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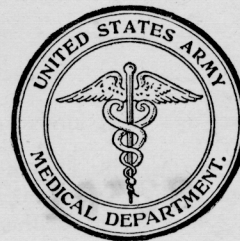
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Principles of War Surgery



BASED ON THE CONCLUSIONS ADOPTED AT THE
VARIOUS INTERALLIED SURGICAL
CONFERENCES

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PREFACE.

Realizing the importance of the conclusions adopted by the Interallied Surgical Conferences, the Division of Surgery, authorized by the Surgeon General, has collected the conclusions of the four conferences into this pamphlet, in order to effect a widespread knowledge of the work of the conferences among the medical officers of the United States Army.

The conferences were held at Val-de-Grace, March 15, 1916, 1917; May 14-19, 1917; November 5-8, 1917; March 11-16, 1918. The reason for their existence was suggested by the following letter from Mr. Lloyd-George to Gen. Roques, the Minister of War for France:

I wish to draw your attention to a subject which, without doubt, you will agree is of interest and importance. It is a subject which has arrested the attention of the entire medical world and has excited a lively discussion.

The methods adopted by the allies for the treatment of wounds are not always identical and are not, perhaps, in agreement with those principles which might be regarded authoritative as well as fundamental. One thing is certain, the experience of the British Army has shown a great difference of opin-

ion between the surgeons and the bacteriologists, even among those who are quite competent.

There is no doubt that scientific researches of great importance have been achieved by the allied armies, and yet the results of the labor of eminent surgeons are not rapidly spread to the attention of thousands of medical officers actually serving in the hospitals and at the front.

I believe that the application of science by eminent practitioners should result, after two years of war, in a specific designation of those measures which should be approved and of those which, on the contrary, should not be authorized.

It would appear necessary to establish a liason on this subject for the general instruction of that large group of medical men who are charged with the treatment of the allied wounded.

I would therefore propose that, with that end in view, a conference be called in Paris between the surgeons and the bacteriologists to establish an agreement about these debated matters. It is not to be doubted that the members of such a conference, even if they differ among themselves on points of secondary technic, will nevertheless reach conclusions upon principles of fundamental importance.

The original papers and the discussions following them may be found in the Comptes-Rendus de la Conférence Chirurgicale Interallée pour l'étude des plaies de guerre (Paris, 1917, 1918, L. Fournier, Ed.)

PRINCIPLES OF WAR SURGERY.

Conclusions Adopted by the Interallied Surgical Conference (England, Belgium, France, Italy, Japan, Portugal and Serbia¹) Relative to the Treatment of War Wounds.

FIRST AND SECOND SESSIONS, MARCH, 1917. AND MAY, 1917.

I. GENERAL PRINCIPLES IN THE TREATMENT OF WAR INJURIES, ESPECIALLY WITH REGARD TO THE PROPHYLAXIS OF INFECTION AND TO THE STERILIZATION OF WOUNDS.

1. The organization of the services should permit of the continuity of surgical direction in the treatment of the wounded.

2. At the battle posts, and especially in the trenches, surgical aid ought to be reduced to a minimum. It should be confined to warding off complications which

¹The delegates from the United States and Russia could not attend the first two sessions.

might prove immediately fatal and to the protection of wounds from infection. The wound should not be explored or washed; it should simply be covered with a dry dressing, either aseptic or antiseptic.

3. The wounded should be transferred as quickly as possible to one of the large hospitals situated along the front at a distance of from 10 to 20 kilometers from the lines.

4. It is well for each of these hospitals to have one or more annexes nearer to the firing line to receive as early as possible the more serious cases (shock, serious hemorrhage, wounds of the thorax or abdomen, etc.).

5. In general, war wounds should be considered as contaminated or infected.

6. The ends to be attained by treatment are:

(a) Prevention of infection if the wound is only contaminated, or sterilization if infection has set in.

(b) The possibility of suture when clinical sterilization has been effected.

7. Wide opening of the wound and resection of the injured tissues and removal of bits of clothing or other foreign bodies should be regarded as a regular practice, except in benign cases which may be closely watched.

8. After such treatment immediate suture may lead to good results, especially in wounds of the joints. It should be performed only for recent wounds (at most

not over 8 hours old) and when the surgeon can watch the patient for a period of 15 days.¹

9. If immediate suture has not been performed, recourse may be had to secondary suture as soon as sterilization of the wound has been clinically recognized to be sufficient.

10. The progress of the wound ought to be systematically controlled by successive bacteriological tests in series, so as to ascertain the bacterial curve and the degree of sterilization.

11. In the case of hurried removal of patients whose wounds have been opened and excised, it is well to apply a dressing the action of which would continue during the period of transportation. There is room for investigation along this line.

12. There are several methods of progressive sterilization of wounds which allow regularly of secondary suture.

II. STUDY OF LABORATORY METHODS FOR THE PURPOSE OF AIDING THE SURGEON IN THE CHOICE OF TREATMENT.

1. In every important surgical service there should be an experienced bacteriologist with sufficient competent assistants and a laboratory adequately equipped.

¹ Compare this with the conclusion expressed at the third conference, p. 47.

2. The treatment of war wounds calls for close cooperation of surgeon and bacteriologist. The bacteriologist should himself come in direct contact with the wounded and should study and consult with the surgeon as to the investigations to be made and the treatment to be applied.

