Pak Armed Forces Med J 2007; 57(2): 100-103

ORIGINAL ARTICLES

PATTERN OF TOY BOMB INJURIES IN AZAD JAMMU & KASHMIR (A HOSPITAL BASED STUDY)

Zafar Iqbal Gondal, *Iqbal Ahmad Khan, *Shaukat Mahmood Qureshi, **Bashir Ur Rehman, **Ijaz Ahmad, **Zyad Kiani

CMH Kharian Cantt, *Army Medical College Rawalpindi, **CMH Muzaffarabad

ABSTRACT

Background: An observational, hospital based study was conducted at CMH, Muzaffarabad to see the pattern of Toy Bomb blast injuries in a period from 1st Jan 2002 to 31st Dec 2003. On an incidence of Toy Bomb Blast injuries, patients reporting to a hospital in Azad Jammu and Kashmir (AJ&K) were the core study material for this article.

Aim of Study: To study the pattern of injuries and their consequences in the studied population.

Patients and Methods: Patients reporting to the hospital with history of toy bomb blast injuries were examined evaluated and followed up. Documents of patient with similar injuries in past treated in the hospital were also included in the study. A checklist guided the follow up of the patients from the incidence that triggered the study. The patients were scrutinized/evaluated according to Advanced Trauma Life Support (ATLS) system of trauma care.

Results: Altogether 48 patients record was checked. The age ranged from 1 – 63 years (majority of the patients (80%) were male below 13 years of age), 38 (79%) cases sustained major trauma with multiple injuries of head/neck, maxillofacial, chest, Abdomen and all four limbs. Twenty-four cases (50%) had permanent disabilities. Mortality rate was 20%. Wound infection was very high (60%). The major complications were depending upon the organ involved/injured.

Conclusion: This study points to the need for further studies of this unique method of causation of injuries (toy bomb blast injuries), the pattern they evoke and possible handling of such eventualities. It is desired that at one end the community must be informed and educated about the type, shape, injuries & prevention of the toy bomb casualties and on the other end quick evacuation and proper management of cases be ensured.

Keywords: Toy bomb, trauma, ATLS

INTRODUCTION

Innocent civilian population of border area of AJ&K has suffered from unique kind of injuries caused by toy bomb blasts, which is not common in developed world. An observational, hospital based study was conducted in CMH, Muzaffarabad to see the pattern of toy bomb blast injuries in a period from 1st Jan 2002 to 31st Dec 2003. On an incidence of toy bomb blast injuries, patients reporting to a hospital in AJ&K were the core study material for this article. We analyzed the patient's data to study the pattern of injuries and their consequences.

Toy bomb is very unique explosive device that causes extensive injuries. When children are playing with it, it explodes in

Correspondence: Col Zafar Iqbal Gondal, Classified Surgeon, Combined Military Hospital, Kharian

their hands resulting in high mortality/morbidity and injuring nearby people very seriously. Almost every part of body is seriously injured from head to toe including face, neck, abdomen, and chest along with all four limbs [1-8]. Head injury along with loss of both eyes and otological injuries are common [9-12]. It causes neuro–vascular injuries, resulting in permanent disabilities including paralysis and amputation of upper/lower limbs [11]. Blast injuries with high velocity sharpnel are cause of dirty wounds resulting in tetanus, gas gangrene, severe wound infection and septicemia leading to early deaths other than those who die at the spot. Abdominal and chest penetrating wounds are a cause of long term morbidity [8,12] which may result in ultimate death of victims.

Objective of the study was to find out and highlight the extent of this very rare and unique cause of major trauma, and to evaluate multiple injuries caused by toy bomb blasts of which the majority of sufferers are innocent children. Public should be educated in forward areas of AJ&K and children should be taught in schools about the serious effects of this unusual cause of major trauma, so that it can be avoided in future to save them from life long disabilities. International community can be alerted to blatant violation of Geneva Convention [8].

PATIENTS AND METHODS

A hospital based, observational case reference study was carried out from Jan 2002 to Dec 2003 to study the pattern of toy bomb injuries in Azad Jammu and Kashmir and to recommend preventive measures. An incidence of major trauma caused by toy bomb blast in border areas triggered the inquiry. These patients were followed up through a check list and remaining patients were included in the study from the past incidences of similar nature through hospital records.

