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Original Article / Orijinal Makale

The deaths due to terrorist bombings in Istanbul (Turkey).

[İstanbul' da terörist bombalamalara bağlı ölümler]

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Abstract

Our study was based on a retrospective analysis of terrorist bombing related deaths in Istanbul (Turkey) during 1976-2000. Total of 45714 autopsy case reports that were preserved in the Morgue Department of Council of Forensic Medicine was reviewed for this study. There were 120 (0.26%) deaths due to terrorist bombing. Occurrence of the terrorist bombing related deaths was significantly higher during the years of fast growing terrorism events in Turkey. 98 (81.7%) of cases were male and 22 (18.3%) of cases were female. The number of victims and terrorists between 21-30 years of age was 60 (50% of the total cases) with the highest incidence. In 49 events only one death occurred. Therefore, 18 of the events included more than one person. The highest person number in only one event was 24. In the present study, we have pointed out the importance of traumatic lesion characteristics to ascertain the cause of deaths and other autopsy findings of victims and terrorists. We have also stated that scene investigation and medico-legal autopsy are the most important procedures to provide evidences of deaths due to terrorist bombings

Keywords:

Terrorism, bombing, autopsy finding, injury.

Özet

Çalışmamız, 1976-2000 yılları arasında İstanbul'da terörist bombalamalar sonucu meydana gelmiş ölümlerin retrospektif analizi temelinde hazırlanmıştır. Adli tıp Kurumu Morg İhtisas Dairesi tarafından otopsisi gerçekleştirilmiş toplam 45714 olgunun otopsi raporları gözden geçirilmiştir. 120 (0.26%) olgunun ölümü terörist bombalamalara bağlıdır. Terörist bombalamalara bağlı ölümler özellikle Türkiye' deki terörist olayların arttığı yıllarda yüksek orandadır. Olguların 98 (81.7%) i erkek, 22 (18.3%) si kadındı. Yaşları 21-30 arasında olan kurban ve teröristlerin sayısı 60 (tüm olguların 50% si) idi. 49 olayda yalnız bir ölüm meydana gelmişti. 18 olayda ölüm sayısı ise birden fazlaydı. En yüksek ölüm ise bir olaydaki 24 kişi ile gerçekleşmişti. Bu çalışmada, biz kesin ölüm sebebi olarak belirlenmiş karakteristik travmatik lezyonların ve kurban ve teröristlerin diğer otopsi bulgularına dikkat çektik. Ayrıca terörist bombalamaya bağlı ölümlerde olay yeri incelemesi ve otopsinin delil toplanmasındaki önemini vurguladık.

Anahtar Kelimeler:

Terörizm, bombalamalar, otopsi bulguları, yaralanma.

1. Introduction

Terrorism is an illegal violent crime, which threatens democracy and causes social damage. However, terrorist bombings are common forms of terrorist violence worldwide [1]. In several countries of the world thousands of humans have been died and thousands of humans have been wounded for years due to terrorist bombings. Turkey has been one of the target countries frequently suffering from terrorist actions. Terrorist bombings may sometimes cause fatalities or

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casualties of innocent human being individually or massively [2]. While clinical and psychiatric findings and treatments of survivals exposed to terrorist bombings have been recorded in worldwide literatures commonly, literature about autopsy data is relatively limited.

The objective of this study is to provide detailed statistical information, to define the autopsy findings of victims and died terrorists, and to point out the importance of scene investigation and autopsy procedure for deaths due to terrorist bombings.

2. Materials and methods

The records of the Morgue Department of the Council of the Forensic Medicine were reviewed retrospectively for the period of 1976 and 2000. The total number of autopsies between 1976 and 2000 **was** 45,714 and the number of deaths due to the terrorist bombing was 120 during this period. The victims' and terrorists' age, sex, the place and the type of the deaths, the number of deaths during the event, the distribution of the lesions on the body, the foreign bodies that were used for the detection of bomb type were individually recorded.

Deaths due to explosions unrelated to terrorist bombing were not included in this study. Chi-square test was performed for statistical analysis.

3. Results

The total number of deaths due to terrorist bombs was 120 (0.26%) out of the total 45,714 autopsies, which were performed at the Morgue Department of the Council of the Forensic Medicine in Istanbul (Turkey) between 1976-2000. 107 of them were victims and 13 of them were terrorists.

