ORIGINAL ARTICLE

Deaths due to tired bullet injuries: Evaluation from medical, legal, and social perspectives

Talip Vural,[1] Melike Erbaş,[2] Cetin Ketenci,[1] Mehmet Askay[2]

[1]Trabzon Forensic Medicine Group Precidency, Trabzon-*Türkiye*

[2]Council of Forensic Medicine 2nd Specialization Board İstanbul, İstanbul-*Türkiye*

ABSTRACT

BACKGROUND: In Türkiye, as in other parts of the world, there is a rising trend in individual armament and firearm violence, resembling an epidemic. When fired into the air, bullets eventually lose the initial speed with which they left the barrel and begin to accelerate downwards under the influence of gravity as they fall to the ground. At this point, these projectiles are referred to as "tired bullets," which cause serious injuries and fatalities. This study evaluates autopsy cases of deaths due to tired bullet injuries. We aimed to raise social awareness and contribute to the literature by exploring the forensic, legal, and social dimensions of tired bullet injuries.

METHODS: From 2013 to 2022, 695 forensic autopsies of gunshot wounds were reviewed at the Trabzon Forensic Medicine Group Presidency. Nine cases were identified where individuals had undergone autopsies and the cause of death was attributed to tired bullet injuries. The data for the cases included in the study was sourced from our archive records and the UYAP (National Judicial Network Project) system. The second stage involved analyzing reports of falling bullet injuries from local and national newspaper websites. In the third stage, the Supreme Court decisions regarding perpetrators of tired bullet incidents were examined.

RESULTS: The study included six male and three female cases, with an average age of 32.5 years. Injuries were predominantly located in the head in seven cases, the eye in one case, and the inguinal region in another. In eight cases, the bullet trajectory was from top to bottom. The incidents predominantly occurred in residential areas. It was observed that all cases received coverage in both national and local media, and campaigns against tired bullet injuries were organized. The perpetrators of these injuries were frequently sentenced for murder with probable intent.

CONCLUSION: Tired bullet injuries represent a significant public health issue that necessitates comprehensive preventative measures addressing medical, legal, and social dimensions. There should be national and international campaigns led by the media, involving all public institutions, organizations, and non-governmental organizations to promote individual disarmament, highlight the dangers of firearms, and stress the importance of these initiatives.

Keywords: Death and autopsy; Forensic medicine; legal and social perspectives; tired bullet.

INTRODUCTION

Like the rest of the world, Türkiye is experiencing a rise in individual armament and firearm violence, akin to an epidemic. The unchecked use of firearms poses an increasingly significant social threat. With the rise in individual armament, firearm-related fatalities occupy a prominent position among medico-legal deaths.[1-3]

When fired into the air, a bullet core eventually loses its kinetic energy at a certain distance and speed, influenced by the shot's characteristics, the firing weapon, and the bullet itself. After losing its kinetic energy, the bullet gains speed again as it falls under gravity's influence. This phenomenon of a free-fall-

Cite this article as: Vural T, Erbaş M, Ketenci C, Askay M. Deaths due to tired bullet injuries: Evaluation from medical, legal, and social perspectives. Ulus Travma Acil Cerrahi Derg 2024;30:493-499.

Address for correspondence: Talip Vural

Trabzon Forensic Medicine Group Precidency, Trabzon, Türkiye

E-mail: tlpvrl25@hotmail.com

Ulus Travma Acil Cerrahi Derg 2024;30(7):493-499 DOI: 10.14744/tjtes.2024.40245

Submitted: 27.03.2024 Revised: 28.03.2024 Accepted: 16.06.2024 Published: 05.07.2024

ing bullet is termed a "tired bullet."[4-6] Such injuries from tired bullets are commonly observed during holiday and New Year celebrations, weddings, festivals, political demonstrations, military send-offs, and particularly after sports activities like football matches, where firing into the air is seen as both a display and a symbol of joy.[1,5,7] Unfortunately, these celebratory shots, discharged without aiming at a specific target, result in severe injuries and fatalities from bullets that eventually return to the ground.[1,5,6] Injuries from tired bullets, while rare, differ from other types of firearm injuries in their medical, legal, and social dimensions. There is often a lack of awareness that bullets shot into the air will return to earth, potentially harming or killing innocent bystanders.[4,7] In response, Türkiye occasionally organizes international campaigns to combat the injuries and deaths caused by tired bullets.[8]

Studies and reports in the literature on deaths caused by tired bullets are scant. The literature includes case reports on this topic. This study presents a series of cases involving nine deaths attributed to tired bullets, all of which underwent autopsies. Our goal is to enhance social awareness and contribute to the literature by discussing the medical, legal, and social aspects of these cases.

