
Original Contributions

VICTIMS OF THE PALESTINIAN UPRISING (INTIFADA): A RETROSPECTIVE REVIEW OF 220 CASES

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□ Abstract—The purpose of this study was to review the cases of the victims of the Palestinian uprising (Intifada) and to describe the clinical presentations, the types of weapons used, and the different sites of injuries. This is a retrospective chart review study of the patients who were injured during the Palestinian uprising in the period April 1993–April 1994 and treated in the emergency department of the Barzilai Medical Center, Ashkelon, Israel. The Barzilai Medical Center is a regional level II trauma referral general hospital. Two hundred and twenty patients were injured during the Palestinian uprising and referred to our emergency department. Forty-one patients were citizens of the Gaza area, 26 patients were Israeli civilians, and 153 were Israeli soldiers. There were 55 patients (25%) injured by firearms, 10 patients (4.5%) by explosives, and 120 (54.5%) by striking stones. Seventy-three patients (33.2%) were hospitalized, and 22 patients needed surgery. The most commonly injured part of the body was the lower limb among the Gaza citizens and the head and neck among the Israeli soldiers and civilians. Striking stones was the most common means of injury used by the Palestinians, and stab wounds by knives and other sharp objects were the most common injuries among Israeli civilians. None of the patients suffered direct blast injuries. The Palestinian uprising resulted in many victims and disabled people in both nations. Terrorism did not cease after the peace treaty. It changed its face and moved from Gaza to the center of Israel. Suicidal terrorist bombing in public spaces and public buses carries more danger and more victims with much more severe injuries. We hope that the

future will be brighter, and both nations will eventually be able to live in peace. © 1998 Elsevier Science Inc.

□ Keywords—terrorism; Palestinian terrorism; Palestinian uprising; civilian terrorism; civilian violence; violence

INTRODUCTION

The Barzilai Medical Center (BMC) in Ashkelon, Israel, is an acute care general hospital with 330 beds and is ranked as a level II trauma center. It is 1 of 11 general hospitals owned by the government of Israel and serves the army forces and the uninsured citizens of the Arab territories as well as Israeli citizens and foreigners. The emergency department is open 24 h a day, 7 days a week, and has 24 computed tomography and ultrasound services.

The city of Ashkelon is a small city on the Mediterranean sea and is located about 20 km to the north of Gaza City and the surrounding Arab territories. The population of Ashkelon is approximately 80,000; Gaza city and the surrounding Arab territories have a population of 2 million. Al-Shifa hospital is the biggest hospital in Gaza, and it serves the local population. All types of facilities are available in this hospital, including cardiac surgery and hemodialysis. Until the peace treaty with the Palestinians, Al-Shifa hospital was under the supervision of the Israeli Ministry of Health.

Table 1. Victims of the Palestinian Uprising (n = 220)

Status	Soldiers	Israeli Civilians	Gaza Area Citizens	Total
Discharged	119	12		139 (63.2%)
Admitted	34	12	27	73 (33.2%)
Transferred to Level I			4	4 (1.8%)
Deaths		2	2	4 (1.8%)
Total	153 (69.6%)	26 (11.8%)	41 (18.6%)	220 (100%)

Until May 1994, Gaza and the surrounding areas were under the direct rule of the Israeli civilian authority. The Israeli Defense Army Forces patrolled regularly in the area that was obviously prone to civil insurrection. Many Israeli civilians who lived in the nearby settlements and worked in the Erez barrier (the barrier between Israel and Gaza) were also subjected to the Palestinian insurrection. The BMC is the nearest Israeli hospital and thus it served as the first line referral center for all the emergencies from this area. The Israeli civilian authority and the army forces were the sole authorities to decide which and how many patients would pass the border for medical reasons.

During a Palestinian attack, the army forces were instructed to arrest the leaders and to transfer them, if needed, under strict surveillance to our medical center for further medical and surgical treatment. First aid to these patients was usually provided by military doctors and medics at the scene. Military ambulances transferred these patients to the BMC. All the rest of the injured Palestinians were transferred by the local red crescent and international Red Cross ambulances to Al-Shifa Hospital. Only those who were arrested by the army forces were transferred to BMC.

When many Israeli soldiers and civilians were injured, the Magen David intensive mobile care unit and regular ambulances were called to the Erez barrier for first aid treatment and transfer. Magen David ambulances were not allowed to cross the Erez barrier.