A checklist was prepared to guide the investigators to record various variables and clinical findings, investigations, operative procedures & complications pertaining to the patients involved.

The data was gleaned, sifted and analyzed by using software SPSS 10.

Data was analyzed according to ATLS system of patient's evaluation, primary survey – ABC and secondary survey – history/physical examination; basic investigations and relevant X-Rays were done. Patients were evaluated by the other specialists including orthopedic surgeon, Ophthalmologist and ENT surgeon, Neurosurgeon, Facio-Maxillary Surgeon along with our General Surgical team.

RESULTS

There were 48 cases of toy bomb injuries from Jan 2002 to Dec 2003 in Azad Jammu & Kashmir, who reported to CMH, Muzaffarabad.

The age distribution was from 1-63 years. Both sexes were involved, males were 30 (62%) and females were 18 (38%). Eighty percent of injured were below the age of 13 years (fig. 1).

Thirty-eight (79%) patients sustained major trauma, such that among these 24 (63%) had permanent disabilities. Almost every person sustained multiple injuries involving more than one area of body (table).

Mortality rate was 20%. Majority of the patients died due to hemorrhagic shock, grievous visceral damage and head injuries.

Laparotomy was performed on 10 (21%) patients, chest intubation was done on 4 (8%) and skin grafting was carried out on 5 (10%) patients. Amputation of lower limb was performed in 1 (2%) patient.

Wound infection was very common and involved 29 (60%) patients. The common organisms were Staph aureus, Pseudomonas and gram negative anaerobes for which co-amoxiclav, Gentamicin, Cefotaxime and metronidazole was used with good response. One patient developed septicemia with mixed organisms but luckily he survived with the help of proper and timely antibiotic coverage including Tazocin.

DISCUSSION

Toy bomb injuries are common in this part of the world only that is Azad Jammu & Kashmir. These types of injuries have never been reported from Western/developed world.

In this study majority of the victims were males below the age of 13 years as it is very common for male children to play outside their homes, in the field.

The children play with the strange toy bomb and out of their innocence they sometime rub, push/pull the bomb considering it a toy. The resultant blast not only kills the nearby persons but also inflicts serious types of multiple injuries all over the body [2,5,7,8,12].

The pattern of toy bomb injuries is different from the common injuries caused by road traffic accidents/falls etc. The essential objective of the study was to find out and highlight this rare cause of injuries to our young innocent children in forward areas of AJ&K. The most common injuries are multiple injuries including head/maxillofacial injuries - 23 (48%) patients, Limb Injuries with fractures 16 (33%) patients Burns at the sight of splinter 13 (27%) patients, Abdominal injuries 12 (25%) patients, chest injuries 7 (15%), and Neuro-vascular 6 (13%), [2,5,8,11,12]. Majority of these injured were seriously wounded because of proximity of the bomb to the patient and handling of the bomb by the person. Minor injuries were sustained by the bystanders/onlookers in the vicinity (21%). Most of the injuries were on the upper body parts including face, eyes, ears, chest, abdomen and upper limbs with neuro-vascular injuries/damage [5,9,10,12].

It is needed that public be informed about the type, shape, and hazards of toy bombs. In this regard school authorities/mothers can be instrumental as majority of the victims are below the age of 13 years.

Table: Pattern of injuries

Nature of Injuries	No. of Patients	%age
Head/Maxillofacial injuries	23	48
Limb injuries with fractures	16	33
Burns at the site of splinter	13	27
Abdominal injuries	12	25
Chest injuries	7	15
Neuro-vascular injuries	6	13