MATERIALS AND METHODS

Selection of Cases

Between January 1, 2013, and December 31, 2022, 695 cases that underwent forensic autopsies for gunshot wounds were reviewed at the Trabzon Forensic Medicine Group Presidency. Among these, nine cases were identified as resulting from tired bullet injuries and were subsequently included in the study. Data for these cases were sourced from our archival records and the UYAP (National Judicial Network Project) system. We examined forensic investigation files, radiological images, and autopsy for each case. Details such as age, gender, location of the incident, time of death, treatment status, bullet entry points and trajectories, cause of death, information about the perpetrator, and the legal status of the perpetrators were analyzed. Additionally, drug-stimulant analysis results were investigated in detail using the AB SCIEX 5500 QTRAP LC/MS/MS system.

Scanning National and Local Media

Initially, the names of all individuals in the cases were searched on Google as "name and surname, tired bullet injury" to ascertain their coverage in national and local news sites. Subsequent searches focused on news regarding anti-tired bullet campaigns. Additionally, the archives of nationally recognized newspapers in Türkiye were accessed, and 54 articles related to tired bullet incidents published between January 1, 2022, and June 1, 2023, were reviewed.

Review of Supreme Court Decisions

From the official website of the Turkish Republic Presidency of the Supreme Court of Appeals and Legalbank databases, we reviewed cases from 2020 to 2023 using the keyword "tired bullet." We examined a total of five decisions issued by the General Assembly of the Supreme Court of Appeals, the 1st Criminal Chamber, and the 12th Criminal Chamber concerning deaths caused by tired bullets. All data collected during our study were recorded using Microsoft Excel 2016. This research was conducted with the approval of the Council of Forensic Medicine Scientific and Educational Research Commission (Approval no: 21589509/2023/107, dated 22/02/2023).

RESULTS

Autopsies were performed on nine individuals: six men and three women, with an average age of 32.5 years (ranging from 8 to 86 years). Incident locations included two home gardens, two wedding hall gardens, two streets, one hazelnut field, one children's playground (Fig. 1), and one plateau (Table 1). Witnesses were present at the scene in seven cases. In contrast, two cases—one found lying on the ground on a plateau and the other in a home garden—had no witnesses. It was initially suspected that the individuals found on the plateau and in front of the house had suffered heart attacks. The child in the

Table 1. Demographic and general data about the cases

Gender	Age	Crime Scene	Treatment	Death Time	Media Coverage
Female	38	Wedding Hall Garden	Surgical procedure	1 day later	National + Local Media
Male	15	Hazelnut Field	Examined at the crime scene	On same day	National + Local Media
Male	86	Plateau	Surgical procedure	1 day later	National + Local Media
Male	8	Children's Playground	ICU follow-up	9 day later	National + Local Media
Female	14	Street	ICU follow-up	1 day later	National + Local Media
Male	74	House Garden	Reanimation	On same day	National + Local Media
Female	9	House Garden	Reanimation	On same day	National + Local Media
Male	25	Outdoor Wedding Hall	Examined at the crime scene	On same day	National + Local Media
Male	24	Street	Examined at the crime scene	On same day	National + Local Media

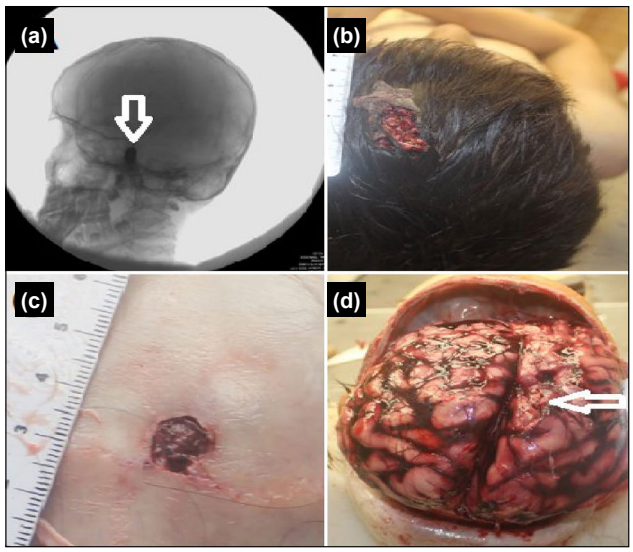

Figure 1. (a) Bullet visible in X-ray imaging within the scope. **(b)** Bullet entry wound on the scalp. **(c)** Bullet entry wound in bone tissue. **(d)** Defect caused by bullet passage and associated bleeding in the brain tissue.

playground was believed to have been struck on the head by a seesaw and was subsequently hospitalized. In three cases, the sound of a gunshot was reported by nearby individuals, whereas in six cases, no gunshot was heard.