Four of died terrorists were suicidal bombardiers. Nine of them died during terrorist attacks or while preparing bombs due to explosions of bombs on their own hands (3 of them had died during the struggle with military forces). In three suicidal attacks terrorists tied the bombs on their own body. One terrorist was died in the exploded car.

With respect to the annual distribution of mortality due to terrorist bombing, it is recorded that the number of cases were significantly higher within the years 1978, 1979, 1980, 1986, 1991, 1994 and 1995 (Figure-1).

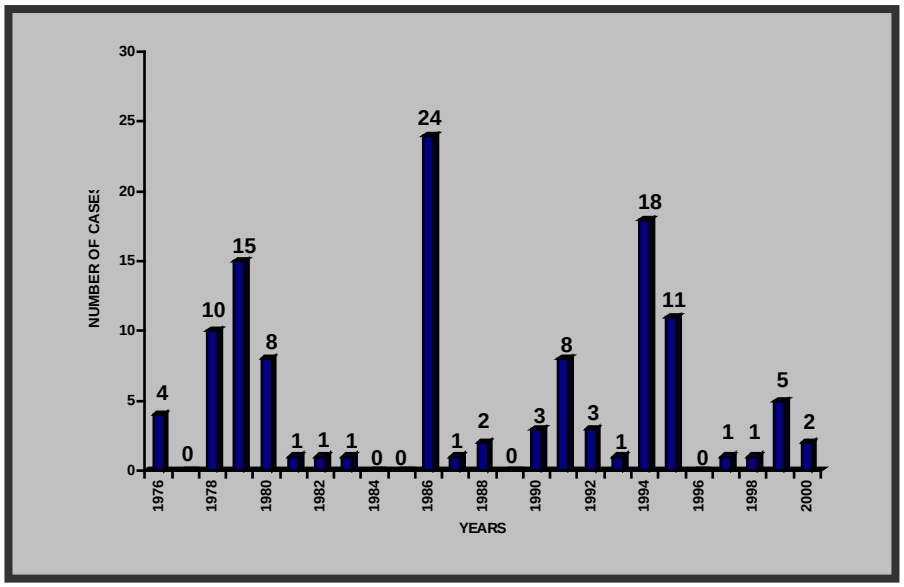

Figure 1. *Distribution of 120 cases that died from explosion of bomb according to year groups*

Twenty- two (18.3%) of the total 120 persons were women and 98 (81.6%) of were men with a sex ratio of 1/ 4.4 (female: male). Only one of 13 terrorists was a woman and others were men. The ages of the all persons varied from 6 to 66 years and the mean age of them was 34.8± 11.4 years. Sixty (50%) of the victims and terrorists were between 21-30 years old (Figure 2). Three of terrorists were under 21 ages, seven terrorists were between 21-30 years old and three terrorists were above 30 ages.

Concerning the number of deaths during the events, it was recorded that only one person had died in 49 (73.1%) events and more than one person had died in 18 (26.9%) events. The largest death number recorded in a terrorist bombing was 24, which was caused by the bomb explosion in a synagogue. Regarding the distribution of the places of death, it was observed that 87 persons (72.5%) had died in the place of the events, as well as 33 persons had died in a hospital. One hundred two persons (85%) had died during terrorist bombing in open public areas and 18 persons (15%) had died in houses. 30 (25%) of 120 deaths occurred in open-air area and 90 deaths (75%) occurred closed areas (Table-1). 11 of terrorists had died in the place of the events and only 2 had been hospitalized, but they also died at hospital.

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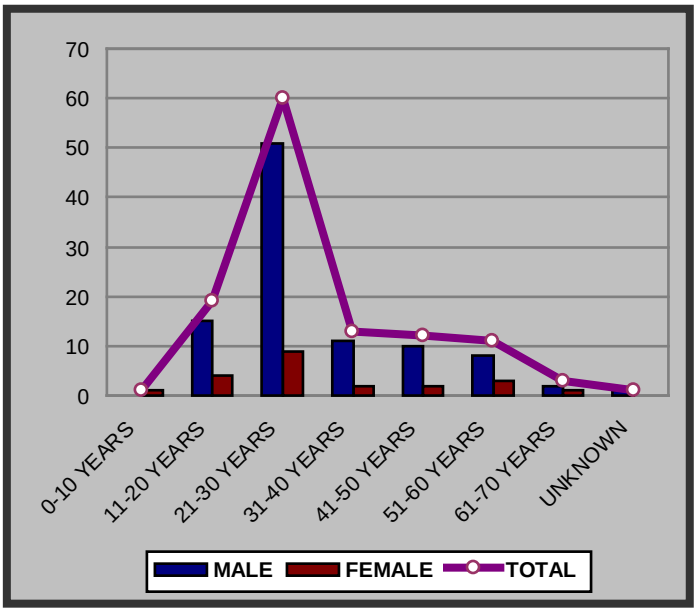