In some cases, injured Palestinians were transferred from Al-Shifa Hospital, with the permission of the Israeli civilian authority, to BMC. The patients were usually transferred by the local red crescent ambulances to BMC, but sometimes exchange was made to a Magen David ambulance at the Erez barrier.

We present a review of 220 patients who were referred to our medical center during the period April 1993–April 1994. We describe the means of injury and the unique types of injuries we encountered.

MATERIALS AND METHODS

Medical charts of all patients who were injured in the Palestinian uprising during the period April 1993–April

1994 and treated at the BMC were reviewed. All of these patients injured by terrorist attacks were registered under a special national code number. The information about the injury was derived from the patient's history as well as from the soldiers who accompanied the patients. The following information was recorded from the medical charts: nationality, age, military or civilian status, means of injury, the type and site of injury, and the outcome. Medical charts of patients who were hospitalized were also retrieved and reviewed for the type of operations conducted. For simplification, injuries were classified according to the injured site: head and neck, chest, abdomen, extremities, and multiple when more than one site was involved. The means of injury were classified into firearms, explosives, shrapnel, knives and other sharp objects, striking stones, and other means, including glass bottles, metallic pieces, pieces of wood, and direct physical attack. A rubber bullet injury in one patient was included in the firearms class.

All of the patients were treated at the emergency department (ED) by the surgical and the orthopedic staff.

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RESULTS

Two hundred twenty patients were referred to the ED of the BMC during the above period. All were injured during the Palestinian uprising. Most of the patients were Israeli soldiers (n = 153), 26 patients were Israeli civilians, and 41 were Gaza area citizens (Table 1). There were 139 patients discharged from the ED (63.2%), 73 (33.2%) were admitted to the hospital, and four patients from the Gaza area were transferred to a level I trauma center for neurosurgery. Four patients died; two of these were Israeli civilians who died at the scene, and the other two were Gaza citizens. Most of the Israeli soldiers (78%) were discharged from the ED while one-half of the Israeli civilians and two-thirds of the Gaza area citizens were admitted to the hospital.

Most of the Israeli soldiers were injured by striking stones (109 of 153; Table 2). Stab wounds by knives and other sharp objects were very common among Israeli

Table 2. Means of Injury

Means	Soldiers	Israeli Civilians	Gaza Area Citizens	Deaths	Total
Firearms	22		31	2	55 (25%)
Explosives	9		1		10 (4.5%)
Knives and Sharp Objects		12		2	14 (6.4%)
Striking Stones	109	11			120 (54.5%)
Shrapnel	4				4 (1.8%)
Other Means	9	1	7		17 (7.8%)
Total	153	24	39	4	220 (100%)

civilians. Many of those terrorists were recreational workers (farms, buildings) who attacked and stabbed their employers. Again, a high percentage of Israeli civilians were injured by striking stones especially while driving through or near the occupied territories. Gaza area citizens, on the other hand, were injured mainly by firearms (31 of 39). Two Israeli civilians suffered multiple stab wounds and died at the scene. One of them was a bus driver who was stabbed in the neck and the chest nine times. The two deaths from firearms were Gaza area citizens, one of whom was the terrorist who stabbed the bus driver.

Extremities (upper and lower) were the most commonly injured parts of the body (41.4%), the next most common were the head and neck (38.6%), and the least injured part was the abdomen (1.4%; Table 3). Most of the soldiers and Israeli civilians were injured in the head and neck, while most of the Gaza citizens were injured in their extremities (17 patients), and 15 (38%) suffered multiple injuries. Only three Gaza citizens were injured in the head and neck. Among the admitted Gaza citizens, soft tissue injuries and fractures of the bones of the lower limbs were the most common types of injuries (Table 4). In six patients, open fractures were accompanied by peripheral nerve injury of the radial and peroneal nerves. Major artery injuries were not common. Five patients underwent explorative laparotomy for penetrating abdominal injury. All of them were injured by firearms. Two patients had partial resection of the small bowel, and three had multiple small and large bowel lacerations. Two patients underwent splenectomy, and in two pa-

tients liver lacerations were sutured. One patient had laceration of the urinary bladder, and one patient underwent nephrectomy for multiple kidney lacerations (Table 5).

