
A manual of military surgery, by S.D. Gross, MD,
1861

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A manual of military surgery - Chapter IX: Diseases incident to troops

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CHAPTER IX.

DISEASES INCIDENT TO TROOPS.

THE diseases which attend armies, or molest soldiers in camps, garrisons, and hospitals, and which so often decimate their ranks, and even, at times, almost annihilate whole regiments, are the different kinds of fevers, especially typhus and typhoid, dysentery, diarrhœa, and scurvy. These are, emphatically, the enemies of military life, doing infinitely more execution than all the weapons of war, however adroitly or efficiently wielded, put together. Pneumonia, pleurisy, and hepatitis, of course, slay their thousands, and various epidemics, especially cholera, not unfrequently commit the most frightful ravages. "War," says Johnson, "has means of destruction more formidable than the cannon and the sword. Of the thousands and tens of thousands that have perished, how small a proportion ever felt the stroke of an enemy!" Frederick the Great used to say that fever cost

him more men than seven pitched battles, and it has long been a matter of history that more campaigns are decided by sickness than by the sword. The great mortality which attended our armies in Mexico was occasioned, not by wounds received in battle, but by the diseases incident to men carrying on their military operations in an inhospitable climate, badly fed, subjected to fatiguing marches, and obliged to use unwholesome water. Thousands perished, during their absence, from fever, dysentery, and diarrhœa, and a still greater number from the effects of these diseases, after the return of the troops to their native soil. The latter affection, in particular, pursued many, like a relentless foe, to their graves long after they had been cheered by the sight of their homes and friends.

In the war in the Crimea disease destroyed incomparably more soldiers than the sword, the musket, and the cannon. Typhus and typhoid fever, dysentery, diarrhœa, scurvy, and, lastly, malignant cholera, annihilated vast numbers, both in the British, French, and Russian ranks. According to Dr. Macleod, whose "Notes on the Surgery of the War in

the Crimea," are so well known to the profession, the proportion of those lost among the British by sickness to those lost by gunshot and other injuries, was, during the entire campaign, as 16,211 to 1761, exclusive of those killed in action. The difference he supposes to have been still greater among the French and Russian forces. In December, 1854, and in January, 1855, not less than 14,000 French soldiers were admitted into the Crimean ambulances on account of disease, whereas, during the same period, only 1500 were admitted on account of wounds. Of the whole number nearly 2000 died. During the last six months of the campaign, in which the city was stormed and taken, the French had 21,957 wounded as an offset against 101,128 cases of disease.* At Walcheren, in 1809, the British lost one-third of their troops by disease, and only 16 per cent. by wounds. In the Peninsular war, from January, 1811, to May, 1814, out of an effective force of 61,500 men, only 42·4 per 1000, says Macleod, were lost by wounds, while 118·6 were lost by disease.

* Macleod, *op. cit.*, p. 67.

The number of sick that may be expected to be constantly on hand during any given campaign is estimated, on an average, at 10 per cent.; but this proportion must necessarily be exceeded, especially in an invading army, with raw, undisciplined, and unacclimated troops. This was eminently true even in the Crimea, in a climate comparatively healthy, within a few miles of the sea. We may well imagine what would be the effects of the climate of the South upon the Northern troops, if they were to pass far, during the hot season, beyond Mason and Dixon's line. Disease, in its worst form, would be sure to invade and thin their ranks at every step. Fever—typhoid, typhous, remittent, intermittent, and yellow—dysentery, diarrhœa, scurvy, pneumonia, and inflammation of the liver would accomplish more, infinitely more, for the Southern cause than all the weapons of war that could be placed in the hands of the Southern people. Typhoid, typhus, and yellow fever, dysentery, diarrhœa, and scurvy would, in all human probability, soon become epidemic, and occasion a mortality truly appalling. The Southern soldier, on the con-

trary, thoroughly acclimated as he is, would suffer comparatively little.

The British in the Crimean war lost 5910 men from diarrhoea and dysentery, the whole number of cases having been 52,442, affording thus a mortality of 11·26 per cent. Cholera, of which there were 7575 cases altogether, destroyed 4513, or in the ratio of 59·57 per cent. Typhus fever killed 285 out of 828 cases; fever, not typhus, 3161, out of 30,376. The French and Russian troops suffered in still larger numbers from these diseases. Macleod asserts that the former lost their men by typhus fever by thousands, and the latter by tens of thousands. The British suffered but little from intermittent fever, whereas this disease did great mischief among the French, causing serious mortality, either directly or indirectly, besides disqualifying large numbers for service.