3. In general, the investigations should be bacteriological, cytological, and humoral.

4. There is no reason to confine investigations within narrow limits, so far as indications are concerned, however, the principal problems for research appear to be the following:

(a) The bacteriological flora of the wound at the start.

(b) The bacteriological flora of the wound before and after surgical treatment, or before and after any considerable transfer of the patient.

(c) The bacteriological flora of wounds which continue to suppurate or which present a complication.

(d) Bacteriological control followed by sterilization of the wounds with a view to suture.

(e) Bacteriological and biological control of the wounds for the purpose of determining the efficacy of various methods of treatment.

(f) Examination of the blood for bacteria, the number of formed elements, and defensive properties; also for possible indications for the transfusion of the blood.

(g) Special infections of certain anatomic regions, such as articulations, serous membranes, mucous membranes, muscles, brain tissue, and cerebrospinal fluid. Bacteriological, cytological, and humoral studies should be made along these lines.

(h) The general indication for, and the application of, vaccine therapy.

5. In addition to laboratories attached to the services for the purpose of practical surgical assistance, more laboratories should be established for scientific research along general lines with regard to war surgery, and those already in operation should be adapted and organized more specifically for this purpose.

III. COMPARATIVE STUDY OF THE DIFFERENT METHODS OF EXTRACTING PROJECTILES.

1. A thorough radiological examination should be made of each case as soon as general conditions permit.

2. The extraction of projectiles ought not to be attempted without some method of localization.

3. In the surgical services at the front, especially at times of great activity, radiosopic methods are most desirable.

4. The surgeon should without fail have at his disposal during an operation some one of the numerous apparatus of direction and control (radiograph, stereo-

direct surgical treatment of the lung wound (extraction of all foreign bodies, suture of the wound with or without excision) seems the logical procedure. This question deserves careful investigation.

9. Blood effusion in the pericardium is governed by the same therapeutic principles as hemothorax.

XV. ABDOMINAL WOUNDS.

1. On general principles, all recent wounds of the abdomen should be operated, except when the lesion is without doubt limited to the liver or the kidney and when there is no symptom of serious hemorrhage.

2. The operation should be performed as early as possible, except when the patient is suffering from shock. When there is doubt as to the relative seriousness of the shock and that of the hemorrhage it is better to operate. Do not make a practice of laparotomy later than 36 hours.

3. Centers should be established as near to the lines as possible, provided with all surgical appliances which are now recognized as necessary, where all cases of abdominal wounds may be taken for operation by competent surgeons.

THIRD SESSION, NOVEMBER, 1917.

I. DISINFECTION OF WOUNDS.

Since our last session the disinfection of wounds has passed more and more from the realm of chemical treatment to that of mechanical treatment by surgical means. Primary suture of wounds has taken precedence over secondary suture as a general method of treatment.

Primary suture, which we had formerly regarded as exceptional, has now become the method of preference. It has been practiced as immediate primary and delayed primary (or early secondary).

Immediate primary suture may, it appears, be safely practiced far beyond the time limits we had fixed for light wounds.

Delayed primary suture consists in mechanical sterilization of the wound and in the complete surgical closing of the wound at a later period of from one to four days after the cleansing operation and after bacteriological verification.

Among the organisms the presence of which is likely to bring about serious complications after the suture

those of first importance are the streptococcus and anaerobic species, especially the spore-bearing variety.¹

II. THE VALUE OF BACTERIOLOGY IN WAR SURGERY.

Laboratories annexed to the surgical centers have rendered the greatest service in the matter of surgical technique. Every effort should be made to perfect them as regards both the personnel and the equipment.

At present it is impossible to give any concise bacteriological formula to serve as an indication for the closing of wounds.

There is need occasionally to call together the bacteriologists from the surgical centers, so that they may discuss the results of their methods and give each other the benefit of their various experiences.

III. GAS GANGRENE: TREATMENT.

Because of acidosis, in some cases of gas gangrene an alkaline treatment² has been instituted. This may be for the purpose of rendering a later operation possible in the case of patients whose condition does not permit of a primary operation; or it may be employed for dis-intoxication. Encouraging results have been obtained

¹ MM. Castellani and Sacquépée call attention also to the danger from certain other varieties, especially of the Proteus group.

² Intravenous injection of 500 gm. of the following solution, sterilized in the autoclave: Bicarbonate of soda, 50 gm.; distilled water, to 1,000.

by this treatment. Further attempts should be made in this direction.

Some cases have been treated by various specific sera—anti-Perfringens,¹ anti-Vibrion septique,² anti-Bellonensis.³

These three sera have produced no unfavorable results.

The anti-Perfringens serum, which has been used preventively in several cases, seems to have given encouraging results. As a cure it has been sufficiently successful to warrant further attempts.

The use of anti-Vibrion septique and anti-Bellonensis has given very marked results, by way of cure as well as of prevention, even when administered in very advanced stages of toxic forms of the disease. These results make further tests desirable.

IV. SHOCK.

Since our last session the therapeutics of shock have been modified (see p. 16).

Three causal agents of the state of shock are to be distinguished—hemorrhage, infection or subacute intoxication, and genuine shock.

¹ Serum prepared at the Pasteur Institute by M. Veillon.

² Serum prepared at the Pasteur Institute by MM. Nicelle and Jouau.

³ Serum prepared at the laboratory of the IVth Army (France) by M. Sacquépée.