Complex and multiple consequences

1. DIRECT EFFECT ON THE VICTIMS

BLAST OR SPLINTER WOUNDS FROM MINES; HANDLING ACCIDENTS

Injuries sustained from the explosion of a mine come either directly from the blast or else from fragments of clothing, metal or plastic which penetrate tissue or bone, often leading to serious secondary infection. Surgeons who have worked in mine infested countries have identified three types of injury due to mines.

- either the victim had stood on a mine with, for consequence, traumatic amputation of part of a lower limb associated with less serious injuries elsewhere;
- or the victim had been in the vicinity of a mine explosion and was suffering from injuries caused by fragments;
- or the victim had picked up a mine and was suffering from upper limb damage and injuries to torso and face.

In all three cases, injury seldom affects only one limb. More often the other leg or the other arm is also affected and the genitals, other limbs, chest and face often also

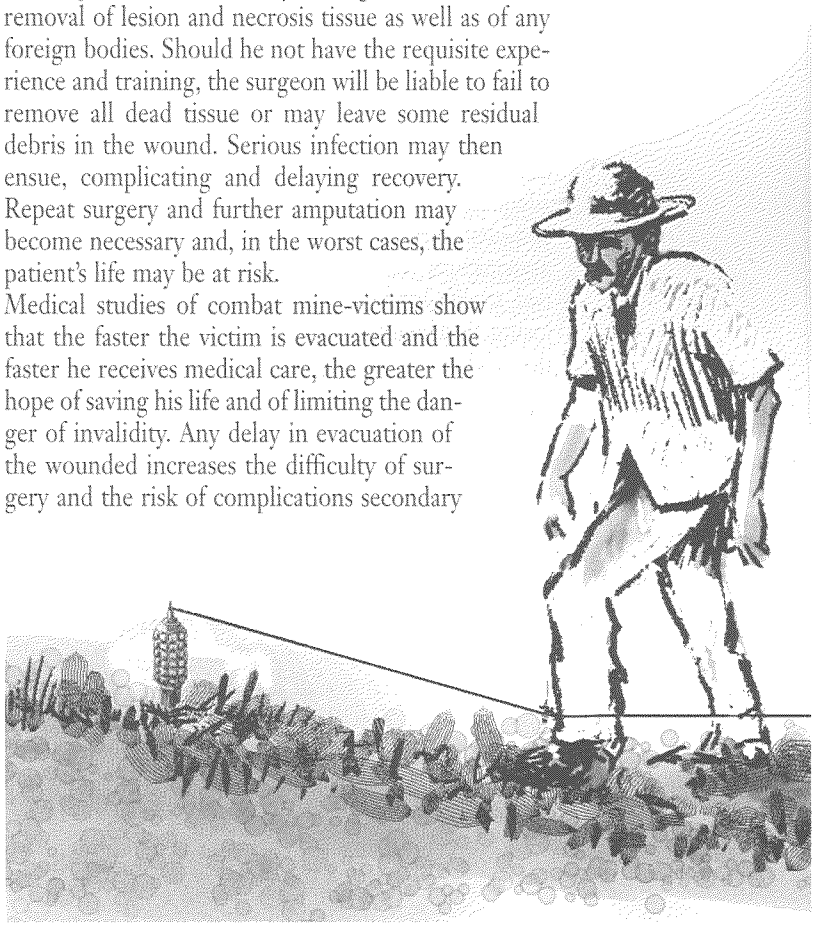
Blast from a mine explosion can destroy tissue more deep-seated, higher or lower than first appears, so that surgeons are often obliged to amputate limbs well above the apparent wound as such.

The nature of injuries sustained because of mines thus very largely depends upon the type of explosion and the type of mine concerned. Blast mines (P.M.N., P.M.N.2, Type 72, M.N. 79, P.F.M.-1 «butterfly», etc.), where the detonation is set off by a pressure system, mainly cause lower-limb and genital injury, but directional mines (M.O.N. 50, M.O.N. 100/D.H. 10, etc.), bouncing mines (Type 69, O.Z.M. 1-3-4, VALMARA-69, etc) and stake-mines (P.O.M.Z., B-40, etc) can project splinters which may penetrate any part of the body at all. The further the victim is from the explosion, the more likely it is that the injuries are going to be due more to fragments than to the explosion itself. Furthermore, the way in which the device was set up, the delay before the victim receives medical assistance, the kind of foot-wear he had on and the type of assistance he receives all play a role. Children who fall victim to antipersonnel mines receive severe injuries to hands, arms, chest, eyes and face.

SURGERY AND FIRST AID

Treating those injured by mines can often be beyond the competence of medical staff. The variability of the extent of the lesions and of the areas contaminated by dirt and debris complicates the surgeon's task. This kind of surgery is all the more problematic in that, such serious injuries and such a degree of contamination being hardly ever found in civilian life, few surgeons have the experience and skills required to treat them. In such cases, the surgeon's work comes down to the amputation of seriously damaged limbs and the removal of lesion and necrosis tissue as well as of any foreign bodies. Should he not have the requisite experience and training, the surgeon will be liable to fail to remove all dead tissue or may leave some residual debris in the wound. Serious infection may then ensue, complicating and delaying recovery. Repeat surgery and further amputation may become necessary and, in the worst cases, the patient's life may be at risk.

Medical studies of combat mine-victims show that the faster the victim is evacuated and the faster he receives medical care, the greater the hope of saving his life and of limiting the danger of invalidity. Any delay in evacuation of the wounded increases the difficulty of surgery and the risk of complications secondary to infection; it follows that, given that the speed of evacuation is the crucial factor, those who run the most serious risks are civilians moving around alone. Soldiers very generally patrol in groups, carry first-aid



Tripwire

supplies with them and are more likely to have access to radio contact- all of which makes them less likely to find themselves left without first-aid or assistance.

