Aims and structure of the book

This book is primarily intended to be read by humanitarian surgeons during and before embarking on a humanitarian mission in an area of conflict or war zone. Most penetrating wounds seen by humanitarian surgeons in conflict environments are caused by explosive devices, which include conventional weapons (such as grenades, mortar bombs and rockets), terrorist devices (so-called improvised explosive devices, or IEDs) and anti-personnel mines. Secondary and tertiary blast injuries (penetrating injuries from multiple fragments, and traumatic amputations) make up the vast majority of cases that these surgeons will encounter.

The range of surgical skills required by humanitarian surgeons managing wounds like these is very wide, and it is unlikely that any individual surgeon (who usually has a background of specialist experience) will be proficient in all these areas. In addition, many missions require skills in blunt trauma, acute surgery, obstetrics and burns management; this potential combined workload, together with the constraints imposed by resource-poor environments, can make the prospect of such missions quite daunting.

The main purpose of this book is to provide reassurance to surgeons who must manage penetrating wounds (caused by missiles such as bullets from guns and fragments from exploding munitions) and traumatic amputation. Previous practical surgical expertise is assumed (as is the use of antibiotics and analgesia according to local protocols).

The book provides a comprehensive outline of core practical surgical skills, and covers in a logical sequence the appropriate techniques from the field of general, cardiothoracic, vascular, orthopaedic surgery, neurosurgery, maxillofacial and plastic surgery. Furthermore, the Appendices describe an approach for managing burns, together with an overview of obstetrics in resource-poor environments.

Note: The Authors do not cover ballistics or care in the field or triage, and any discussion of clinical signs is kept to a minimum; rather the focus is on the technical aspects of the surgical treatment of open wounds. Primary blast injuries (such as 'blast lung') are not covered in the interest of brevity and clarity.

For ease of use, the book is divided into four main colour-coded sections, as follows.

SECTION I: Access

This is essentially a checklist of surgical approaches to 'vital' structures, including the brain. The various anatomical regions are considered in sequence. As a confidence-building exercise, this part of the book can be used as a dissecting-room guide, to practise the incisions and dissections required to gain the necessary access.

SECTION II: Initial actions

This section provides another detailed checklist of all the potential initial surgical actions necessary to save life, while preserving the potential for as much normal function as possible. It describes the definitive surgical techniques, together with (where appropriate) simpler and quicker surgical options used for ‘damage control are described in detail

Together, Section I and Section II provide surgeons with the 'building blocks' required for the decision-making processes described in Section III.

SECTION III: Decision-making

The surgical approaches and initial actions from Sections I and II are now applied to casualties presenting in the emergency room with penetrating wounds or traumatic amputations, for whom resuscitation attempts are ongoing. A framework for decision-making by surgeons who are called to the emergency department in such circumstances is provided, based on (i) systemic blood pressure after resuscitation attempts and (ii) the site of the penetrating wounds. The immediate aims of surgery are to stabilise the casualty and prevent the development of infection. Options for damage-control surgery and definitive treatment are explained in detail.

SECTION IV: Closing the wound

This describes the subsequent actions for achieving soft tissue healing and bone healing, with the ultimate aim of restoring as much function as possible.