Among the admitted Israeli soldiers and civilians, soft tissue injury of the face and neck was the most common type of injury (Table 6). This was consistent with the most common means of injury, striking stones. Five patients had fractured teeth, and four patients had closed fractures of the facial bones, two of whom underwent open reduction. Four patients were admitted for chest trauma. Three had closed rib fractures, two with concomitant hemothorax. One Israeli civilian was brought in with a stab wound of the left chest and huge hemothorax. Emergency thoracotomy in the operating theater revealed laceration of the left ventricle and severe laceration and distortion of the anterior descending coronary artery. He was successfully managed and discharged after 3 weeks. One patient had a stab wound injury of the abdomen, but explorative laparotomy revealed no significant injury.

DISCUSSION

Terrorist attacks, civilian violence, and rioting are found everywhere in the world, and the medical literature is full of articles dealing with types of injuries, means of injuries, and the psychological consequences of such events. Most of the descriptions come from Northern Ireland and England (1–16), France (17,18), Israel (19–23), and lately Yugoslavia (24–26). Fewer articles come from Beirut (27,28),

Table 3. Injured Part of the Body

Part of the Body	Soldiers	Israeli Civilians	Gaza Area Citizens	Deaths	Total
Head and Neck	71	11	3		85 (38.6%)
Chest	6	4	2	2	14 (6.4%)
Abdomen		1	2		3 (1.4%)
Extremities	68	6	17		91 (41.4%)
Multiple	8	2	15	2	27 (12.2%)
Total	153	24	39	4	220 (100%)

Table 4. Types of Injuries Among Admitted Gaza Area Citizens (n = 27)

Type of Injury	No. of Patients
Soft Tissue Only	
Face and neck	3
Chest and abdomen	5
Upper limbs	4
Lower limbs	11
Fractures (closed and open)	
Facial bones (maxilla, mandible, floor of orbit)	2
Base of skull	1
Upper limbs	3
Lower limbs	10
Vertebrae	1
Penetrating Chest Injury	1
Penetrating Abdominal Injury	5
Eye Ball Injury	2
Major Arterial Injuries	
Femoral artery	1
Axillary artery	1
Iliac artery	2
Spinal Cord Injury	1
Peripheral Nerve Injury	
Peroneal nerve	4
Radial nerve	2

Bombay (29), Italy (30), Oklahoma (31), Japan (32,33), and other countries. Weapons used during these events include stones (5,9,21), knives (23,25,29), swords (5), hand axes and bayonets (24), petrol-containing bottles (22), firearms and bombs (5–8,10–15,17–20,27–31), and chemical warfare agents (sarin) (32,33).

The types of injuries differ according to the type of weapon used. Injuries of the head and neck are more common when stones are used (9), while injuries to the limbs are seen more with firearms and bombing (6,29). Head injury predominates in both immediate and late fatalities (14,27,28). Injuries from stones, knives, and firearms are the result of the direct effect of the causative agent. Explosives result in multiple injuries due to multiple factors. Cooper et al. (12) discussed the physical factors responsible for injury following terrorist bombing in closed places. They divide factors into direct exposure to overpressure, blast-induced whole body displacement, impact of blast-

energized debris, and burns from flash and hot gases. Robb and Matthews reviewed 500 casualties admitted to the Belfast hospital wards during a 3-month period (5). Most of the injuries were caused by bullets, and the limbs were the most commonly injured part of the body. Hadden et al. (10) reviewed 1532 patients injured by terrorist bombing in Northern Ireland. The types of injuries varied from skin lacerations and abrasions, which were the most common, to limb amputations and blast injury of internal organs. In their study, the most frequently injured area was the head and neck and the least was the lower limbs. Explosion of "Molotov cocktail" bottles inside traveling cars resulted in smoke inhalation injuries and burns of the face, thighs, hand, and chest (22).