For civilians, however, getting to a hospital represents a major hurdle. In April 1991, a Swiss surgeon summed up the situation of mine victims in Cambodia as follows: «If the victim is lucky, then someone- usually a friend or a neighbour- will come across him in the fields and apply a tourniquet. This stops the haemorrhage, and so much the better. Unfortunately it is all too frequent to then forget to loosen the tourniquet- and there are then problems afterwards (septicaemia and severe shock). The victim stays out in the fields or else at home while someone arranges for him to be transported, often on motor-cycle taxi.

All this can take 6 to 12 hours, sometimes 24 hours, and then you have to add a few more hours before reaching the hospital.. » Many wounded die in the fields or on the way to the hospital, victims of haemorrhage.

The fate of the injured individual therefore relies on the quality of First Aid and Surgical interventions For lack of physiotherapy and adequate prostheses, patients with lower-limb amputations are condemned to life-long invalidity, losing independence and the ability to look after themselves in society The vast majority of them become beggars.

PROSTHESES

Since mines are intended to maim as well as to kill, quite a number of survivors are amputees needing prostheses and long-term physiotherapy. Unfortunately, paramedical professions relating to physiotherapy, prostheses, ergo therapy, etc., are non-existent in the countries concerned. Even if it can never really replace the lost limb, provision of a prosthesis or at least some kind of walking-aid is an indispensable step towards the amputee's social reinsertion. In countries where the economy is fragile, and the welfare system more or less non-existent, handicapped persons are an extra burden on already under-equipped medical and social services, and come to be considered as ultimate victims.

Unable to move around independently, they become a burden to others: Children would often require new prostheses every 6 months or so during their growth period. Providing a prosthesis to an amputee is enabling him to stand up for himself, to recover the use of his own hands, to work to keep himself and his family.

Such prostheses are expensive: the cheapest artificial leg costs between $12 and $120- a huge sum in the context of some developing countries. Free health-care and prostheses is a pipe-dream in such places, and so what is needed is to bring down the costs so as to make prostheses accessible to direct payment by the patient's family. This means standardising production and maximising the use of locally available skills and material.

Locally-based systems of manufacture and fitting of prostheses need setting up, along with physiotherapy and health-education as well as treatment of the psychological effects of trauma. The provision of prostheses to amputees needs planning over the long term, integrating the requirements of maintenance, adaptation and replacement.

Once again, standardization of techniques is what meets these needs. In training local technicians, the aim must be to make them aware of the fact that their job is to help people walk again, to live again- and not just to produce a well-made but unused object. **Manufacturing a prosthesis is not an end in itself.**

Decentralization of the structures concerned makes it possible to be closer to the victims' home context. This is the only way to be able to assure individual follow-up. A further necessity is a full range of physical re-education resources and activities, including co-ordination of N.G.O. programmes and information-sharing at both national and international levels.

PSYCHOLOGICAL SUPPORT, SOCIAL AND EMPLOYMENT REINSERTION

The psycho-social dimension of handicap and its repercussions on the balance of family life as a whole need taking into account. The job to be done in relation to support to victim populations is thus as a whole dependent on the drawing up of micro-projects for reinsertion in the amputees' home area and on the development of basic training and job training for the disabled while avoiding resort to «special» work or activity structures. A further important point arising in

the work needing to be done concerns the specificity of the social reintegration of ex-soldiers.

Recommendations:
The number one priority in such countries thus resides in the setting up of adequate services of medical care and of re-adaptation wherever such may still be lacking:

- first-aid and evacuation
- surgery
- prostheses and re-education
- psychological support
- reinsertion, etc..

2. SOCIO-ECONOMIC EFFECTS

Over and above the death and injury they cause, mines can paralyse a society as a whole. They affect the «nerve centres» of economic development.
The social impact is utterly important. Throughout the world, approximately 250,000 people are disabled due to mine-related casualties In Cambodia, 1 person out of 234 has been amputated, in Angola, the ratio is 1 out of 470 and in North Somalia, 1 out of 2,000. The psychological and economic impacts of this situation are tough to quantify, but they are bound to further weaken the country at a time when all productive resources should be mobilised.

NATIONAL HEALTH CARE SYSTEM

In those countries affected by the land-mine problem, such as Kurdistan, 60% of the work of health services is taken up by the treatment of mine victims (source: Mines Advisory Group). Recent estimates show the average length of stay of a mine-injured patient in hospital to be 22 days, i.e. about 50% longer than for patients wounded by bullets or fragments («Traitement et rééducation des personnes blessées par des mines terrestres» - Treatment and re-education of individuals wounded by land mines- ; Groupe d'Experts ; 5-7 July 1995).
Each mine-injury requires an average of three surgical operations. According to one calculation, these patients, who represent no more than 4% of admissions, take up 25% of hospital service resources («Traitement et rééducation des personnes blessées par des mines terrestres» -Treatment and re-education of individuals wounded by land mines- ; Groupe d'Experts , 5-7 July 1995). They need about twice as many **blood transfusions** as do bullet or fragmentation cases- and blood transfusion services tend to be inadequate or even non-existent. There is also entailed an extra cost to the medical system due to the blood-testing needed to screen for H.I.V., hepatitis and other diseases. The transfusions end up exhausting the blood supplies of the health structures, which may lead to the use of contaminated blood. Any strategy for dealing with the land-mine problem requires, as a back-up to mine-clearance operations, decentralization of blood-bank and transfusion safety provisions.

Physiotherapy and prosthesis services are often non-existent in the hospitals concerned, and should be created in order to respond to a still growing demand. Although costly, local means must be found for manufacture and installation of prostheses, health education and physiotherapy. These activities are usually financed by international assistance, at the expense of other vital