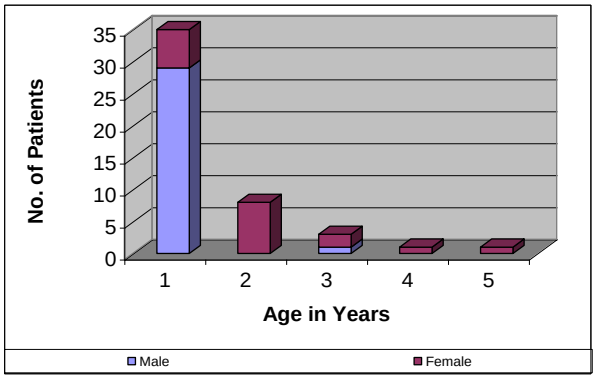

Fig. 1: Age/sex distribution of cases

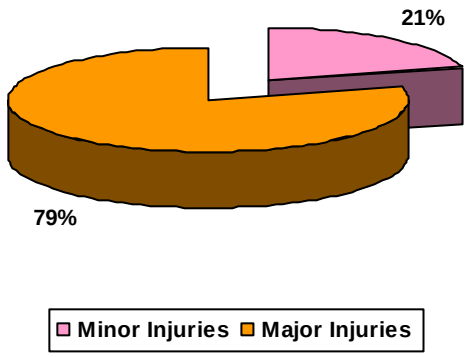

Fig. 2: Nature of injuries (n = 48)

Such injuries and their effects can be minimized through – firstly civilian population be informed about the shape, type and hazards of toy bomb. In this regard children/women should be the target group for awareness/education. Multi sectorial approach by involving print and electronic media be adopted for this purpose. Secondly International agencies working for the peace be involved to convey the message of respect for human rights regulations. No country should be allowed to kill the innocent civilian population by using toy bombs. Further more

mobile flying squads consisting of surgical team be provided to deal with such type of emergencies. ATLS course should be compulsory for all surgeons/anesthetists and doctors working in accident and emergency departments at national level, particularly those working in hospitals of AJ&K in the vicinity of line of control.

CONCLUSION

Toy bomb blast injuries mostly occurred to the unsuspecting children handling the toys in forward areas of AJ&K. Casualties of toy bomb blasts incidences were severely injured resulting in fatalities and permanent disabilities. There is a need, to raise the awareness of susceptible public and international community/forums should be alerted to combat this menace.

Such injuries and their effects can be minimized through – enhanced information of the civilian population on the hazard and its effects such as about the shape, type and injuries of toy bomb. In this regard children/women can be the target group for awareness/education campaign. Multi-sectorial approach by involving print and electronic media, health services personnel and political leadership be adopted for this purpose. International agencies working for the peace be sensitized to convey the message of respect for human rights regulations. Further more trauma management practices in forward areas of AJ&K including resources, training of personnel and reaction time be reviewed.

REFERENCES

1. Treadwell I. Management of blast injuries. *Nurs RSA* 1989; 4(5): 9-11.
2. Owen-Smith M. Bomb blast injuries: in an explosive situation. *Nurs Mirror* 1979; 149(13): 35-9.
3. Boffard KD, MacFarlane C. Urban bomb blast injuries: patterns of injury and treatment. *Surg Annu* 1993; 25 (Pt 1): 29-47.
4. Haywood I, Skinner D. Major trauma: blast and gunshot injuries. *Nurs RSA* 1994; 9(5): 13-14 & 26.
5. Tuggle DW. Blast injury. *J Okla State Med Assoc* 2003; 96(9): 419-21.
6. Horrocks CL. Blast injuries: biophysics, pathophysiology and management principles. *J R Army Med Corps* 2001; 147(1): 28-40.
7. Cernak I, Savic J, Ignjatovic D, Javtec M. Blast injury from explosive munitions. *J Trauma* 1999; 47(1): 96-104.
8. Cooper GJ, Maynard RL, Cross NL, Hill JE. Casualties from terrorist bombings. *J Trauma* 1983; 23(11): 955-67.
9. Zarkovic S, Busic I, Alagic J, Kapidzic A. Blast injuries of the ear. *Med Arh* 1994; 48(2): 67-9.
10. Zerihun N. Blast injuries of the eye. *Trop Doct* 1993; 23(2): 76-8.
11. Wolf YG, Rivkind A.. Vascular trauma in high-velocity gunshot wounds and shrapnel-blast injuries in Israel. *Surg Clin North Am* 2002; 82(1): 237-44.
12. Cripps NP, Glover MA and Guy RJ. The pathophysiology of primary blast injury and its implications for treatment. Part II: The auditory structures and abdomen. *J R Nav Med Serv* 1999; 85(1): 13-24.