It was determined that three of the cases died at the scene, two died after resuscitation attempts in the hospital to which they were taken, two died in the intensive care unit during follow-up and treatment, and two died in the hospital during their follow-up and treatment after undergoing surgery. All cases were reported on national and local press websites (Table 1).

During the radiological examinations performed before the autopsy and at the autopsy, bullets were retrieved in eight cases. For evidence security, the bullet cores were duly removed from the body, numbered, photographed, and placed in evidence bags. In one case, no firearm residue was recovered, although many pellets were found at the scene (Fig. 2).

Figure 2. Frontal region defects of skin and bone due to shotgun pellet injury.

Figure 3. Bullet entry wound in the left eye with the bullet recovered from the corpse.

Bullet entry lesions were identified in various locations: three in the right parietal, two in the left parietal, one in the right frontal, one in the left frontal, one in the left eye (Fig. 3), and one in the right inguinal region. The bullet trajectories were observed to be horizontal from top to bottom in eight cases and from front to back in one case. The causes of death were identified as femoral artery-vein injury in one case and skull bone fractures, brain tissue damage, and brain hemorrhage in eight cases. Autopsy skin findings indicated that all injuries were caused by long-distance shooting. No toxic substances were found in the toxicological examinations of the cases. Among the perpetrators, five were under investigation and had not yet been identified, one as identified as a father, one as a friend, one as a neighbor, and one as a relative (Table 2).

Table 2. Shooting characteristics and causes of death

Age	Bullet Core Entrance Site	Trace	Firing Range	Death Cause	Perpetrator
24	Right parietal	↓	Long	Brain damage and bleeding	Ongoing investigation
15	Right parietal	↓	Long	Brain damage and bleeding	Ongoing investigation
86	Right parietal	↓	Long	Brain damage and bleeding	Ongoing investigation
8	Left parietal	↓	Long	Brain damage and bleeding	Ongoing investigation
14	Left parietal	↓	Long	Brain damage and bleeding	Ongoing investigation
25	Right frontal	↓	Long	Brain damage and bleeding	Friend
9	Left frontal	↓	Long	Brain damage and bleeding	Father
74	Left eye	→	Long	Brain damage and bleeding	Relative
38	Right inguinal	↓	Long	Femoral artery-vein trauma	Neighbor

News of 54 incidents related to tired bullets was found on the websites of national newspapers in Türkiye between January 1, 2022, and June 1, 2023. It was determined that 42.6% (n=23) of the incidents resulted in injuries, 29.6% (n=16) in deaths, and 27.8% (n=15) in damage to objects without injury to individuals. Injuries most frequently occurred in the head, back, shoulder, neck, chest, hand, arm, and leg areas. Affected individuals were found in various settings such as walking on the street, sitting in the garden, terrace or balcony of their house, celebrating a religious holiday, working in a field/garden, attending a military send-off ceremony, traveling in a vehicle, swinging on a swing, swimming in the sea, working on plaster/painting at a construction site, in front of an earthquake container, or throwing garbage into a bin. Individuals were found to be injured or killed by tired bullets under various circumstances, including while eating, grazing animals, sitting in a tea garden, playing at a festival, wedding, or playground. A 1-year-old baby died from a tired bullet that struck his head while he was being pushed in a stroller in his garden, and one individual was injured in the hand by a tired bullet originating from a conflict zone across the border while dining in his garden. In some instances, initial case presentations may suggest accidental causes such as a stone falling on a hand, a head hitting the ground, a nail embedded in the back, a head injury from a flower pot, an insect bite on the back, fainting from an alcohol-induced coma, or a suspected heart attack. However, during hospital examinations of such cases, tired bullets were coincidentally discovered.

Between 2020 and 2023, five Supreme Court decisions related to deaths from tired bullets were reviewed. These included one decision from the General Assembly of the Supreme Court of Appeals, two from the 1st Criminal Chamber, and two from the 12th Criminal Chamber. It was observed that all incidents occurred in populated settlements. The first instance courts initially found the perpetrators guilty in two cases of reckless homicide, one of intentional homicide, one of murder with possible intent, and one of conscious negligence. However, all these decisions were overturned at the appeal stage by the relevant chambers of the Supreme Court of Appeals. The General Assembly of the Supreme Court and the relevant chambers concluded that the perpetrators should be charged with murder with possible intent in four of the cases and with murder due to conscious negligence in one case.