Figure 2. *Distribution of cases that died from explosion of bomb according to age groups*

Table 1. *Scenes of explosion of bombs*

SCENES OF EXPLOSION OF BOMBS	NUMBER OF CASES	PERCENTAGE
Cafe - Coffee House	26	21,7
Synagogue	24	20
Home	18	15
Road & Street	13	10,8
Trade Center	10	8,3
University & Campus	8	6,6
Bazaar	5	4,2
Airport	3	2,5
Lobby of Hotel	2	1,7
Bridge	2	1,7
Car park	2	1,7
Automobile	2	1,7
Police Station	2	1,7
Bus Station	1	0,8
Garden of School	1	0,8
Post-office	1	0,8
TOTAL	**120**	**100.00**

Dermal lacerations, contusions or abrasions were a finding seen at autopsies of all corpses. Seventy- four (61.7%) cases had been scorched, burned and also had soot in different regions of the body. Carbon-monoxide concentrations of blood were above of 10% in the 32 cases. Subarachnoidal hemorrhages (n=64; 53.3%), subdural hematomas (n=51; 42.5%) and skull fractures (n=45; 37.5%) were mostly fronted intracranial lesions. Haemothorax and/or pneumothorax were seen in the 70 cases (58.3%) and haemoperitoneum was seen in the 52 cases (43.3%). The most frequently injured organ in the thorax and abdomen was lungs (n=68; 56.7%). Only upper extremities were included in 14 cases; only lower limbs included in 4 cases and both of upper and lower limbs included 12 cases of 30 cases had traumatic amputation. Other autopsy findings were detailed in Table-2.

Regarding the distribution of the traumatic body lesions caused to death, it was observed that 5 of the cases (4.2%) had complete body disruption. It was

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reported that, 70 (58.3 %) cases had thoracic injury, 66 (55%) had cranial injury, 65 (54.2%) had abdominal injury and 52 (43.3%) cases had injured extremities (including the 5 cases had complete body disruption). Sixty of 120 cases (50 %) had injuries in more than one region of the body, whereas 55 of 120 cases (45.8%) had injuries in only one region of the body. While thoracic region has the highest frequency in multiple organ injuries with a ratio of 55 injuries/60 cases (Table 3), cranial region is the most common region in one-organ injuries. Forty-five (68.2%) of the total 66 cases that had cranial injury, reported to have cranium fractures or bone defects. All of the cases with cranial injury have at least one of the subdural, subarachnoidal, intra cerebral hemorrhages or brain damage. In all of the cases with thoracic and/ or abdominal injury, abdominal and thoracic organs such as heart, lung, liver, kidney and/ or main blood vessels such as aorta, common iliac artery were damaged and determined as the cause of death. Main arteries and veins were lethally damaged in 22 (42.3%) of the total 52 cases had injured extremities. In other 30 (57.7%) cases were recorded traumatic amputations.

