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## Chapter VII: Ill consequences of wounds and operations

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## CHAPTER VII.

ILL CONSEQUENCES OF WOUNDS AND  
OPERATIONS.

THE bad consequences to be apprehended after wounds, amputations, and other operations, are traumatic fever, hemorrhage, excessive suppuration, spasm, erysipelas, gangrene, pyemia, and tetanus.

*a. Traumatic fever* usually sets in within the first few hours after the injury, or soon after reaction has been fairly established. In camp practice its tendency generally is to assume a low typhoid character, especially if there is much crowding of the sick, with imperfect ventilation and want of cleanliness. Not unfrequently it displays an endemic or epidemic disposition.

The treatment must be exceedingly mild; the patient will not bear depletion, but will, notwithstanding his fever, probably require stimulants and tonics, with nutritious food and drink from the very commencement. A gentle

anodyne and diaphoretic mixture, as morphia and antimony in camphor-water, may be needful, in the early stage, to quell the fictitious excitement or attempt at overaction.

*b.* The likelihood of *secondary hemorrhage* must be steadily kept in view in these cases; much may be done to prevent it by the proper use of the ligature at the time of the operation or dressing, but it is often unavoidable, especially in gunshot wounds, owing to the injury sustained by the coats of the vessels by the grazing of the ball. However induced, it should receive the most prompt attention, inasmuch as the loss even of a few ounces of blood may prove destructive to the already exhausted system.

*c.* *Spasm* of the muscles is not peculiar to amputations; it often exists in a most severe degree in cases of fractures and gunshot wounds. Anodynes in full doses, with a little antimony, the use of a moderately-tight bandage, and warm water-dressing, medicated with laudanum and acetate of lead, are the most appropriate measures.

*d.* *Profuse suppuration* may be looked for in nearly all bad wounds, whatever their char-

acter, and also in many of the amputations performed on the field of battle. The exhausting effects must be counteracted by supporting remedies, as quinine, iron, cod-liver oil, and brandy, with frequent change of dressing, cleanliness, and ventilation. Bagging is prevented by counter-openings and careful bandaging.

*e. Erysipelas* usually manifests itself within the first thirty-six hours after the injury or operation; often assumes an endemic or epidemic character; is easily distinguished by the peculiar reddish blush rapidly spreading over the surface, together with the stinging or smarting pain and increased swelling; and should be treated with dilute tincture of iodine, or anodyne and saturnine lotions, quinine and tincture of iron, with nutritious food and drinks.

*f. Gangrene* is sufficiently common after severe lesions on the battle-field, especially that variety of it denominated hospital gangrene. During the Crimean war, this form of gangrene raged with extraordinary virulence and fatality among the French in the hospitals on the Bosphorus. It also prevailed

about the same period within some of the hospitals in the south of France, and it is asserted that the "Euphrate," a transport ship, in her voyage to the Mediterranean was obliged, from this cause alone, to throw sixty of her men overboard within thirty-six hours! After the taking of the Quarries and the assault upon the Redan, during the heat of summer, in 1855, the English surgeons lost a number of their cases of amputation of the thigh from moist gangrene of a most rapid character, the system having been literally overwhelmed by the poison. When hospital gangrene is endemic, it attacks not only open wounds and sores, but also the slightest scratches, cicatrices, and stumps. Persons laboring under diarrhœa, dysentery, and scurvy are most obnoxious to it.

The proper remedies are sequestration of the patients, the free use of the nitric acid lotion, iodine to the inflamed skin, charcoal, port wine, or yeast cataplasms, and frequent ablutions with disinfecting fluids, aided by opium, quinine, tincture of iron, lemon-juice, and other supporting means. Mopping the af-

fectured surface freely with strong nitric acid often answers an excellent purpose. The favorite remedy of Pouteau was the actual cautery.

*g. Pyemia*, the purulent infection of the French writers, is one of the chief dangers after severe wounds and operations. It was the great source of the mortality after amputations, especially secondary, during the war in the Crimea. It usually comes on within from three to eight days after the injury, and is nearly always fatal. Its characteristic symptoms are rigors, followed by copious sweats, rapid failure of the vital powers, delirium, and a withered appearance of the countenance, frequently conjoined with an ictorode tinge of the eye and skin. On dissection, the large veins leading from the stump or wound are found filled with pus, with redness of the lining membrane; and abscesses, usually small and filled with unhealthy fluid, are seen scattered through the lungs, muscles, and cellular substance, matter also occasionally existing in the joints. The treatment is essentially the same as in erysipelas.

*h. Traumatic tetanus* is not very common in military practice. It is most liable to show itself in tropical countries, in hot, damp weather, and in persons of a nervous, irritable temperament, occasionally supervening upon the most insignificant injuries, as, for example, a mere scratch. In India the disease is often provoked by unextracted balls, and both in that country and on the continent of Europe the operation which was most frequently followed by it during the recent wars, was amputation at the shoulder-joint.

The effects of sudden vicissitudes of temperature in developing tetanus, are well known. They are most striking in tropical regions, when the change is from hot to cold, or from dry to wet. Larrey had repeated opportunities of observing the development of the disease under such circumstances, both in Egypt and Germany. After the battle of Bautzen, the exposure of the wounded to the cold night air produced over a hundred cases of tetanus, and a large number suffered from a similar cause after the battle of Dresden. Like effects were witnessed at Ferozepore and Chillianwallah. Baudens, in his treatise

on gunshot wounds, states that the influence of cold and moisture in developing the disease, during the French campaigns in Africa, was most striking. Of forty slightly wounded men, placed in a gallery on the ground floor, during the prevalence of a northeasterly wind, fifteen were speedily attacked with tetanus. Similar effects have several times been noticed in this country. Thus, after the battle of Ticonderoga, in 1758, nine of the wounded who were exposed the whole night after the action, in open boats upon Lake George, died of locked-jaw; and during our war with Great Britain, most of those who suffered on board the *Amazon*, in the engagement before Charleston, were attacked with this disease a fortnight after, in consequence of a very sudden change of weather, the wind blowing cold and wet.

The extremes of heat and cold both favor the production of tetanus: In the East and West Indies, the slightest prick of the finger or toe is often sufficient to induce the disease, and the inhabitants of the Arctic regions not unfrequently suffer in a similar manner. Dr. Kane, in his memorable expedition, lost two



of his men from this affection, and he adds that all his dogs perished from a like cause.

The *mortality* from traumatic tetanus is notorious. Hardly one recovers. Nearly all perish in two or three days from the attack.

The most reliable remedies are opium, in the form of morphia or acetated tincture, in large doses, in union with camphor and antimony. The effects of Indian hemp are uncertain. Chloroform will mitigate pain and spasm. Amputation, except, perhaps, when the wound affects a finger or toe, will be worse than useless, as will also be counter-irritation along the spine. To prevent the disease should be our business, and to do this no wounded person should ever be exposed to the cold night air, or to currents of air at any time. *After all amputations, however trifling, special directions should be given upon this point.*