PRACTICAL HINTS ON THE TREATMENT OF WAR INJURIES IN FORWARD AREAS.

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SHOCK.

Shock is the most important factor to be dealt with. Sometimes it develops with extreme rapidity even in lightly wounded. These men are usually very excited, so if a lightly wounded man is in this condition, treat him for shock as a preventive. Haemorrhage, exposure to cold, wet, hunger and fatigue, pain and anxiety, the nature of the wound, multiple wounds, all these react on each other and can aggravate shock to a very profound degree. Another and most important aggravating cause of shock is the journey from the trenches to the C.C.S. The injurious factors of this journey must be minimized as far as possible by the provision of warmth during all stages of the journey. All transport must be as smooth as possible. Smooth running can be helped by reducing the pressure in the tyres over "bumpy" roads. The speed of the ambulance should vary according to the surface, and bends and corners should be approached at a speed that will not cause swaying of the vehicle. Loading and unloading must be carried out as gently as possible, and the patient must never be submitted to sudden jars. The stretcher should always be kept horizontal.

TREATMENT IN FRONT OF THE R.A.P.

Teach regimental stretcher bearers the urgency of preventing loss of body heat. Carry strapped to the stretcher a waterproof-sheet-blanket package, i.e. a blanket wrapped up in a waterproof sheet. Teach gentleness in handling cases, and the necessity of exposing the body as little as possible when attending to the wounded. Under certain conditions of warfare it may be advisable to keep a few splints at company headquarters. The tactical handling of regimental stretcher bearers should be left to company commanders owing to there being three platoons and only two stretcher squads.

WARMTH.

During cold weather the mortality from shock rises; therefore consider every means of increasing warmth. Loss of heat is greatest in the first two hours; this indicates the value of having dry blankets available for use by regimental stretcher bearers. It is important to put blankets under the patient as well as over. Blankets should be stored in as dry a place as possible, and if possible they should be warmed. In dressing stations
provide a hot-air bath. Figures 1 and 2 show the method of using blankets to the best advantage.

Three blankets.

Four layers underneath and on top.

Fig. 1.

Bricks can be heated on the metal plate, and used wrapped in sand-bags instead of hot-water bottles.

Fig. 2.

Wet clothing should be removed as early as possible. One is often able to remove a wet shirt, dry the back, chest, and abdomen, and wrap the man in blankets. If wet, boots and socks should be taken off except in severe fractures of the femur, as in these cases the extra shock from the necessary

Fig. 3.
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Handling of the patient will more than outweigh the benefit accruing from removing them. Heat can be provided by hot-water bottles or bricks and stones heated, and wrapped, say, in a sandbag. Dressing stations should be warmed. All unnecessary exposure of a man's body should be avoided when doing dressings. If there are many wounded to attend to, treat the general condition of shock in them all before doing dressings on any one man, but haemorrhage cases must be dealt with at once. Next to cold, men complain of thirst. The provision of fluids is urgent. The best is hot tea with sugar and milk. Fluids by mouth sometimes cause vomiting in cases with severe shock. To prevent this, give in small quantities at a time and only after all disturbance incidental to dressing is over, and when the man has "warmed up" a little. If vomiting persists, give rectal or subcutaneous salines. The question of blood transfusion depends often on the military situation and can seldom be done in an advanced dressing station.

PAIN.

Pain aggravates shock, therefore its prevention is therapeutic. Unnecessary handling or manipulation for the sake of arriving at a more precise diagnosis is not justified.

MORPHINE OR DERIVATIVES.

Do not give under the tongue, as one can never tell how much is either spat out or absorbed. Give half a grain as early as possible. To obtain the maximum benefit and safety from its administration, allow sufficient time for it to act (1) before dressing, (2) before sending the man on the next stage of the journey. This latter is very important, as if the case is evacuated before the drug has acted it seldom acts as a sedative, but it always acts as a depressant on general metabolism. When is morphia to be repeated? Be guided by the general condition and respiration rather than by the size of the pupils. If pain is severe, or the man is restless, repeat. Any cyanosis or pulmonary signs are a contra-indication unless it is imperative to give it.