Table 2. *Autopsy findings*

	Autopsy Findings	Number of Cases	Percentage
Cranium	Scalp and/or facial lacerations and/or contusions and/or abrasions	101	84.2
	Eye injuries and/or glob perforations	6	5.0
	Scorching, burn, soot	54	44.2
	Skull fractures	45	37.5
	Facial bone fractures	17	14.2
	Dura lacerations	6	5.0
	Epidural hematomas	23	19,2
	Subdural hematomas	51	42.5
	Subarachnoidal hemorrhages	64	53.3
	Intracerebral hematomas	9	7.5
	Cerebral and/or cerebellar contusions and/or lacerations	19	19
Neck	Dermal lacerations and/or contusions and/or abrasions	23	19.2
	Scorching, burn, soot	48	40.0
	Trachea injuries	3	2.5
	Esophagus injuries	2	1.7
	Neck vessel injuries	2	1.7
	Cervical vertebrae dislocations and/or fractures	11	9.2
Thorax	Dermal lacerations and/or contusions and/or abrasions	94	78.3
	Scorching, burn, soot	23	19.2
	Rib fractures	36	30.0
	Scapula fractures	2	1.7
	Sternum fractures	5	4.2
	Thoracic vertebrae dislocations and/or fractures	8	6.7
	Haemothorax and/or pneumothorax	70	58.3
	Main vessel injuries	8	6.7
	Hearth lacerations and contusions	27	22.5
	Lung lacerations and contusions	68	56.7
Abdomen	Dermal lacerations and/or contusions and/or abrasions	87	72.5
	Scorching, burn, soot	17	14.2
	Pelvis fractures	7	5.8
	Abdominal vertebrae dislocations and/or fractures	6	5.0
	Haemoperitonium	52	43.3
	Main vessel injuries	4	3.3
	Stomach lacerations	5	4.2
	Liver lacerations and contusions	21	17.5
	Spleen lacerations and contusions	11	9.2
	Kidney lacerations and contusions	21	17.5
	Pancreas lacerations and contusions	4	3.3
	Bladder and/or urethra injuries	6	5.0
	Genital track injuries	9	7.5
Limbs	Dermal lacerations and/or contusions and/or abrasions	120	100.0
	Scorching, burn, soot	74	61.7
	Vessel injuries	22	18.3
	Limb bone fractures	51	42.5
	Only upper limb amputation	14	11.7
	Only lower limb amputation	4	4.3
	Upper and lower limbs amputations	12	10.0

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Table 3. *Distribution of 120 cases according to body regions placed killing lesions*

Causes of Deaths		Number of Cases	Percentage	Total Number of Cases	Total Percentage
Wounding in Single Body Region	Cranial Wounding	19	15,8	55	45,8
	Wounding of Extremities	16	13,4		
	Wounding of Thorax	10	8,3		
	Wounding of Abdomen	10	8,3		
Wounding in Multiple Body Region	Wounding of Cranium & Thorax & Abdomen & Extremities	26	21,6	60	50
	Wounding of Thorax & Abdomen	18	15		
	Wounding of Cranium & Thorax & Abdomen	6	5		
	Wounding of Cranium & Thorax	5	4,2		
	Wounding of Cranium & Extremities	5	4,2		
Completely deformed corpses with exploding		5	4,2	5	4,2
Total		**120**	**100**	**120**	**100**

Three of 5 cases had complete body disruption were suicidal bombardiers. In corpse of another suicidal bombardier there were large wounds in the head, thorax, abdomen and extremities. 4 of 12 cases who had both upper and lower extremities amputations were suicidal bombardiers. In the autopsies reports of other 9 terrorists, upper limbs amputations (7 right extremities and 2 left extremities) defined for all. Additionally lower extremities amputations were stated for 3 bombardiers.

3 of victims had only upper limb amputation (left extremity in all them) had died due to letter bombs and 2 policemen (1 right and 1 left upper extremity) had died during procedure of bomb destroying.

During autopsies, metallic materials as steel balls, screws or wires had been removed in 111 cases (92.5%) with use of radiological methods. In 10 cases, gunshot wounds were also encountered. Seven cases were wounded with gunshots at the time of the terrorist bombings. Three of 10 cases were wounded during the struggle with military forces (Table 4).

Table 4. *Foreign body exerted bodies at autopsies*

Exerted Materials	Number of Cases	Percentage
Metal Pieces	64	53,3
Non Metal Pieces	8	6,7
Metal and Non Metal Pieces	29	24,1
Metal Pieces & Bullets of Gun-Shots	8	6,7
Metal and Non Metal Pieces & Bullets of Gun-Shots	2	1,7
No founded pieces in the body	9	7,5
Total	**120**	**100.00**

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4. Discussion

Terrorism kills a lot of innocent people in the world every year. Thousands of people died or injured due to terrorist attacks which occurred in Italy, France, North Ireland, the United States, Israel, Philippines, Russia, Garcia, Saudi Arabia, Iraq, Spain and many other countries of the world in the last years [3-11]. One of those countries, which were seriously affected by terrorism, was Turkey. In our study, we have established that terrorist bombing related deaths in Istanbul City (Turkey) between 1976 and 2000 years.