Agents used to control riots and civil violence also may be harmful. These agents include water jets, lacrimogenic agents (tear gas), truncheons, rubber and plastic bullets, and firearms. Zekri et al. (35) report 96 cases of burn injuries as an unpredicted side effect of tear gas. The mechanism of burn injury is due to the flame generated from the grenade explosion, direct contact between the hot canister and the victim's skin, and the effect of the chemical powder inside the canister when it splashes onto the victim's body. The rubber bullet is a blunt missile that is intended to administer a painful slap severe enough to deter stone throwers but not severe enough to cause major injuries. The main problem with these rubber bullets is that they are highly unstable in their flight and therefore inaccurate. Hits to vulnerable areas are not avoidable (36). Millar et al. (36) reported 90 patients who were injured by rubber bullets. There was 1 death and 17 permanent disabilities and deformities, including ruptured globes and compound fractures of the nose and maxillary bones. Plastic bullets are intended to be more accurate in their flight and cause no more damage than rubber bullets (38). Rocke (38) compared the injuries caused by rubber bullets with injuries caused by plastic bullets. Both are dangerous to the head, especially to the eyes, but, in general, he found that more severe injuries are encountered with rubber bullets than with plastic bullets. Cohen (37) described five cases of facial injury from plastic bullets, including mandibular

Table 5. Penetrating Abdominal Injury Among Admitted Gaza Area Citizens (n = 5)

Type of Injury	Procedure	No. of Patients
Ruptured Spleen	Splenectomy	2
Kidney Lacerations	Nephrectomy	1
Small Bowel Lacerations	Partial Resection and Colostomy	2
	Suture and Colostomy	3
Colon Lacerations	Suture and Colostomy	3
Urinary Bladder Lacerations	Suture and Cystostomy	1
Liver Lacerations	Suture	2

Table 6. Types of Injuries Among Admitted Israeli Soldiers and Civilians (n = 46)

Type of Injury	No. of Patients
Brain Concussion	7
Soft Tissue Only	
Face and neck	19
Chest and abdomen	4
Upper limbs	5
Lower limbs	1
Fractures (closed and open)	
Teeth	5
Facial bones (maxilla, mandible, nose, floor of orbit)	4
Ribs	3
Upper limbs	2
Lower limbs	6
Vertebrae	1
Hemothorax	3
Penetrating Chest Injury	1
Myocardial Injury	1
Penetrating Abdominal Injury	1
Eyeball Injury	3

fractures and eye ball injuries, resulting in blindness of one eye in one patient.

Terrorist actions sometimes result in mass casualties. Many theories have been written and developed on the management of mass casualties. Drill rules and regular practice of these rules are the basics of managing mass casualties (39–41). Since Israel is always at war, each hospital in Israel has its own plan to deal with such unusual events. The hospital managers are obliged every 2 years to practice an imaginary mass casualty event and to activate all the emergency systems inside and outside the hospital. This ensures that all personnel in the hospital are acquainted with the drill rules and know their proper assignments during such events. These rules were invoked many times during the absorption of the Palestinian uprising victims.

In the cases described in this article, most of the Israeli soldiers and civilians were injured by striking stones. Direct blast injuries from explosives were not seen, since all of the explosions occurred in open places. However, injuries from shrapnel were seen among the Israeli soldiers. Rubber bullet injury was seen in only one patient, who had soft tissue injury of the upper limb. The Israel Defense Army Forces use rubber bullets regularly in controlling riots. Most of the injured Palestinians were treated in Al-Shifa Hospital in Gaza. The high proportion



Figure 1. A victim of the Palestinian uprising with a knife in his back.

of lower limb injuries among the Palestinians compared to the Israeli patients was the result of the instructions given to the army forces to open fire only when life threatened and to direct fire first to the legs.

During the 3 years following the peace treaty with the Palestinians, we have been seeing fewer casualties from terrorism in our hospital from the Gaza area, but this is only because terrorism moved from Gaza to the center of Israel. There have been more than 10 events of mass casualties by suicidal terrorists who exploded themselves in public places and public buses, causing more than 250 deaths and injuring more than 600 innocent people. Many of these events occurred in Jerusalem. One event occurred in Ashkelon in 1996 (42). Blast injuries were prominent during these events, especially blast injury of the lungs. The bombs used during these attacks contained nails in addition to the explosive material, thus increasing the morbidity and mortality of the people in the vicinity of the terrorist.

CONCLUSION

We present the results of the Palestinian uprising and describe the different means of injury and the various types of injuries among the terrorists and the Israeli soldiers and civilians. We hope that the peace process will proceed to a brighter future for both nations, that terrorism will be defeated, and the typical picture of terrorism (Figure 1) will disappear forever.

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