

Surgical Management of OP PAWAN Casualties at Command Hospital, Air Force, Bangalore - A Synopsis

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Command Hospital, Air Force, Bangalore was involved in the treatment of 639 battle casualties, accidents and other injuries from the 2nd of October 1987 till the withdrawal of Indian Peace Keeping Force (IPKF) during the Sri Lanka operations. A detailed analysis of the types of injuries, their causative agents, management and disposal at the tertiary level of battle casualty care is done, and is compared with previous Korean, Indo-Pak War, Vietnam and Falkland's conflicts with an aim to suggest subsequent planning to prevent and reduce loss of life and limb in future conflicts. Key words : Sri Lanka operations, battle injuries, mass casualty management

Keywords : OP PAWAN, IPKF, battle casualty, war surgery

The first casualty of Indian Peace Keeping Force (IPKF) operation in Sri Lanka was received at Command Hospital (Air Force) Bangalore by IAF Aircraft on 2nd October 87. Subsequently casualties were being sent both by Air and Rail. By the middle of October 87 about 30 to 40 cases were received per day, the largest number on a single day being 81 on 14th October 87. A total of 639 casualties were received till the 30th of April 90. All the cases had received various modalities of surgical therapy at the Forward Surgical Centres/Field Hospitals and were in various states of surgical fitness ranging from moribund to superficial bullet injuries. A fresh Triage was always necessitated was done at the Airport/Hospital. The treatment plan was introduced involving the Ophthalmic and ENT surgeons. Detailed documentation at admission and discharge were made so that changing picture of the surgical illness could be incorporated to facilitate this study. Observations

The rank wise distribution of the cases received at the Hospital are presented in Table I.

Table-I Number of cases - Rank wise distribution

Rank	No
Officers	20
Junior Commissioned Officers	70
Other Ranks	549
Total	639

Region wise injury pattern of the cases are shown in Table II, lower limb injuries with fractures

Table-II Injury pattern - Region wise

Region	%
Head and neck	7.6
Chest	4.2
Trunk excluding chest	6.8
Upper limb with fractures	13.7
Upper limb with compound fractures	6.6
Lower limb with fracture	26.5
Lower limb with compound fractures	8.2
Maxillo facial	6.8
Ear	1.6
Eye	1.3
Burns	1.1
Spinal	1.1
Fracture pelvis	0.3
Injuries involving more than one region	0.3

making the highest incidence (26.5%) and fracture pelvis making the lowest (0.3%). A small fraction of the total cases had injuries involving more than one region (0.3%). Causative agents for the morbidity are presented in Table III. Mine

Table-III Morbidity pattern - Causative agent wise

Causative agent	%
Gunshot wound	26.9
Shell injuries	22.7
Mine blast injuries	40.1
Blast injuries	2.0
Miscellaneous	4.7

blast injuries making the highest incidence (40.1%) followed by gunshot wound (26.9%) and shell injuries (22.7%). Out of the total 240 cases of emergency surgery undertaken at this centre (Table IV) abdominal injuries were the largest (109) closely followed by limb injuries (98) and the number of maxillo-facial surgery made up the rest

Table-IV Emergency Surgery

Procedure	No
Maxillo facial surgery	33
Limb injuries	98
Abdominal injury	109
Total	240

(33). Other surgical procedures undertaken with the respective numbers are presented in table V.

Table-V Other Surgical procedures

Procedure	No
Wound debridement	181
Wound toilet and dressing	322
Removal of foreign body	46
Delayed primary/secondary	
Suturing	176
Reduction of fractures	184
Plaster of Paris application	276
Exploratory laparotomies	102
Closure of colostomies	86

There were 12.6% cases with severely infected wounds out of which 6.9% were associated with fractures. The organisms isolated in these cases are shown in Table VI. Out of the total 639 cases

Table-VI Organisms Isolated from cases of infections

Organisms	Sensitivity
E coli	Gentamycin and Carbencillin
Proteus	Gentamycin and Carbencillin
Pseudomonas	Polymyxin
Klebsiella	Carbencillin
Staph aureus	Cloxacillin and Ampicillin
Streptococci (β -haemolyticus)	Ampicillin, Penicillin, Gentamycin and Tetracycline

received and treated at this Hospital, one individual with multiple soft tissue injury died from septicaemia.

Discussion

The injuries sustained during war are wide, varied and differ considerable from civilian polytrauma. The physical effects of the ballistics, other causative agents and their effects are well

known and widely documented^{1,2}. The ratio of Officers, JCOs to the men injured and the injury pattern is the same as that seen in the Indo-Pak Wars. The incidents of Burn Injuries has been much lower³. We have found that despite adequate peripheral therapy, fresh triage on arrival at the tertiary level of hospital care is a must. Though initially made to implement at the field level,⁴ its utility at all levels must not be underestimated. This helps in segregating casualties who may have been overlooked initially⁵. We had to perform emergency surgery in 240 patients, mainly with abdominal and limb injuries to close perforations, intestinal and urinary fistulae; 33 cases of maxillofacial injuries required emergency surgery. Other planned surgical procedures were mainly wound resuturing by delayed primary suturing, exploratory laparotomies and manipulation of fractures, skin grafting. The main reference to surgical procedures are seen at field level^{6,7,8} during the Falkland and Vietnam Wars. The latter⁸ lays stress on early evacuation and operation. It must be stressed that involvement of the ophthalmologist and ENT surgeon must be sought. As it has been noted by Mishra et al⁹, as many as 20 percent may have asymptomatic barotrauma. The majority of injuries have been due to mine blast followed by gunshot and shells. This is what has been seen in Guerrilla warfare all over the world (e.g. Vietnam⁷). These agents causes wide spread injuries which may take days to unfold. The incidence of infection has been noticed to be quite high probably due to prolonged evacuation period. E coli and Proteus still from the most important pathogens infecting wounds (Table-VI) as seen in Indo-Pak Wars³. We have had only one death in the total of 639 patients. This death was due to multiple soft tissue injuries, intestinal, pulmonary injuries and faecal fistula.

Conclusion

To conclude, long term sporadic operations like Sri Lanka operation and Vietnam war, where a large body of troops is fighting sporadic encounters, offers time for adequate evacuation during the post encounter lull period. This lull period should be used for saving lives and limbs. Ambulances, Helicopter Ambulances, Ambulance Aircraft with an operation theatre and a surgical team on board are the need of the future.

REFERENCES

1. Faekler ML : Wounding Mechanism of projectiles striking at more than 1.5/cm/Sec. *J Trauma* 1986; 3 : 250 - 254
2. Bailey and Love : Short practice of Surgery. 20th edition: Edited by AJ Harding, Rains, CV Mann, ELBS pp 12 - 18
3. Barat AK : Principles of management of Surgical Cases. *Ind J Surg* 1974; 36 (9 - 10) : 343 - 345
4. West JG : A method of evaluations field triage criteria. *J Trauma* 1986; 26 (1) : 655 - 659
5. Howe DK : Evaluation of injury mechanism as a Civilian in trauma triage. *Am J Surg* 1986;152 (1): 6 - 10
6. Scott R : South Atlantic Campaign. *J Roy Soc Med* 1983; 76 (1) : 903 - 904
7. Ryan JN : The Falkland's War. *Annals f Roy Coll Surg Eng* 1984; 66(3) : 195 : 196
8. Cogen LN : Military Orthopaedic Surgery. *Clin Orthop* 1988; 200 : 50 - 53
9. Mishra KK, Kashyap RC, Gupta SM : Evaluation of Otological blast trauma in OP PAWAN Casualties. *MJAFI* 1989; 45(2): 71-76