Regarding the annual distribution of cases, we found an increase in frequency between 1978 and 1980. This could be related **to** the frequency in street violence and terrorism in those years. Between September 1980 and December 1990, the deaths due to bombing explosion were reduced parallel to decreasing of terrorism actions after military administration. But, in only one explosion 24 people had died. This explosion occurred in a synagogue caused by international terrorism rather than national terrorism. The deaths caused by bombing increased in 1991, 1994 and 1995 because of the rising of terrorist activities. The number of cases decreased in years following 1995 after effective political and military precautions against terrorism by the Turkish Government (Figure 1). Those results differ from statistics of terror events in Turkey prepared by PATO (Presidency of Anti-Terrorism Office) affiliated to the Head Office of Turkish Security (Figure-3) [12]. Cause of this difference, sometimes deaths occur more than one in single event. Thus while the number of events reduce, number of deaths increase.

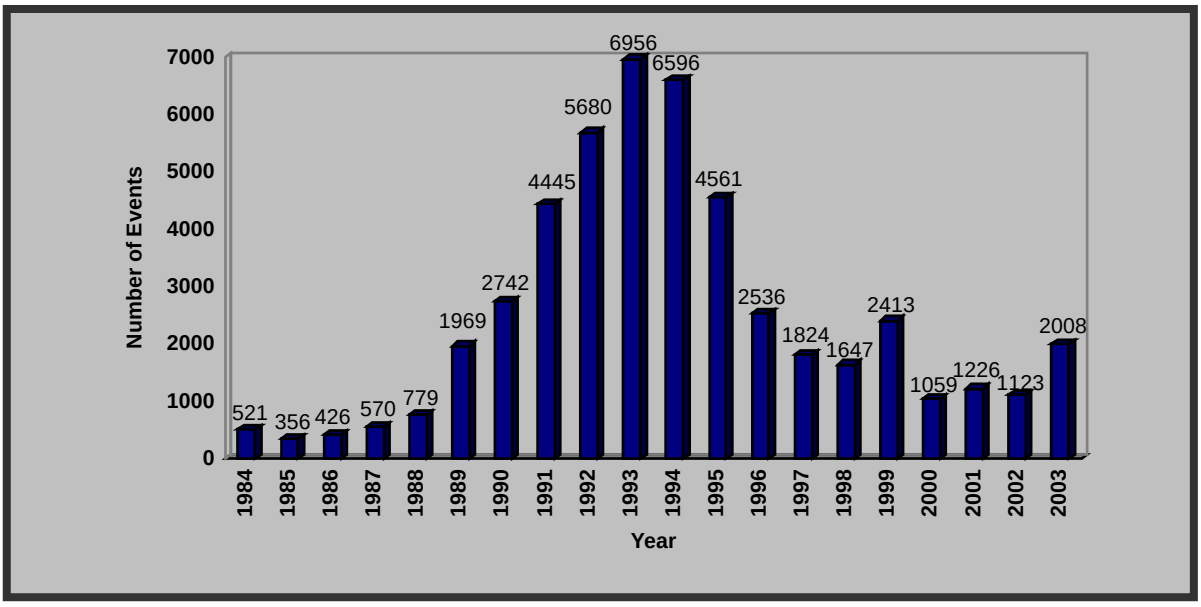

Figure 3. *Statistics of terror events in Turkey according to PATO [12]*

While we were preparing this paper, above fifty people died due to four bomb explosions in Istanbul in November 2003. Thus the international terrorism diminished in the last years has been beginning to rise in Turkey. We will separately submit scientific results of those explosions in next manuscript.

Ninety- eight (81.7%) of total 120 cases was male. Male predominance may be attributed to the presence of basically males in the targets of terrorists and/or to the more contribution of males to terrorist activities. However 12 of 13 terrorists were male.

Although the ages of the cases varied from 6 to 66 years, most of the cases (50%) were between 21 and 30 years old (figure 2). The predominance of cases in this age group may be explained by the fact that people are generally young men who found at the bombing scenes and participated to the terrorist bombing activities. However seven terrorists were between 21-30 years old.

The dead individuals were more than one in the 18 of the bomb explosion events. The highest number of the people died in a single event was 24. This result shows that bombs exploded too close to people and they had high destructive capacity. The identification is a problem when the numbers of corpses rise in an event [13-15]. In this situation, the disaster victim identification (DVI) process should be applied. For DVI process, firstly ante-mortem and post-mortem data should be collected; later the records should be compared to identify victims [16]. In our study, for identification of dead persons DVI methods were applied. Additionally DNA fingerprints were applied for mass deaths occurred in two explosions.

