

## War Surgery

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Surgery for war victims is different from the type of surgery practiced for civilians inflicted with injuries. War wounds are different from civilian injuries as they are always extremely contaminated, massive and with damage of vessels, bones and other tissues.

The doctrines of surgery for war injuries are known for longtime but needs to be relooked and revised by new generation of surgeons working in war situations.

The aims and objectives of war surgery are to; Saving Life, Limbs Saving, Rehabilitation, Minimize disability, Prevention of infectious complications

The outcome of weapon wounded is influenced by different factors like injury type, general condition, first aid, time consumption for shifting to hospital, treatment quality and possibility of shifting to a better equipped facilities with experienced staff. All of the above factors should be taken into consideration by the military<sup>1</sup>. The organization of care in some countries, is so effectual that any person who is wounded can receive treatment comparable to any situation in peace time. However in developing countries, the health delivery system might have been frail before the start of conflict or may be almost ineffective because of the conflict<sup>2</sup>. Utility supplies can be unreliable, trained personnel usually leave the area, disposables and drugs can't be replaced, and buildings could have been destroyed. If doctors and nursing staff have the knowledge and enthusiasm with just basic technology, weapon wounded patients can be treated with reasonable results. The initial treatment provided at the site of wounding or at the safe place near the area of conflict and quick evacuation is of utmost importance, because mortality and morbidity increases with delay in wounding and treatment. The final result will be better if the first aid is more effective and evacuation to a hospital is quicker. On the contrary, if initial treatment is not adequate or unavailable and the evacuation plan is longer, then the outcome will be decided by nature.

For a successful outcome, surgeons should be eager to learn and should change their behavior according to different circumstances. The most of the wounds would be on extremities, and the objective should be, to treat them so that they heal quickly without harboring infections<sup>3</sup>. Proper physiotherapy is a must to ensure early mobilization after surgery and treatment is not complete until the patient is rehabilitated. Additional requirements is orthopedic workshop to provide prostheses for amputees and suitable devices for the disabled persons which includes orthoses, crutches or wheelchairs. Basic principles of management of weapon wounded patients are comprehensive wound excision, antitetanus vaccines and immunoglobulin, delayed primary closure, antibiotics and avoidance of internal fixation of bones. Early and complete wound excision significantly reduces chances of mortality from gas gangrene and generalized infection. It also reduces the number of surgical procedures required to remove remaining infected, dead/dying soft tissues, bone pieces and allow delayed primary closure fruitful. Accurate surgery gives the patient the better chances of survival with a quality life and reduces stay in hospital<sup>4</sup>. In developing countries, the healthcare technology is usually not up to the standard before the conflict. In other countries, the level may deteriorate because of the conflict, with interrupted communication lines, non-availability of spare parts, and ignorance about repair and maintenance. However different experiences show that it is possible to do good quality surgery with minimum basic technology, like simple X-rays, while equipment for electric monitoring in the operating theater and the postoperative ward are not even available. Different organizations have established standard lists of drugs and equipment based on experience of working under tough conditions. These should take into consideration: the level of care, the standard of treatment, the instructions from the local health ministry, the level of care provided to patients in hospitals, and the local level of resistance to drugs. Such regulations should avoid 2 main difficulties. One, the introduction of new drugs or apparatus which are unavailable in the country and which may create new demands; and two, the delivery of surgical care which is of a high standard and more refined than available in the host country<sup>5</sup>. Because of the battlefield, some of the staff members may have escape the hospital. Trained staff are difficult to swap, and their absence will disturb daily work in the hospital. When working in a foreign country, it is essential to have the services of reliable translators to facilitate communication with staff and patients, as well as local authorities. Security is mandatory, and should be ensured for patients and healthcare workers. Suitable places should be selected for first aid posts and hospitals. In a war like situation, with limited doctors and healthcare workers, and with lot of wounded patients pouring in, hospitals may be overwhelmed. There could be shortage of stocks with inability to provide optimal treatment. It is necessary to realize that doctors and healthcare workers also get tired and sick, and are occasionally scared<sup>6,7</sup>. So they cannot perform their duties efficiently. Cultural restrictions may add to their frustrations, resulting in stoppage of work. In many countries people don't allow amputations and laparotomies and it is hard to see young people dying because necessary surgery cannot be performed. In a battlefield most health infrastructures will be dealing with weapon wounded patients. The injured may be suffering from other diseases, like malaria, tuberculosis, worm infestation, and typhoid, and these should also be considered. Local doctors and staff are usually familiar with these diseases and can be of great help<sup>8</sup>.

As far as the situation is not healthy. We are almost unable to cope the mass casualties and death toll is quite high in weapon wounded patients. After the earthquake of 2005, Government tried to formulate different departments to cope with situation

of mass destruction but still after more than a decade there is no comprehensive force or mechanism to deal with situations of mass casualties. Isra University Islamabad and International committee of Red Cross (ICRC) have joined hands and started a comprehensive course in "Management of weapon wounded patients" for surgical post graduate trainees country wide. This could be the first rain of drop in improvement of War Surgery Skills.

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