Scurvy was another dreadful enemy which the British and French troops were compelled to encounter in the Crimea. It prevailed more or less extensively for a long time, and served to impart its livery to the other diseases of the soldiery, masking their char-

acter, and remarkably augmenting their virulency.

Considering, then, the frequency of the occurrence of these diseases, and their excessive fatality, it behoves the military surgeon to use every means in his power to guard, in the first place, against their outbreak, by the employment of proper hygienic or sanitary measures, and, in the next, to treat them with all possible diligence and judgment when their development is unavoidable. It is, of course, impossible, in a work of this description, to enter into any details upon the subject; but there are several points which cannot, I conceive, be too forcibly impressed upon the mind of the military practitioner. I refer to the great, the paramount importance of—1st, proper isolation of the sick, or, what is the same thing, the importance of not crowding them together; 2dly, free ventilation; 3dly, bodily cleanliness; 4thly, little medicine; 5thly, a good supply of fresh vegetables and fruits, especially oranges and lemons; 6thly, careful and tender nursing.

Painful experience has shown in all parts of the world, that the crowding together of

the sick and wounded is one of the worst calamities that can befall them. For want of this precaution, diseases, otherwise easily manageable, often assume an epidemic character, or, in the absence of this character, often baffle the best directed efforts for their relief. When the wounded are crowded together they frequently become the victims of erysipelas, hospital gangrene, pyemia, and phlebitis; occurrences which, under better regulations, might in many cases be entirely prevented.

Of the propriety of constant and thorough *ventilation*, it is unnecessary to speak. If pure air is so essential in health, it is easy enough to see how important it must be in sickness.

Cleanliness of body should be regarded as a religious duty; it may be effected with the sponge and tepid, cool or cold water, according to the exigencies of the case, and cannot be performed too frequently or too thoroughly, care being, of course, taken not to worry or fatigue the patient. In some instances the water may be medicated with common salt, potassa, vinegar, or Labarraque's solution.

Nothing is generally more grateful to the sufferer, in the different kinds of fevers, than frequent sponging of the surface with cool or tepid water.

The use of heroic *medicines*, or of any medicines in large doses, in these diseases, and also in cases of severe wounds, cannot be too severely reprobated. More men, there is reason to believe, have been killed in this manner in the armies and navies of the world than by the sword and the cannon. Let medicines, then, be administered sparingly. *Let the secretions be well seen to; but purge little, and use depressants with all possible wariness.* Give iced water, but not too freely, and lumps of ice when there is much thirst with gastric irritability and excessive restlessness. Mild diaphoretics and anodynes will, as a general rule, be highly efficacious, but the latter should be exhibited with great caution when there is cerebral oppression. Lemon-juice and potassa are indispensable in scurvy, or where there is a marked tendency to scorbutic disease. Quinine is one of the great remedies in most, if not in all, of these diseases, especially when, as is so often

the case, they are associated with a malarious origin. The good average dose is from two to five grains, repeated from three to five times in the twenty-four hours. When marked debility prevails, the best stimulants are brandy, in the form of milk-punch or toddy, and Madeira, Port, or Sherry wine.

Immense suffering and loss of life are often occasioned for the want of fresh vegetables and fruits in military operations, as well as in the garrison and the hospital. A daily supply of these articles should, therefore, be provided at almost any hazard and expense. In all low states of the system, however induced, the strength can never be rapidly brought up without a diet which partakes more or less of this character.

There is a form of *dysentery*, very common in India, which is exceedingly apt, when large masses of troops are habitually congregated together, to assume an epidemic character; and it is for this reason that it has often been supposed to be contagious. For such an opinion, however, there does not seem to be any valid reason. Ballingall, who witnessed at least 2000 cases of this disease,

asserts that he never once met with a circumstance tending to create such a suspicion; and the views advanced by this eminent surgeon are those now pretty generally, if not universally, entertained by the British practitioners in India.