Frykberg et al stated that the rate of critical mortality was 12.4 percent [17]. Again in another study, Frykberg et al reported that 234 (68%) of 346 casualties immediately died after 1983 Beirut Airport terrorist bombing [18]. In our study 87 (72.5%) of the

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cases had died immediately in the event place and 33 of the cases (27.5%) had died at hospital. This is an evident outcome when considered the severity of the lesions occurred due to the explosion.

If it is regarded that 102 of the deaths (85%) occurred in the public areas such as synagogue, cafe/ coffee house, road/street, trade center, university / campus, bazaar, airport, lobby of hotel, bridge, Car park, parked automobile, police department, bus-stop, garden of school and post-office, the aim of terrorism may be understood (Table 1). The terrorism aims to create fear, boredom and disappointment on the civilian community by bombings. Anybody may be wounded or died in everywhere and in every time on account of the majority of explosions have occurred in randomly chosen crowded areas [1-2]. Psychological sequels of explosions for survival have lasting effect along the years and posttraumatic stress disorders for they are most serious problem for survivals and persons studied in scene investigation [4, 19-21]. Leibovici et al reported that explosion in confined spaces has higher mortality rate than open-air bombings [22].

During the bomb explosion, pressure, penetrating and thermal types of injury can occur. Because of the pressure effect of the explosion, the body may be totally disrupted and thrown as far as 200 meters, lesion triad of ecchymosis, crushes- abrasions and little lacerations may develop on the skin, cranial and other bone fractures and visceral injuries may occur. Due to falling on the floor of the body jumped out or the materials coming from various sources such as buildings, metallic materials emerging from the bomb or various materials jumping out in the event place may cause penetrating injury and burns on the body [23-24]. It defined that soft tissue injuries or lacerations were most common injuries; fractures (all body regions) were second most common diagnose and head injury were third most frequent diagnosed [3]. In our study**,** we defined traumatic lesions as contusions, abrasions and lacerations in all cases. In the majority of cases, there were fractures in the several bones. Head injuries have pursued to extremities injuries. Serious ocular injuries are commonly seen bombing incidents [3, 8]. But only 6 eye injuries and glob perforations were defined among 120 cases. Auditory barotraumas were commonly diagnosed in the bombing events [3]. Unfortunately examination of ears was not noted **in** autopsy reports. In the bombings, burns and smoke inhalations may be frequently seen [3-23]. In our study, burns with various severity and soot were found on various parts of 74 corpses.

Seriously traumatic findings were seen in corpses of terrorists. Especially in suicidal bombardiers forensic examiners diagnosed broadly tissue loses. Three of 5 cases had complete body disruption were the suicidal bombardiers. In corpse of another suicidal bombardier there were large wounds in the head, thorax, abdomen and extremities. 4 of 12 cases who had both upper and lower extremities amputations were suicidal bombardiers.

In 9 terrorists, there were upper limbs amputations (7 right extremities and 2 left extremities) and additionally there were lower extremities amputations in 3 bombardiers. Three of victims had only upper limb amputation (left extremity in all them) had died due to letter bombs and 2 policemen (1 right and 1 left upper extremity) had died during procedure of bomb destroying. Missliwetz et al reported that the injuries mainly concerned the left hand in the wounding due to letter bombs [25].

In a study conducted in Paris on a bomb explosion [7], the ratio of multiple traumas was reported as 47%. This ratio determined in the present study was higher (50 %). Although it was reported that head injuries are the leading cause of deaths due to bomb explosions, and thoracic injuries and burns follow it [17, 18, 26]. In our study, total ratio determined for head injuries was 55% (n=66), for thoracic injuries was 58.3 % (n=70) and for abdominal injuries was 54.2% (n=65) (Table-3) {x^2: $p > 0.20$} and these lesions were consistent with the findings found on bomb explosion [23]. Additionally some authors emphasize that dust arising from the ground may stick into the skin and consequently may lead to dark shapes like a tattoo [16, 27-29], such a description was not observed in the autopsy reports documented in this study.

Radiological examinations determine the location and severity of injuries and are used the follow-injured patients, particularly when complication occur. Conventional X-rays and CT scans are useful to detect the presence of foreign bodies, such as bullets, shrapnel and nails, which are often combined with the explosive charge in suicide bombings. Both methods of X-ray and CT can also be used for postmortem examination [30]. Several authors emphasize the requirement of radiological investigations to detect the localization of such foreign material [15, 27, 31]. Foreign materials removed from the corpses are very important in determining the attribution of the events and types of the bomb [16, 27, 32, 33]. Additionally radiology is important for postmortem identification [14, 15]. During autopsies in this study, direct x-rays had been used before 1987 year and scope has been used after 1987 year. The various foreign materials were removed from corpses of 111 cases (92.5%) (Table - 4).