DISCUSSION

Injuries from tired bullets represent a significant public health issue worldwide, including in Türkiye, given their medical, legal, and social ramifications.[4,7] Shooting into the air has become a cultural norm in Türkiye during social events such as celebrations, military service send-offs, weddings, sports achievements, and occasionally due to alcohol or substance use or for personal threat reasons.[1,5,7] The literature on deaths caused by tired bullets is sparse; however, with the rise of uncontrolled individual armament, incidents of injuries and deaths from stray bullets are increasing daily. This trend presents a complex issue that encompasses individual, social, and even cultural factors.

In the center where this study was conducted, over a ten-year period, 2.3% (n=9) of the forensic cases that died from gunshot wounds and underwent autopsies were attributed to tired bullet injuries. Six of the deceased were men, a finding that aligns with similar research conducted both in Türkiye and internationally.[3,6,9,10] Studies suggest that gunshot injuries predominantly affect men, with incidence rates as high as 85.5%.[3,11] The higher incidence of tired bullet injuries among men in our study is attributed more to the higher participation of men in the workforce and social life in our region and country rather than to criminal activity.[12] It is also noteworthy that individual armament is more prevalent among men in both our region and Türkiye.

Although the ages of the cases ranged from 8 to 86, the average age was determined to be 32.5 years. However, media reports indicate that ages of victims of tired bullet deaths can be as young as 1 year old. Some studies suggest that such injuries are more common in children under the age of 15, while others find them more prevalent in adult demographics.[3,6,9,10,13] In our study, with victim ages spanning from 1 to 86 years, it appears that there is no specific target age group. This is likely because the shooters typically fire into the air without aiming at any particular victim.

In our study, the crime scenes of the autopsied cases were identified as home gardens, open wedding halls, streets, hazelnut fields, children's playgrounds, and plateaus. Additionally, our research into national press coverage found that tired bullet injuries occur in various settings, including vehicles, baby carriages, at sea, festivals, earthquake containers, border areas, tea gardens, swings, and both rural and urban areas. Consistent with other literature, tired bullet injuries have been reported in numerous locations such as residences, their extensions, open spaces, and densely populated areas.[4,7,14] Consequently, tired bullet injuries can happen in any environment where people gather, from rural to urban settings and from private homes to public transport.

At the time of the incidents, witnesses were present in seven cases, but gunshots were only heard in three. Two of the cases were initially thought to involve heart attacks, and in one, it was suspected that the individual had been hit by a seesaw. However, hospital examinations later revealed these were injuries from stray bullets. According to data from the national press, many cases of tired bullet injuries are inadvertently discovered during hospital examinations. Unlike other types of gunshot wounds, gunshots in cases of tired bullet injuries are usually not audible. Sometimes, individuals are not even aware they have been struck by a bullet. Injuries or loss of consciousness are often initially attributed to other causes.[4,7-9] In situations where there is little bleeding from the wound or the patient is unconscious, medical personnel

may not have enough information and might focus on other possible ailments such as heart attacks, high blood pressure, heatstroke, or fainting instead of gunshot wounds. There are reports of some patients receiving incorrect diagnoses and being sent home with a prescription. Therefore, in cases of injuries with unknown causes, radiological imaging should be performed to detect penetrating injuries.[4,5,10] A thorough physical examination is crucial in all cases presenting with suspicious symptoms. Radiological imaging is crucial for detecting metallic objects in both postmortem examinations and in living injured individuals. In our study, radiological imaging was conducted on all cases before the autopsy, following best practices recommended in the literature.

It was observed that five of the cases died on the same day as the incident—three at the scene. Three cases died one day after the incident, and one case died approximately nine days later. Surgical interventions were only performed in two cases, with resuscitation and follow-up procedures conducted in the others. According to similar studies, death rates from tired bullet injuries vary between 23.8% and 96%, with surgical interventions carried out in 33.3% to 74% of hospitalized patients.[4,6,15-17] In our study, surgical procedures were conducted in only two cases, a rate below what is reported in the literature. However, it is important to consider that our study primarily included cases undergoing forensic autopsies rather than those involving living individuals injured by tired bullets, suggesting that many victims may have died before a surgical intervention could be attempted.