PSYCHOLOGY.

Usually the higher faculties are depressed. If the man is in an excitable condition the faculties are often intensely active, especially hearing, therefore be careful to even whisper nothing that you do not wish the patient to hear. Provide mental rest by maintaining a cheerful atmosphere and tone of voice. At all costs be human. Do your work deliberately and let the man realize that everything possible is being done for him, and that you really are taking trouble over him. This will help to allay his natural anxiety, which is of tremendous importance.

TRANSPORT.

Arm cases travel more comfortably as "sitters." Head cases: try and absorb or lessen jolts by a blanket under the head, and use side supports
to prevent lateral movement. Chest and abdominal cases: Fowler's position. Put the worst cases on the "ground floor," as there is less danger of swaying, and it is more comfortable, especially when going downhill.

**REST.**

If the situation permits, all bad cases should be left for some time before sending them on, to allow some recovery from shock. If the case is cyanosed and cold with a pulse of 130, rest is imperative. Provide local rest by adequate splinting. Splinting for this purpose is necessary even in large wounds with no fracture.

**LOCAL TREATMENT.**

Remember, gas gangrene is caused by a lack of circulating blood. Contamination is carried into the depths of all wounds. The principle of treatment (in the forward area) is: Diminish fresh infection from surrounding skin, and remove gross contamination and blood-clot from the wound. Unless a foreign body is visible and easily removable do not attempt removal. Skin: If dirt and mud are caked on, use soap or lysol and water, and spirit, otherwise tinct. iodine. The value of antiseptics in the wound is doubtful. Use dressings which will not adhere, as this causes damming back of discharge. Use sterile paraffin or sodium oleate 5 per cent. If not available use a wet simple dressing. Use all lotions warm. If a wound is oozing use dry dressings. Compound fractures: Remove any completely detached and jagged fragments of bone, or foreign body, especially if in the neighbourhood of a blood-vessel. Dressings must not act as a cork to retain discharge. Large gaping wounds: Place loose dressings in the recesses; if there is a flap place dressings between flaps.
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Keep the wound open and draining. Dressings over a valvular opening are bad; one can often remove small bridges of tissue in these. Simple bullet wounds require no special attention, but much judgment is required between these simple punctures and severe lacerated wounds. Always use light dressings, not heavy. Heavy dressings may conceal haemorrhage, especially if the wound is only oozing. Wounded areas are liable to swell, so bandage loosely. If extension is to be applied to a fracture, do it before dressing as the extending may disturb a clot and the resulting haemorrhage may not be seen, especially if the dressing is a heavy one. Bandage the dressing around the splint.

When to Re-dress a Case.

Never, unless fully justified. Routine dressing at every stage of the journey backwards is bad surgically and wastes dressings.

The First Field Dressing.

If the skin is apparently clean and the bandage is not too tight, leave alone; otherwise (or if in doubt) re-dress; if any dressing is soaked in blood re-dress, also if splints are unsuitable or imperfectly applied, bandage too tight or too loose. Only give attention to whatever needs altering.

Increasing Pain.

Suspect haemorrhage or the onset of gangrene. Inspect the wound, control any haemorrhage, and in both cases hurry the evacuation to a C.C.S. In this, or any other type of case which requires immediate attention on arrival at a C.C.S., send a special note stating the urgency.

Operations in Aid Posts and Dressing Stations.