Radiation risk is most important health problem for dirty bombs [34]. Further investigation into the reliability of virologic and biologic tests conducted on postmortem tissue recommended [35]. Any radiation investigation or any virologic and biologic test was not defined in autopsy reports in our study.

Terrorism, both foreign and domestic, is a currant fact and will be a problem in many forms in the 21st century. No one is immune [36]. For the abolition of terrorism, political, socioeconomic and educational

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precautions, legal precautions and the punishment are very important [2]. Terrorist violence is criminal and requires an expert forensic investigation. In a bombing event, when the wounded people are sent to hospital, firemen distinguish the fire and bomb destruction teams to look for the other possible bombs. At the same time, present proofs should be collected [2, 33]. The body recovered from the scene of a bombing may contain important trace evidence that links the suspect to the crime. Recognizing the lack of guidelines for evidence removal from the body, Laposata and colleagues have prepared a protocol to guide the forensic examiners in the collection of trace evidence from the bombing victim [32]. Forensic examination after bombing events include the collection of foreign materials, the definition of the cause of death, and the determination of mortal wounds and the mechanisms of injury according to procedures [13-16, 33]. While conducting our study, saw that although those scenes were investigated by experienced policemen and those autopsies were performed by experienced forensic examiners there were some insufficiencies at scene investigations and autopsies of corpses died due to bombings.

Consequently we want to share with our colleagues the experiences about the terrorist bombing related deaths in Istanbul (Turkey) during 1976-2000. Those experiences demonstrated us that evidence collecting and autopsy procedure must be more different from other medico-legal events and a different trace must be defined in terrorist bombing events.

