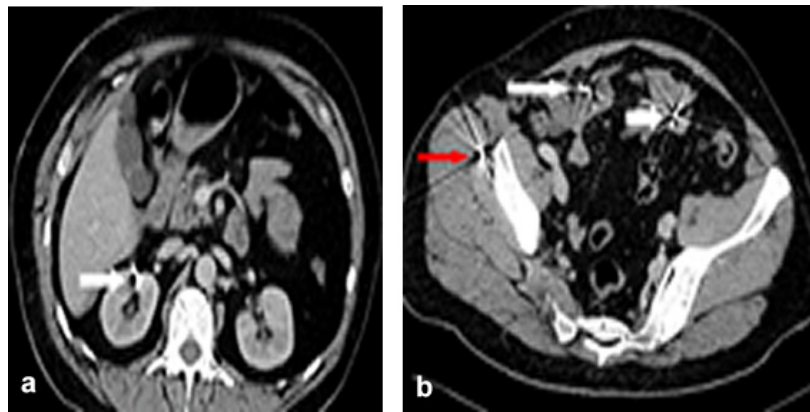


Figure-3a. Bullet on the upper pole of the right kidney (white arrow), b: Bullets in the inside small intestine (white arrows) and right thigh (red arrow)

Echocardiography reported; EF: %65, there were neither pellet particles in the heart, nor vascular injury and complication (probably seen under the heart tissue)

Orthopedic intervention not considered.

Patient with non-life-threatening transferred to the general surgery service. General surgeon decided to follow up without surgery. Hemogram follow-ups for 3 days, didn't show any problem (first/last hemoglobin-hematocrit: 14,7-42,6/12,7-37,4). Patient has been discharged from hospital and recommended to come to polyclinic.

Discussion

The wounding power of the weapons depends on the kinetic energy of the bullet during impact and its propagation in tissues. The critical variable at this point is the velocity of the bullet. In slow-speed bullets, the transition track is irregular and variable, sometimes there is no relation between the lead and the exit hole and complications may develop differently than expected. On the contrary, high-speed bullets fired by military class weapons cut soft tissue smoothly and break the bones in the passageway or injure organs. It might even hit the bone and change its direction. Even if the

bullet does not damage the organ in which it is stuck, it may cause damage to tissues around due to the explosion. Another important variable is distance. For example, shotguns and pistols can produce more kinetic energy than high speed guns¹. In our case, despite the exposure to close-range firing, bullet fragments were dispersed as pellet and their energy decreased. Thus, they have remained on the surface of the organs and neither bleeding nor vital organ injury occurred.

Gunshot injuries usually damage multiple organs, either directly or indirectly. In our patient, almost all of the organs on the right side of his body were damaged (even inguinal hernia due to trauma occurred). However, there was no long-term life-threatening development because there were neither self-limiting bleeding nor tissue damage. The greatest chance of our patient was that he was injured with pellets. These fragments remained in place and did not cause any new bleeding.

Statistically, there are not enough studies about gunshot injury in our country. As a result of retrospective examination of the Forensic Medicine reports, a study which is conducted in Eskişehir revealed that deaths due to gunshot injuries was 312 patients in the autopsy data between 1997 and 2016. Most of them was male patients (241 (77,4%)) and these

data show us the importance of gender-based violence². Our patient is also compatible with the literature.

In the study conducted by Avraham et al., 282,542 of 101,966,038 patients who applied to the emergency department due to trauma in the USA between 2009 and 2012 came with firearm injuries. At least 41.5% of the patients were between 18-44 years of age, 59% of these cases died in emergency services and 41% died in other services (total 7.8% patients). It will be inevitable that this patient population will increase as the population increases along with acquisition of guns becomes easier. In the same study, it was emphasized that the risk of injury by firearm was related to low socio-economic level³.

In cases of gunshot wounds where bullets cannot be detected, emergency physicians should review the possible bullet path. In these cases, the use of imaging methods covering a large area along with repetitive physical examination will guide the physicians in determining the serious injuries that may occur.

Conclusion

The armament problem is a social problem as well as a health problem. The number of such injuries will increase as the access to weapons becomes easier and there is a tenden-

cy to violence, even if the level of economic development increases.

In such trauma cases, emergency physicians should be careful to predict possible complications, injuries that may result in life-threatening or loss of work force in the future. Therefore, they should work with other physicians from different branches as a team.

The management of gunshot injuries is difficult for every physician. It is necessary to compete with time. In order to understand the organs damaged by the bullet, an operation is often performed. In this article, we aimed to emphasize that the unnecessary examination and treatment should not be performed if the physiology does not deteriorate, therefore, the importance of reducing the bleeding risk of the patient.

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