At autopsy, bullet entry wounds were found in the head region (parietal and frontal) in seven cases, in the left eye in one case, and in the right inguinal region in another case. The trajectory of the bullet entering the left eye was horizontal from front to back, while the trajectories of the other bullets were vertical from top to bottom. According to data obtained from the national press, individuals can also sustain injuries to the head, back, shoulder, neck, chest, hand, arm, and leg areas. Literature reports that injuries from tired bullets most frequently occur in the head region, with occurrence rates ranging from 36% to 77%. Other reported injury locations include the neck, back, lower and upper extremities, hip, abdomen, thorax, shoulders, and orbits, although the frequency of these injuries varies across studies.[4,6,13] In alignment with the literature, our study found that head injuries are common in cases of tired bullet incidents due to the bullets' free-fall trajectory, with bullet core traces typically vertical from top to bottom. In addition to the literature, we noted that our patient injured in the right inguinal region was sitting when injured, with the bullet trajectory being vertical from top to bottom. However, we were unable to ascertain the posture of our patient injured in the left eye. In Türkiye, it is common for people to sleep in house extensions such as gardens, terraces, and roofs, especially during the summer months.[4] It is likely that our patient was lying on his back in an extension of his house at the time of the incident.

When bullets in free fall reach sufficient kinetic energy and strike the head, they can penetrate the skull, causing damage to brain tissue and resulting in intracranial bleeding. Such impacts often lead to immediate fatalities. Literature indicates that injuries to the head are frequently accompanied by skull bone defects and intracranial hemorrhages, with occurrence rates up to 100%.[6,13,18-20] We observed that all cases with head injuries in our study resulted in early deaths. Skull bone fractures and intracranial hemorrhages were confirmed in all these cases during autopsy, demonstrating that free-falling bullets can attain enough kinetic energy to break skull bones and damage brain tissue.

The process of collecting bullet cores during an autopsy with metallic forceps may damage the bullet cores; therefore, they should be removed using plastic forceps or manually. Bullets with adherent tissue fragments or blood clots should be carefully cleaned with warm water, gently wiped with cotton, dried, and then placed in an evidence bag. Additionally, each bullet core should be individually numbered, photographed at every stage of the autopsy, documented, and securely stored until transfer to the ballistic unit.[21-23] In our study, we identified bullet cores in eight cases through radiological imaging conducted before and during the autopsy. After dissecting the bullet cores from the surrounding bones and soft tissues, we numbered them and photographed them on site. As recommended, we removed them using our fingers, cleaned them with a cotton sponge, and documented the process. Ensuring evidence security is crucial for establishing the perpetrator-victim relationship. Detailed crime scene investigations, along with antemortem and postmortem radiological examinations, are essential to detect bullet cores in cases of tired bullet injuries. During the autopsy, bullet cores must be carefully removed without damage, followed by a ballistic examination, and thorough documentation of the entire procedure is required.

Determining the shooting location and identifying the shooter in cases of tired bullet injuries are exceedingly challenging. Generally, both the injured and bystanders are unaware of the shot's direction and angle, leading to many perpetrators remaining unidentified and unpunished.[4,24] In our study, it has been observed that the perpetrators in most cases have not been identified and investigations are ongoing. As a poignant example, one case resulted in death from a bullet fired from an unlicensed gun owned by the victim's father.

All cases in our study were reported on both national and local media websites. Tired bullet injuries in Türkiye are particularly prevalent in the Eastern Black Sea region, where our group is based.[25,26] Due to the increase in injuries from stray bullets in our region, various public institutions and organizations, non-governmental organizations, press and broadcasting outlets, and relatives of the victims organized campaigns and demonstrations in our city. These efforts have since spread throughout the country. Billboards across our city, where our group headquarters is located, prominently display the slogan "Don't Shoot at Happiness." Additionally, streets

and buildings are adorned with flags to reinforce the message. While these campaigns have yielded some positive results, there has been an increase in tired bullet injuries.[8,25-27] We believe that maintaining high social awareness requires ongoing campaigns against individual armament and stray bullets, led by media and broadcasting organizations at both national and international levels.