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References

1. *Oral G, Ortakoylu L. Terror. Turkish Clinical Forensic Medicine 2001; 1:113-8.*
2. *Akkul M. The Evaluation of Using Terrorist Attacks, Which are Used Explosive Materials in The Istanbul Region. High License Thesis of Institute of Legal Medicine and Forensic Science, Istanbul University. Istanbul, 2000; 2-6.*
3. *Hogan DE, Waeckerle JF, Dire DJ, Lillibridge SR. Emergency Department Impact of the Oklahoma City Terrorist Bombing. Ann Emerge Med. 1999; 34 (2): 160-9.*
4. *Pfefferbaum B, Call JA, Sconzo GM. Mental Health Services for Children in the First Two Years after the 1995 Oklahoma City Terrorist Bombing. Psychiatr Serv. 1999; 50(7): 956-8.*
5. *Watts J. Bali Bombing Offers Lessons for Disaster Relief. Lancet. 2002; 360(2): 1401.*
6. *Kahana T, Freund M, Hiss J. Suicidal Terrorist Bombings in Israel- Identification of Human Remains. J Forensic Sci. 1997; 4(82): 260-4.*
7. *Rignault DP, Deligny MC. The 1986 Terrorist Bombing Experience in Paris. Ann Surg 1989; 209: 368-73.*
8. *Hadden WA, Rutherford WH, Merrett JD. The Injuries of Terrorist Bombing: A Study of 1532 Consecutive Patients. The British Journal of Surgery 1978; 65: 525-31.*
9. *Brismar B, Bergenwald L. The Terrorist Bomb Explosion in Bologna, Italy, 1980: An Analysis of the Effect and Injuries Sustained. J Trauma. 1982; 22(3): 216-20.*
10. *Milliyet Yasam Sayfaları. Terör Rusya'yı Sarsıyor. http://www.milliyet.com.tr/1999/09/14/yasam/yas01html Accessed: April 16, 2004.*
11. *Dünya, Ortadoğu. S Arabistan'da terör saldırısı: 17 ölü. http://www.ntvmsnbc.com/news/243023.asp Accessed: April 16, 2004.*
12. *Statistics of Terror Events in Whole of Turkey between January 01, 1984 and December 31, 2003. PATO (Presidency of Anti-Terrorism Office) affiliated to Head Office of Turkish Security. http://www.egm.gov.tr/temuh/istatistik.htm Accessed: April 16, 2004.*
13. *Lain R, Griffiths C, Hilton JMN. Forensic Mental and Medical Response to the Bali Bombing. MJA. 2003; 179: 362-5.*
14. *Knight B. Simpson's Forensic Medicine. Tenth Ed. London: Edward Arnold, 1991; 114-16.*
15. *Knight B. Forensic Pathology. London: Edward Arnold, 1991; 248-51.*
16. *Marshall TK. Wounds and Trauma. In: Camps FE, editor. Gradwohl's Legal Medicine. Third Ed. Bristol: John Wright and Sons, 1976; 289-94.*
17. *Frykberg ER, Tepas JJ 3rd, Alexander RH. The 1983 Beirut Airport Terrorist Bombing, Injury Patterns Implications for Disaster Management. Am Surg 1989; 55: 134-41.*
18. *Frykberg ER. Terrorist Bombings; Lessons Learned From Belfast to Beirut. Ann Surg 1988; 208: 569-76.*
19. *Pfefferbaum B, North CS, Bunch K, Wilson TG, Tucker P, Schorr JK. The Impact of the 1995 Oklahoma City bombing on the Partners of Firefighters. J Urban Health. 2002; 79(3): 364-72.*
20. *Pfefferbaum B, Gurwitch RH, McDonald NB, Leftwich MJT, Sconzo GM, Messenbaugh AK, Schultz RA. Posttraumatic Stress among Young Children after the Death of a friend or Acquaintance in a terrorist bombing. Psychiatr Serv. 2000; 51(3): 386-8.*
21. *Call JA, Pfefferbaum B. Lessons from the First Two Years of Project Heartland, Oklahoma's Mental Health Response to the 1995 bombing. Psychiatr Serv. 1999; 50(7): 953-5.*
22. *Leibovici D, Gofrit ON, Stein M, Shapira SC, Noga Y, Heruti RJ, Shemer J. Blast Injuries: Bus Versus Open-Air Bombings-A Comparative Study of Injuries in Survivors of Open-Air Versus Confined- Space Explosions. J Trauma. 1996, 41(6): 1030-5. (Abstract).*
23. *Marshall TK. Violence and Civil Disturbance. In: Mason JK, editor. The Pathology and Trauma. Second Ed. London: Edward Arnold, 1993; 79-84.*
24. *Karmy-Jones R, Kissinger D, Golocovsky M, Jordan M, Champion H. Bomb-Related Injured. Mil Med 1994; 159: 536-9.*
25. *Missliwetz J, Schneider B, Oppenheim H, Wieser I. Injuries due to Letter Bombs. J Forensic Sci. 1997; 42(6): 981-5.*
26. *Scott BA, Fletcher JR, Pulliam MW, Harris RD. The Beirut Terrorist Bombing. Neurosurgery 1986; 18: 107-10.*
27. *Aydin MN. Investigation for Forensic Medicine of Deaths Due to Explosion of Bombs, Thesis for Specialization, Council of Forensic Medicine. Istanbul, 1992.*
28. *Mc Vitty D. Investigation of Bombs and Explosives. In: Tedeschi CG, Eckert WG, Tedeschi LG, editors. Forensic Medicine: Mechanical Trauma. Philadelphia: Saunders, 1977; 570-631.*

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29. *Francis EC, Cameron JM, editors. Practical Forensic Medicine. London: Hutchinson Medical Publications, 1971; 241-2.*

30. *Shaham D, Sella T, Makori A, Appelbum L, Rivkind AI, Bar-Ziv J. The Role of Radiology in Terror Injuries. Isr Med Assoc J. 2002; 4(7): 564-7. (Abstract).*

31. *Rogov M. Pathological Evaluation of Trauma in Fatal Casualties of the Lebanon War. Isr J Med Sci 1984; 20: 367-71.*

32. *Laposata EA. Collection of Trace Evidence from Bombing Victims at Autopsy. J Forensic Sci 1985; 30: 789-97.*

33. *Marshall TK. Forensic Aspects of Terrorism. Ann Acad Med Singapore 1984; 13: 32-6.*

34. *Ring JP. Radiation Risks and Dirty Bombs. Health Phys. 2004: 86 (2 Suppl): S42-7.*

35. *Hiss J, Freund M, Motro U, Kahana T. The Medico-Legal Investigation of the El Aqsad Intifada. Isr Med Assoc J. 2002; 4(7): 753. (Abstract).*

36. *Jordan FB. The Role of the Medical Examiner in Mass Casualty Situations with Special Reference to the Alfred P Murrah Building Bombing. J Okla State Med Assoc. 1999; 92(4): 159-63. (Abstract).*

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