“The remote causes of dysentery in India are conceived to be heat, particularly when combined with moisture; the immediate and indiscriminate use of fruits; the abuse of spirituous liquors, and exposure to currents of wind and to noxious night-dews.” Troops recently arrived from Europe are particularly prone to the disease.

Tropical dysentery presents itself in two varieties of form, the *acute* and the *chronic*. The first, which is an extremely fatal disease, is seated in the rectum and colon, the latter being often involved through nearly its entire extent, and it frequently commits very serious, if not irreparable, mischief in these structures before the patient and the attendant are aware of its true character, owing to the absence of urgent pain and pyrexia. In general the attack is ushered in by the ordinary symptoms of diarrhœa, such as griping

pain in the bowels and frequent calls to stool with excessive straining, the evacuations being, at first, thin and copious but without fetor and but little streaked with blood. The tongue, skin, and pulse are nearly, perhaps entirely, normal. Gradually the pain becomes more violent, as well as more fixed, and is felt in both iliac regions, or even along the whole track of the colon; the discharges consist chiefly of blood and mucus, or of a fluid resembling water in which fresh beef has been macerated; the tongue is covered with a white coat; the skin is either hot and dry, or bathed with clammy perspiration; and the straining is so excessive as to occasion prolapsus of the rectum. The pulse is, even at this stage, often but little affected, being, perhaps, only somewhat increased in quickness. Sometimes, however, it is very full, bounding, and vibratory, without much velocity, and when this is the case it always, according to Ballingall, forebodes evil. Toward the close of the attack, the passages are frequently involuntary and intolerably fetid, gangrenous portions of the mucous coat of the bowel are sometimes extruded,

and the surface of the body emits a peculiar cadaverous smell. The average period at which death occurs is about one week, but many cases linger on much longer.

The remedies upon which the India practitioners mainly rely in the treatment of this horrible form of dysentery are venesection, mercury, and opium, leeches, purgatives, diaphoretics, warm bathing, blisters, and enemata, being employed as auxiliaries. Venesection is always practiced early, and, even when the patient is not very robust, boldly, it being, apparently, regarded as the sheet anchor of the physician's hope. Calomel is administered in doses of from ten to twenty grains, along with two or three grains of opium, twice or thrice in the twenty-four hours; and, while profuse salivation is discountenanced, production of slight ptyalism is generally aimed at.

Such treatment as this seems altogether frightful to the modern American practitioner; it strikes him as unnecessarily harsh, and as well calculated to augment the mortality of the disease. We might, in this country, perhaps bleed, and that pretty freely, at the

very commencement of an attack of dysentery; at all events, leech very copiously, but we would certainly draw blood sparingly if the attack had already made serious constitutional inroads, or if it was of an epidemic character; and, as to giving mercury with a view to ptyalism, however slight, few men would, I presume, be so fool-hardy. The India practitioners do not, it appears, employ quinine in the treatment of this form of dysentery; a remedy so extremely needful in many cases of this disease as it prevails in this country, especially in our Southern latitudes, where it is not unfrequently of a malarious origin.

The *chronic* form of India dysentery, termed hepatic flux, more frequently attacks persons who have been for some time inured to the climate of that country, and is always associated with biliary derangement. "This flux, like the other, often assumes at its commencement the appearance of a common diarrhoea, and becomes afterward characterized by frequent and severe fits of griping, resembling colic pains, particularly urgent about the umbilical region. Each attack of griping is generally succeeded by a call to stool, and

the evacuations are always unnatural in color and consistence, free from any admixture of blood, but generally of a yeasty or frothy appearance, and accompanied with large discharges of flatus; while in passing they are attended with a sense of scalding about the anus. The patient, after each evacuation, feels considerably relieved, and hopes to enjoy an interval of ease, but the recurrence of the griping, accompanied with a sensation of air passing through the bowels, and succeeded again by a call to stool, give him little respite. From the commencement of the attack, the patient complains of nausea, want of relish for his food, and preternatural thirst, attended often with a disagreeable taste in the mouth. The tongue is furred or loaded, and not unfrequently covered with a yellow bilious coat. The pulse is quickened and the skin parched.”*

Cholera morbus must, necessarily, in this country, especially in our Southern latitudes, and during the hot summer months, be a more or less frequent attendant upon camp life, although much may be done, by a proper ob-