It is understood that the general approach of the Supreme Court's General Assembly and relevant chambers in cases of death due to tired bullets is that the perpetrators should be punished for murder with possible intent. This concept is outlined in the 2nd paragraph of Article 21 of the Turkish Penal Code, defining possible intent as "the situation where a person commits an act despite foreseeing that the elements in the legal definition of the crime may occur." In cases of possible intent, while the perpetrator acts for a specific purpose, they also foresee the potential side effects of their actions to achieve this purpose, remain indifferent to these outcomes, and accept their occurrence.[28,29] Especially when discharging firearms randomly in residential areas, it is foreseeable that a bullet may strike and injure or kill someone. The perpetrator, by engaging in such conduct, implicitly accepts all resulting consequences. Therefore, we believe that perpetrators of deaths caused by tired bullets, particularly in residential areas, should be punished for possible premeditated murder, as advocated by the Supreme Court. This approach will be recognized as a significant step by the public conscience. The sanctions for deaths resulting from stray bullet injuries could be classified as potential premeditated murder. It will become clear that such behavior, which disrupts social order, is defined as a crime, with clearly defined punishments. The principle of "certainty of punishment", a critical element of deterrence, will be more effectively enforced.[30] We anticipate that with the full implementation of the principles of certainty and proportionality in crime and punishment, the number of stray bullet incidents will decrease.

CONCLUSION

Injuries and deaths caused by stray bullets occur at every stage of life and at the most unexpected moments, regardless of time and place. With the global and national increase in individual armament, including in Türkiye, the number of injuries caused by stray bullets has emerged as a significant public health issue that demands immediate attention due to its medical, legal, and social implications. To prevent such injuries, society must be informed and awareness about the dangers of firearms must be raised. Additionally, policies that limit individual armament and enhance controls should be developed. Deterrent criminal sanctions should be enforced against the perpetrators of such incidents, and frequent campaigns should be organized at national and international levels with the participation of all public institutions, organizations, and popular community groups, under the leadership of the media.

Medical facilities must be vigilant about penetrating injuries in patients admitted with loss of consciousness for unknown causes, keeping the possibility of stray bullet injuries in mind. Complete radiological imaging should be conducted, before commencing an autopsy, forensic investigation files should be reviewed to gather sufficient information about the incident. A thorough radiological scan of the entire body, along with a detailed physical examination, should be performed to locate the bullet. During the autopsy, bullet cores must be carefully extracted with plastic forceps or fingers to avoid damage, and all stages of the autopsy process should be photographed and documented. Ballistic examinations of this meticulously collected evidence will aid in identifying perpetrators who are otherwise difficult to locate.

Ethics Committee Approval: This study was approved by the Council of Forensic Medicine Scientific and Educational Research Commission (Date: 22.02.2023, Decision No: 21589509/2023/107).

Peer-review: Externally peer-reviewed.

Authorship Contributions: Concept: T.V., M.E.; Design: T.V., M.A.; Supervision: T.V., M.E., H.C.K.; Resource: T.V., M.A., H.C.K.; Materials: T.V., M.E.; Data collection and/or processing: T.V., H.C.K.; Analysis and/or interpretation: T.V., H.C.K., M.E.; Literature search: T.V., M.A., M.E.; Writing: T.V., M.E.; Critical review: T.V.

Conflict of Interest: None declared.

Use of AI for Writing Assistance: Not declared.

Financial Disclosure: The author declared that this study has received no financial support.

REFERENCES

1. Küçük E, Gümüş E, Türkmen VE. A rare cause of foot drop: Tired bullet. World J Emer Med 2018;9:294. [CrossRef]
2. Yasuntimur A, Öğünç Gİ. Individual armament and violence: the current status of firearm violence. J Security Scie 2022;11:167–200. [CrossRef]
3. Ekinci E, Balcı Y, Çallak F, Anolay N. Demographic characteristics and autopsy findings by origin of deaths due to firearm injury-analytical research. Bulletin of Legal Med 2023;28:15–22. [CrossRef]
4. Öğünç Gİ, Özer MT, Çoşkun K, Eryılmaz M, Uzar Aİ. The wounding potential of free-falling bullets. Ulusal Travma ve Acil Cerrahi Derg 2013;19:392–7. [CrossRef]
5. Das K, Karateke F, Onel S, Ozkaya M, Okten Aİ, et al. Can tired bullets cause serious injuries? A case report and review of the literature. Injury 2013;44:144–5. [CrossRef]
6. Mubarik RA, Üngören KM, Ibrahim IG, Abdirahman MH, Osman AM. Penetrating brain injury caused by tired bullet: First report from Somalia. Annals of Med and Surg 2022;84:104870. [CrossRef]
7. Avşar A, Çetinkaya TA, Saraç YE, Sivri S. Death case due to falling bullet. Fırat Med J 2021;26:48–51.
8. CNN Türk [online]. Eline taş düştüğünü sandı, yorgun mermi çıktı Available from: https://www.cnnturk.com/turkiye/eline-tas-dustugunu-sandi-yorgun-mermi-cikti. Accessed 20 April 20, 2023.
9. Syed AA, Syed MT, Makhdoom A, Shaikh AR, Siddique AJ. Aerial Firing and stray bullet injuries: a rising tide. Iranian Red Crescent Med J 2015;17:26179. [CrossRef]
10. Malik AM, Alkadi A, Talpur KA, Naeem QJ. The incidence, pattern