These are not advisable. Only operate if absolutely justified, such as for haemorrhage which immediately threatens life, or the removal of a hopelessly smashed limb hanging by threads of tissue. These wounds give rise to severe shock and the pain of a quick slash or scissors cut when under morphia (? local) is less important from the point of view of shock than not removing the limb. There is rarely any haemorrhage that counts in such cases. Elevate and pack to stop any oozing and keep a tourniquet loosely in position in case haemorrhage occurs. Retain for an hour to be sure the haemorrhage is controlled. If a general anaesthetic has to be given, pay attention to the toilet of the stump, so that there will be no need to repeat the anaesthetic at the C.C.S. Such cases travel badly, so retain for twelve hours (if possible).

Haemorrhage.

It must be stopped, and this is often very difficult. There is not only the danger of death, but also of very virulent sepsis in the desanguinated. Every ounce of blood is of value. If a large artery or vein is bleeding in
the depths of a wound, operation is often very difficult, so apply a tourniquet and send to C.C.S. as quickly as possible, with a special note. Eighty per cent. of all cases which have a tourniquet on for three hours come to amputation. This may help one to arrive at a decision whether to amputate in a dressing station or send the case to a C.C.S. in the hope of saving a limb but at an increased risk of death from haemorrhage or shock, inasmuch as a man might not stand the operation at a C.C.S. A nicety of judgment is required in dealing with such cases. The distance to the C.C.S. and time taken on the journey are factors which may be considered here.

It is sometimes possible to "under-run" an artery, or put a forceps on a bleeding point, and the case can be sent on with the forceps in position. If ligaturing a main artery include the veins, as otherwise a large patent vein drains away the meagre blood supply from a weak and enfeebled collateral circulation, and leaves the limb exsanguinated. In certain cases it is not possible to apply a tourniquet, such as on the neck, and operation or even clamping is not possible. Try packing; but if this fails close the skin with as deep through and through sutures as you can, converting it to a diffuse traumatic aneurysm, with the hope that the extra-arterial pressure will become greater than the inter-arterial and so stop the bleeding.

General continued oozing is very dangerous. The dressing soaked with blood is changed, and again at the next stage, and the next; no one realizes that so much bleeding is taking place as it is only oozing, and on inspection does not appear alarming. If possible find and either ligature or clamp the bleeding points. Wounds in the following sites may be suspected of this type of haemorrhage: The buttocks, calf of leg, around the articulations, and the scapula. If there is ever any doubt about haemorrhage being controlled put a tourniquet loosely in position before sending the case on. Splint all wounds where bleeding has had to be specially controlled, otherwise the jolting of the journey may restart it. Also make a note on the field medical card if a tourniquet has been put on.

Splinting.

In all cases splinting must be efficient; splints which do not do what they are meant to do are worse than useless. The opposition of wounded muscles can be overcome by steady mild traction and extension, when obtained they should be fixed firmly. Use the minimum amount of bandaging for ease of inspection at the next stage of journey. Examine all fractures at each stage of journey for the efficiency of the splinting. Use a Thomas splint for femurs and the upper two-thirds of the tibia; below this use a back splint with foot-piece and side-pieces; to prevent the splint falling sideways, tie the foot-piece to both sides of the stretcher.

Joints: Splint all with penetrating wounds. In the knee-joint if there is no fracture use a gutter splint with slight flexion. Always make a note that the joint is open. The integral traction type of splint is the best for all limbs.
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HEAD.

Gutter type. Remove gross dirt, projecting bone, or foreign body if loose. Use impregnated gauze for packing sinuses. There must be no pressure of a tight bandage over a hole in the skull.

CHEST.

Cases of open sucking wounds with severe hæmothorax are badly collapsed, and should be sent on to the C.C.S. as soon as this is justified. These cases have a high percentage of success after operation. Close all sucking wounds by through-and-through suture, or cork with strip of gauze and make airtight with sticking plaster. This treatment plus a short period of rest causes a striking recovery. Always make a note that the pleura has been opened.

ABDOMINAL.

Send to C.C.S. as quickly as possible. Wounds of the chest, loins, buttocks, and perineum are frequently associated with abdominal penetration.