* Ballingall's Military Surgery, p. 511, 1844.

servance of hygienic laws, to prevent it. When the disease breaks out it cannot be arrested too speedily. The most appropriate remedies, particularly in its earlier stages, are perfect quietude, abstinence from drink, sinapisms to the epigastrium, and an efficient dose of morphia and camphor, or even morphia alone. If torpor of the liver exist, blue mass or a few grains of calomel may be advantageously combined with the anodyne. The swallowing of small lumps of ice will greatly assist in allaying the gastric irritability. A mustard and salt emetic will be indicated if the stomach is loaded with ingesta. The bowels are quieted with an anodyne enema; and, to relieve thirst, and reduce heat of skin, the surface is frequently sponged with cool or tepid water. A combination of carbonate of potassa and acetated tincture of opium, with fresh lemon-juice, in peppermint or camphor water, will often act like a charm in relieving the gastric and intestinal irritability, the cramps, and other distressing symptoms.

The exposure of the soldier, both in the tent and on the field, renders him extremely prone to *rheumatism*, frequently attended

with high inflammatory excitement and severe pain. Such an attack is often effectually put to flight if, at its inception, it be treated with a large anodyne and diaphoretic mixture, as fifteen grains of Dover's powder, a third to half a grain of sulphate of morphia with a fourth of a grain of tartar emetic, or, what is perhaps still better, a drachm of the wine of colchicum in union with a full dose of morphia or black drop. When the disease has already made some progress, an active purgative should precede the exhibition of these medicines.

Sore throat, tonsillitis, and catarrhal affections, or, what in common language are called *colds*, are very common among soldiers, especially the raw troops just mustered into service, ill clothed, inexperienced, and unaccustomed to camp life. The moment such disease sets in, no matter how light it may be, the person should be compelled to report himself at the surgeon's quarters, in order that he may receive the necessary attention and advice. Generally an attack of this kind will promptly yield to a trifling prescription, as a little hot drink, a mild aperient, or, better

still, a quarter of a grain of morphia, a grain of opium, or a large dose of Dover's powder.

In an army not under strict discipline, or where proper care is not observed in enlisting, *mania à potu* is very apt to show itself, much to the annoyance of the nurses and the physicians. If, in such a case, the patient be not well secured, he may, in his perverted military ardor, do serious mischief to himself and to his attendants. A moderately active mercurial purge at the outset of the disease will often go far in quieting the system and in abridging the attack. After the medicine has operated, a mild opiate and sedative treatment will generally be the most soothing. Alcoholic stimulants are, in general, to be withheld.

Nostalgia is another complaint liable to assail the soldier, even the hardest, especially if he is a person of strong domestic attachments, or engaged in an "affaire du cœur." It is most apt to show itself in soldiers enlisting for the foreign service, or in those who are forcibly expatriated, and is often attended with great suffering, terminating in confirmed melancholy. It is characterized by a love of

solitude, a vacant, stultified expression of the countenance, a morose, peevish disposition, absence of mind, pallor of the cheeks, and progressive emaciation. Many of Bonaparte's troops, during the campaign in Egypt, suffered from this complaint; some in a very distressing degree. In this country, nostalgia will not be likely to occur, at least not to any extent, as our people are essentially of a roving habit, and of an eminently social disposition. The treatment is rather moral than medical; agreeable amusements, kindness, gentle but incessant occupation, and the promise of an early return to home and friends constituting the most important means of relief.

It is impossible, even under the most rigid discipline, to prevent *gonorrhœa* among soldiers. They will expose themselves, in spite of all that can be done to prevent it, and they often pay a heavy penalty for their indulgence, not only from the suffering entailed by the primary disease, but its different complications, especially chordee, cystitis, and orchitis. The symptoms of *gonorrhœa* are too well understood to require enumeration

here. The treatment should, from the start, be rigidly antiphlogistic; by rest, low diet, active purgation, and the antimonial and saline mixture, with the addition of a small quantity of copaiba. The penis and scrotum are well supported, and covered with warm water-dressing, the former organ being bathed in tepid salt water, at least thrice daily, for twenty minutes at a time. When the discharge is greatly lessened, but not till then, recourse is had to injections of lead, sulphate of zinc, or nitrate of silver, at first very mild and gradually increased in strength, repeated every six, eight or twelve hours. The treatment is continued, in a modified form, for about five days after all the specific symptoms have vanished.