and outcome of stray bullet injuries: A growing challenge for surgeons. Pakistan J Med Scie 2013;29:1178. [CrossRef]
11. Eze UO, Akang EEU, Odesanmi WO. Pattern of gunshot deaths in a Nigerian tertiary health institution. Internet J Med Update-EJOURNAL 2016;11:25–8. [CrossRef]
12. Türkiye İstatistik Kurumu (TÜİK). Cinsiyete ve yaş grubuna göre nufüs. [online]. Available from: https://data.tuik.gov.tr/Kategori/GetKategori?p=nufus-ve-demografi 109&dil=. Accessed May 10, 2023.
13. Rodriguez I, Mirabal-Colon B, Alonso-Echanove J, Rodriguez C, Rullan J, Crosby A, et al. New Year's Eve injuries caused by celebratory gunfire--Puerto Rico, 2003. MMWR: Morbidity and Mortality Weekly Report 2004;53:1174–5.
14. Akman M. Unexpected thoracic injury caused by a falling bullet in a metropolis. African J Paediatric Surg: AJPS 2023;20:77–9. [CrossRef]
15. Al-Tarshihi, MI, Al-Basheer M. The falling bullets: post-Libyan revolution celebratory stray bullet injuries. European J Trauma and Emerg Surg 2014;40:83–5. [CrossRef]
16. Liebenberg WA, Demetriades AK, Hankins M, Hardwidge C, Hartzenberg BH. Penetrating civilian craniocerebral gunshot wounds: a protocol of delayed surgery. Neurosurgery 2007;61:SHC-242–8. [CrossRef]
17. Tsuei YS, Sun MH, Lee HD, Chiang MZ, Cheng WY, Shen CC, et al. Civilian gunshot wounds to the brain. J Chinese Med Association 2005;68:126–30. [CrossRef]
18. Ordog GJ, Dornhoffer P, Ackroyd G, Wasserberger J, Bishop M, Shoemakeret W, et al. Spent bullets and their injuries: the result of firing weapons into the sky. J Trauma 1994;37:1003–6. [CrossRef]
19. Uzar A, Dakak M, Oner K, Atesalp A, Yiğit T, Ogunc G, et al. Comparison of soft tissue and bone injuries caused by handgun or rifle bullets: an experimental study. Acta Orthopaedica et Traumatologica Turcica 2003;37:261–7.
20. Çelik E, Koç A. Analysis of free-fall bullet injury potential in the cranium via finite elements method. J Forensic and Legal Med 2023;97;102552.
21. KPL. Balistik İncelemeler, Temel Eğitim Kitabı. KPL Dairesi Başkanlığı, EGM Katalog No: 602, Ankara; 2013.
22. Gören FF. Penset kullanımının mermi çekirdeklerinin delil olma özelliği üzerine etkileri, Disiplinlerarasi Adli Bilimler Anabilim Dalı, Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi, Ankara; 2019. 23.
Ceza Muhakemesi Kanunu. Gözlem Altına Alınma, Muayene, Keşif ve Otopsi [online]. Available from: https://www.mevzuat.gov.tr/Mevzuat-Metin/1.5.5271-20110808.pdf. Accessed 25 May 25, 2023.
24. Medyabar [online]. Available from: https://medyabar.com/haber/7626729/maganda-yaptigi-ile-kaliyor-yorgun-mermi-failleri-bulunamiyor. Accessed Jun 15, 2023.
25. Hürriyet com.tr. [online]. Available from: https://www.hurriyet.com.tr/gundem/trabzonda-15-yasindaki-emir-yusa-atici-hayatini-kaybetmisti-yorgun-mermi-karsiti-kampanya-cig-gibi-buyudu-42047219. Accessed Jun 25, 2023.
26. Sözcü [online]. Available from: https://www.sozcu.com.tr/yorgun-mermi-olaylarinin-yarisi-o-ilde-oluyor-wp7767694. Accessed July 10, 2023.
27. DHA (Demirören Haber Ajnası) [online]. Available from: https://www.dha.com.tr/foto-galeri/magandalar-olume-doymadi-trabzonda-1-yilda-3-can-kaybi-9-yaralanma-2290151. Accessed Jul 15, 2023.
28. Diken NMG, Yaşar Y. Verdict Analysis: Assessment of the difference between conscious negligence and dolus eventualis. Social Sciences Res J 2018;7:97–113.
29. Türk Ceza Kanunu. Ceza Sorumluluğunun Esasları [online]. Website https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=5237&MevzuatTur=1&MevzuatTertip=5. Accessed Aug 20, 2023.
30. Hamzaoğlu N, Türk B, Sanal Y. Evaluating the deterrence effect of criminal proceedings and sanctions. Adli Tıp Bülteni 2019;24:198–208. [CrossRef]

