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The complete military surgeon²

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The prime task for the military surgeon at the 'sharp end' of a military operation is to provide 'initial wound surgery' which is that emergency surgery required to maintain an airway, and quell major haemorrhage, and therefore save lives which otherwise would be lost. This is classified as Level 3 medical support and should ideally be performed within 'the golden' first hour of injury but preferably within three hours, which is a more realistic goal for the military scenario. It also includes initial debridement of wounds and stabilisation of fractures.

The military surgeon must, therefore, have knowledge and experience in the management of trauma, including the metabolic response to injury, and have knowledge of the effects of burns, missile and blast injuries, and their treatment. They must also be able to operate within any cavity of the body, and deal with the acute problem within it, to explore and debride an injured limb, and if necessary amputate the limb or apply external fixators to a compound fracture or to a unstable pelvic fracture. There should be a familiarity with the principles and techniques of vascular surgery.

More advanced, specialised surgery (Level 4 or 5) theoretically has no place in this environment and patients needing this level of care would be transferred by strategic aeromedical evacuation (AME) to a tertiary centre in Australia or it's equivalent in another country.

However, ADF operations will increasingly involve Peacekeeping and Low-Level Operations and are likely to include humanitarian support. Based on recent experiences of Level 3 medical support provided on Peacekeeping and Monitoring Operations by the ADF in Rwanda and Bougainville respectively, a much wider repertoire of operations and clinical decision making is required of the surgeon. This may necessitate some Level 4 and even Level 5 surgery to enable the completion of the treatment process and return of the individual to their family and society.

This surgery may include such subspecialties as plastic and reconstructive surgery, faciomaxillary surgery, neurosurgery, vascular surgery, burns surgery, paediatric surgery, obstetrics and gynaecology, urology and a wider range of orthopaedic surgery. How can the surgeon being trained today be expected to cope with this myriad of procedures?

Military Surgical Training

General practice does not provide the necessary qualification or range of skills to perform military surgery. We believe that a post graduate surgical qualification (FRACS or it's equivalent) is a prerequisite for a military surgeon. However, surgery today is becoming increasingly sub-specialised. A trainee in general surgery may have minimal training and experience in trauma management and trauma surgery and may eventually practise with a limited repertoire of highly specialised regional procedures, for example breast surgery or upper GIT surgery.

The same strictures apply to many of the other surgical specialties and many recently qualified specialist surgeons have had minimal experience with general surgery and often no experience with the other surgical specialties. In Australia, the trauma surgery experience is diminishing, firstly because of effective preventive strategies, and secondly because of the concentration of serious trauma cases in trauma centres. This lack of general and trauma skills and experience would place these surgeons at a distinct disadvantage when faced with the broad challenges facing the military surgeon.

The rural surgical training program of the Royal Australasian College of Surgeons provides a very broad training and back ground for an aspiring military surgeon who would be expected to treat civilians during Peacekeeping

Operations as well as battle casualties in military personnel. A period or Fellowship doing general trauma surgery, which may be obtained in trauma centres either in Australia or overseas, is also a highly desirable training option for the Australian Military Surgeon.

The ADF should offer some encouragement through scholarships or return of service agreements to facilitate these goals. Once the surgeon is qualified, a model of military service could be developed which included some part-time civilian surgery in private practice or as a trauma surgeon within a civilian trauma centre.

Future Approaches to Surgical Support

The electronic age has enhanced communication over long distances with aids such as satellite telephone, teleradiology, videoconferencing, E-mail, digital photography and electronic transfer of the images via the Internet. The surgeon when faced with an unfamiliar clinical situation may rapidly seek advice through a bank of specialists at 'home' enabling the surgeon to use his or her general surgical skills to adequately treat the condition.

The more experienced colleague may offer a solution or plan of investigation and treatment for a particular clinical problem which may not be readily apparent to the surgeon 'on the ground', and the surgeon may be guided through the steps of the operation if unfamiliar with it. This can be a tremendous confidence boost and allow the surgeon to obtain excellent results in unfamiliar clinical situations.

The ultimate in battlefield assistance is the telerobotics systems where robotic arms perform battlefield surgery controlled by the surgeon performing the 'virtual' surgery at a distance.² These systems are still in the development phase and will need accurate tactile feedback and excellent imaging systems to be practicable.

Definitive Surgical Trauma Course

The Definitive Surgical Trauma Course (DSTC) was held for the first time in Australia in 1999 (apart from the pilot course). The DSTC course is not a substitute for the Early Management of Severe Trauma Course (EMST) of the Royal Australasian College of Surgeons which remains an essential prerequisite for any medical practitioner managing trauma.

It is designed to train the general surgeon in the rapid decision making and operative treatment required to manage severe trauma to any area of the body. It includes didactic presentations, case discussions, human cadaver dissections, and surgery in the animal laboratory. The operative approaches include thoracotomy, craniotomy, and exposures of the large blood vessels in the neck, chest and abdomen which are not common targets for the general surgeon, but which may all be required in managing trauma. 'Damage control' surgery is emphasised in the course and this has particular applicability to the military scenario.

Australian and New Zealand military surgeons should be encouraged to do the course and in time it may be feasible to add a military module to the course as has been done in the United States. It would also be appropriate to develop military surgery modules for paediatric surgery and obstetrics and gynaecology that are also encountered frequently on peacekeeping operations.

The proposed establishment of a Chair of Military Medicine should facilitate the academic development of Australian military surgery and assist and even coordinate the training of the military surgeon.

Surgery in the Field

The Forward Surgical Troop is the smallest surgical unit in the Australian Army (apart from the unique Parachute Surgical Troop) and has equivalents in the Navy and Air Force. The manning includes a general and orthopaedic surgeon and each can assist the other.

As there are likely to be many limb injuries on military operations, the presence of an orthopaedic surgeon is appropriate. Acute knee injuries could be aggressively treated in the area of operation using arthroscopy, thus preserving manpower. Brigadier R. Atkinson has demonstrated that this can be done in a remote surgical facility in

northern Australia. It may not always be possible to have the two surgeons together so that the generalist will still need to have familiarity with acute orthopaedics.

Conclusion

The difficulties of producing the complete military surgeon in today's environment of super-specialisation have been highlighted and some solutions offered, but in the final analysis, nothing can substitute for an extensive clinical and operative experience.

References

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