Chordee is best relieved by a full anodyne, as half a grain of morphia, in union with the fourth of a grain of tartar emetic, given toward bedtime, or by a large enema of laudanum; with warm water-dressings to the genitals.

For the relief of *cystitis* the most appropriate remedies are anodyne diaphoretics, in the form of Dover's powder, or a solution of

morphia and tartar emetic, aided by the free use of bicarbonate of soda and moderate quantities of diluents.

Orchitis is treated by suspension of the affected organ, with strong lead and anodyne lotions, and the judicious exhibition of antimony, in union with morphia or black drop.

Chancres must be thoroughly cauterized at the beginning, either with nitrate of silver, nitric acid, or acid nitrate of mercury; and subsequently, or after the disease has made some progress, like any common sore, with mild measures; mercury being studiously withheld, except in the hard form of the disease, but not even then while there is much inflammation or inordinate constitutional excitement. In a word, all harsh measures must be avoided. The patient will generally do a thousand times better without than with mercury. The greatest possible attention must be paid to cleanliness, and for this purpose the parts should be frequently bathed in tepid salt water, aided by the syringe if there be a tight prepuce. The best local application is the warm water-dressing, covering in the entire genitals; if much swelling and pain

are present, it may be advantageously medicated with lead and opium. As the inflammation subsides, the sore may be dressed with some gently stimulating lotion, as two grains of tannin, the eighth of a grain of sulphate of copper, and half a drachm of laudanum to the ounce of water, a weak mixture of sherry and water, or a solution of nitrate of silver, zinc, or iodide of iron. If the ulcer is disposed to spread, or presents a sloughy or unhealthy aspect, it will be proper to touch it lightly twice a day with the solid nitrate of silver, or a solution of one part of acid nitrate of mercury to four parts of water.

The *constitutional* treatment is rigidly antiphlogistic, or tonic and supporting, according to the particular nature of the case. The bowels should receive early attention; the skin be kept moist; and pain be allayed by anodynes. Perfect recumbency should be observed until the parts are nearly healed. If mercury be required, the best forms will be calomel and blue mass, in small doses twice a day, with a vigilant eye to their effects, ptyalism being studiously avoided in every case.

If *bubo* supervene, the treatment must be

prompt and efficient, with a view to the prevention of further mischief. Recumbency, the topical use of iodine with warm water-dressing medicated with lead and opium, light diet, and the antimonial and saline mixture constitute the most appropriate measures. If matter form, an early and free incision is made, and the part afterward treated as a common sore, the granulating process being promoted by mild means. Mercury is carefully withheld, at all events in the early stage of the disease.

The army is no place for soldiers laboring under secondary or tertiary syphilis; the sooner they are dismissed from the service the better, especially if they are volunteers.

Ophthalmia is one of the annoyances of the soldier's life. Liable to be caused by cold, it is capable of assuming several varieties of form, and sometimes prevails extensively as an epidemic. The granular and purulent, in particular, are to be feared, as they frequently destroy the sight, and even the eye, in a few days, occasioning intense suffering. To ascertain the condition of the parts, the lids must always be gently

everted with a probe or the finger. The greatest cleanliness should be observed in these affections; the patients should, if possible, be sequestered, at all events not be permitted to use the same basins and towels; the light should be excluded from the apartment; and the general and local treatment should either be strictly antiphlogistic or of a mixed character, partly antiphlogistic and partly stimulant. The applications should be of the mildest description, especially those intended for the inflamed surface. The syringe is frequently used to wash away the secretions. Strong collyria generally do immense harm in all forms and stages of ophthalmia. Blood may be taken from the arm, or by cups or leeches from the temples, if the symptoms are unusually urgent and the patient plethoric. In rheumatic inflammation of the eye, colchicum and morphia, given freely at bedtime, will be of immense service.

When *foreign matter* gets into the eye, or becomes imbedded in the cornea, speedy removal must be effected, and the parts afterward treated with rest, cold or tepid bathing, gentle aperients, and seclusion from light.