ORİJİNAL ÇALIŞMA - *ÖZ*

Yorgun mermi yaralanmasına bağlı ölümler: Tıbbi, hukuki ve toplumsal açıdan değerlendirme

Talip Vural,[1] Melike Erbaş,[2] Cetin Ketenci,[1] Mehmet Askay[2]

[1]Trabzon Adli Tıp Grup Başkanlığı, Trabzon, Türkiye
[2]İstanbul Adli Tıp Kurumu 2. İhtisas Kurulu, İstanbul, Türkiye

AMAÇ: Tüm dünyada olduğu gibi ülkemizde de her geçen gün salgın hastalık gibi bireysel silahlanma ve ateşli silah şiddetinde artış görülmektedir. Havaya doğru atış edildiğinde, mermi çekirdeği bir süre sonra namludan çıktığı hızı kaybedip yer çekiminin etkisiyle hızlanarak yere düşmeye başlar. Yorgun mermi olarak adlandırıla bu aşamada ciddi yaralanmalar ve ölümler meydana gelebilmektedir. Çalışmamızda; otopsi yapılan yorgun mermi yaralanmasına bağlı ölüm olgularını, adli tıbbi, hukuki ve toplumsal yönleri ile tartışarak toplumsal farkındalık oluşturmayı ve litaretüre katkı sunmayı amaçladık.

GEREÇ VE YÖNTEM: İlk aşamada; 2013-2022 tarihleri arasında Trabzon Adli Tıp Grup Başkanlığı'nda ateşli silah yaralanmasına bağlı adli otopsi işlemi yapılan 695 olgu incelendi. Otopsi işlemi yapılan ve ölüm nedeni yorgun mermi yaralanmasına bağlı olduğu tespit edilen 9 olgu tespit edildi. Çalışmaya dahil edilen olgular hakkında bilgiler arşiv kayıtlarımızdan ve UYAP (Ulusal Yargı Ağı Projesi) sisteminden elde edildi. İkinci aşamada; yerel ve ulusal düzeyde yayın yapan gazetelerin internet sitelerinden yorgun mermi yaralanmaları ile ilgili haberler incelendi. Üçüncü aşamada; Yorgun mermi failleri için yüksek mahkeme tarafından verilen kararlar araştırıldı.

BULGULAR: Olguların 6'sı erkek, 3'ü kadın olup ortalama yaş 32.5 olarak bulundu. 7 olgunun kafasından, 1 olgunun gözünden, 1 olgunun ingiünal bölgesinden yaralandığı, 8 olguda mermi çekirdeğinin yukarıdan aşağı seyirle olduğu saptandı. Olayların sıklıkla yerleşim yerlerinde gerçekleştiği bulundu. Tüm olguların ulusal ve yerel basında yer aldığı ve yorgun mermi karşıtı kampanyaların düzenlendiği bulundu. Yorgun mermi faillerinin sıklıkla olası kastla öldürme suçundan cezalandırıldığı belirlendi

SONUÇ: Yorgun mermi yaralanmaları tıbbi, hukuki ve toplumsal yönleri ile acil önlem alınması gereken önemli bir halk sağlığı sorunu olarak karşımıza çıkmaktadır. Bireysel silahsızlanmayı teşvik etmek, silahın tüm zararlı yönlerini tanıtmak ve vurgulamak amacıyla, medyanın öncülüğünde tüm kamu kurum ve kuruluşları ile sivil toplum kuruluşlarının katılımıyla ulusal ve uluslararası kampanyalar düzenlenmelidir.

Anahtar sözcükler: Adli tıp; hukuki ve sosyal bakış; ölüm ve otopsi; yorgun mermi.

Ulus Travma Acil Cerrahi Derg 2024;30(7):493-499 DOI: 10.14744/tjtes.2024.40245