Diagnosis: Rigidity and absence of free movement are of greater importance negatively than positively. Their absence precludes visceral injury, but these signs are also due to other causes, e.g. chest wounds, retroperitoneal hæmatoma, or injury to the abdominal wall alone. Tenderness is more conclusive than pain, and its presence in the abdomen at some distance from the wound is almost diagnostic. If in doubt treat as abdominal.

Multiple wounds: There is often severe shock. If possible keep for a few hours. Make a note on field medical card of the wounds in the order of their severity.

Lower jaw: Don't press fragments back with a bandage. The tongue often swells and it is obvious that the airway must be kept free. It may be necessary to evacuate face downwards on the stretcher.

Gas gangrene: Develops rapidly in parts deprived of circulating blood. Wounds likely to become affected are those with large destruction of muscle tissue with interference of blood supply. Predisposing factors: Anything which interferes with circulation, i.e. tourniquet, hæmorrhage, constricting splints or bandages, and shock. Often shock cases slide into a condition of profound toxæmia. If main vessel is injured collateral circulation is often so delayed by enfeeblement that a severe infection occurs. If crepitations are felt, this is a late stage. Early signs: Rapid and unexplainable increasing pain and swelling, a sweet offensive odour, wound looks dirty and dark, and exudes foul-smelling dark blood perhaps mixed with gas bubbles. General signs: Thirst, vomiting, rise in pulse-rate, and intense toxæmia. Colour, a lemon yellow, very rarely cheeks a dusky red.

NOTES ON THE FIRST FIELD MEDICAL CARD.

Wound.—Nature of and severity. Time of wounding. Presence and degree of shock, and severity of hæmorrhage. Dose and time when morphia...
given. Dose of A.T.S. Short account of any operation or any special treatment (if foreign body or loose bone removed this must be stated, also if pleural cavity or a joint has been opened). Also send on a separate note the names and numbers of any forceps sent down with the case. Don’t forget the name of the unit on this note. The bearers taking the case down should bring the forceps back with them. Blankets and special splints, etc., are returned automatically from rearward to forward units.

The anxiety neurosis effort-syndrome cases are war casualties, and in some cases can be prevented. The regimental medical officer has the opportunity of doing this. A good regimental medical officer should be able to talk to any private of the unit in a confidential manner and elicit a similar response from the man, without losing the respect in which he is held by the unit. He should make it his business to go amongst the men and talk to them. It is a good thing to pick out a few really good fellows, ask them to report to him anyone they notice who is losing interest in the unit or in his fellows. Early cases give up their friends and wander off by themselves. They are becoming anti-social. If detected at this stage they can often be prevented from developing further. Win their confidence, talk, and ask questions; it is surprising how men appreciate having someone to unburden themselves to. It may be some trouble at home; it may be that he felt afraid for some time, and some little action was done which on reflection later caused him to consider himself a coward, and he imagined others had noticed it, and so he started to shun his comrades. When these matters are cleared up and put in their proper perspective, you have saved not only a casualty, but the man from the torture of a morbid mind. Those good fellows you have picked out can then easily bring him back again inside the unit, and away from anti-social leanings. Also in the early stages a man’s work often deteriorates and this usually leads to reprimands and perhaps disciplinary action, but this has no effect on the man. Officers should be asked to report such cases to the medical officer. Here again worries should be talked over, the company and platoon officer “put wise,” and a few words of encouragement and praise from them will often work a miracle, and again you have saved a man.

Any case showing definite nervousness to the extent of unreliability should be evacuated; these are the cases that usually are so full of self-pity that many of their symptoms are due to the reactionary psychological retreat of which you will hear much from them.

A type of case occurs in which a real good fellow “cracks” under no special mental strain but associated with fatigue. A night’s good sleep and a day or so resting with his unit will very often put him quite right again. If possible arrange at your regimental aid post accommodation to retain one or two such or other types of cases; obviously this depends on the military situation and cannot always be done.