Particles of steel and other sharp bodies are picked out with the point of a delicate bistoury, or cataract needle. The effects of lime and other alkalies are neutralized by syringing the eye freely with a weak solution of vinegar; those of nitrate of silver, with a weak solution of common salt, a thorough coating of olive oil being afterward applied.

Carbuncles, boils, and abscesses, which are of frequent occurrence in army practice, demand prompt attention, both on account of the suffering they induce and the disqualification they may entail for temporary duty. They should be opened early and freely, and no time be lost in amending the general health by gentle mercurial and other purgatives, alterants, and tonics, particularly quinine and iron. The most appropriate topical remedies are tincture of iodine and warm water-dressings.

In carbuncles the affected structures, after free division, will generally require the thorough application of some escharotic or detergent stimulant, as Vienna paste, nitric acid, nitrate of silver, or acid nitrate of mercury.

Frost-bite is extremely common among soldiers during the cold, wet weather of winter.

Thousands of the French troops perished from this cause in Russia, during Napoleon's retreat from Moscow. Frost-bite was very prevalent among the English during their first winter in the Crimea, and the French suffered in still greater numbers, as well as more severely. The habit which the men had of sleeping in their wet boots, at one time almost universal, contributed greatly to its production, wet and cold combined diminishing the circulation and vitality of the feet and toes. On the 21st of January, 1855, when the thermometer stood at 5° , not less than 2500 cases of frost-bite were admitted into the French ambulance, and of these 800 died, death in many having no doubt been expedited by the effects of erysipelas, pyemia, and hospital gangrene. Weak and intemperate persons are most apt to have frost-bite and to perish from its effects.

In the treatment, in incipient cases, cloths, wrung out of cold water impregnated with a little spirits of camphor or alcohol, should be applied, or the parts be covered for a few minutes with snow, or immersed in cold water. On no account must they be exposed to warmth,

either moist or dry. Excessive reaction is controlled by lead and laudanum lotions, or dilute tincture of iodine. If gangrene occurs, the ordinary measures, local and general, are indicated. All rude manipulation in dressing the injured part greatly aggravates the disease. In general, spontaneous amputation is waited for, experience having shown that operative interference, even when the part is perfectly black, and attached only by a few living shreds, is extremely prone to be productive of excessive pain and constitutional irritation, often proceeding to an alarming extent.

Among the great evils, both of civil and military practice, are *bed-sores*, which, unless the greatest possible precaution be used, are sure to arise during the progress of acute diseases and of severe accidents, necessitating protracted recumbency. The hips and sacral region are their most common sites, with the heel in cases of fractures of the leg. The earlier symptoms are a sense of prickling, as if the part were rubbed with coarse salt, or a burning, itching or smarting pain, with a brownish or livid discoloration of the skin, and slight swelling. Then gangrene ensues, followed by horrible suffering.

To prevent these sores, which often prove destructive to life, when there is already much exhaustion from previous suffering, the posterior surface of the body should be frequently examined, particularly if the patient is in a state of mental torpor, and pains taken to ward off pressure by the use of air cushions and other means. The parts should be sponged several times a day with some alcoholic lotion containing alum, or painted with a weak solution of iodine. If gangrene or ulceration occurs, a yeast or port wine poultice is used, the separation of the slough is aided with the knife, while the granulating process is promoted by the usual remedies.

Ulcers of the leg are causes of disqualification in enlisting, but they sometimes occur after the soldier has entered the service, from fatigue, injury, or undue constriction of the limb. However induced, they should be managed as any other forms of inflammation, recumbency with elevation of the affected parts, tepid water-dressings, a restricted diet, and cooling purgatives constituting the most important elements of the treatment. When the healing process has fairly commenced, the

leg should be supported with the roller, or adhesive strips.

As preventive of ulcers of the legs, the limbs should be daily washed in cold water with Castile soap, and no soldier should be permitted to wear garters.

CHAPTER X.

MILITARY HYGIENE.

MUCH disease and suffering may be prevented, and many lives saved, by a careful observance of hygienic regulations. There is no question whatever that immense numbers of soldiers everywhere fall victims to their recklessness and the indulgence of their appetites and passions. We would not advocate too much restraint; men are but men everywhere, and soldiers form no exception to the general law. They, like civilians, must have their amusements and recreations. The bow cannot last long, if kept too constantly and too tightly on the stretch. Occasional relaxation is indispensable to health.