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A manual of military surgery - Chapter VIII: Injuries of the head, chest, and abdomen

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CHAPTER VIII.

INJURIES OF THE HEAD, CHEST, AND ABDOMEN.

THE immediate effects of *concussion* of the brain are those of fainting or collapse, and must be treated accordingly; by recumbency, access of cold air, the use of the fan, dashing of cold water upon the face and chest, and sinapisms to the precordial region, thighs, feet, and spine, aided, in the more severe cases, by stimulating injections. If the patient can swallow, he may take a little wine or brandy. A smelling-bottle may be held near, not to, the nose. Reaction is not promoted too rapidly, for fear of secondary consequences.

The period of danger from collapse being over, the patient is sedulously watched, that overaction may not occur, the risk now being from inflammation; or, the stage of excitement being happily passed, from the remote effects of the injury. If the concussion was

at all severe, all bodily and mental excitement must be for a long time avoided.

Compression of the brain arises, surgically speaking, from two causes only: effusion of blood and depressed bone. In the former case, the characteristic symptoms—insensibility and coma, dilated and fixed pupil, stertorous breathing, and paralysis — frequently do not come until some time after the receipt of the injury. The first symptoms will probably be those of concussion, or exhaustion. By-and-by, the patient regains his senses and his strength, gets up, talks, or walks, and then suddenly drops down, as if he had been shot, in a state of utter unconsciousness. The effusion of blood, kept in abeyance during the collapse, has had full play, filling empty places, and causing unmistakable effects. Such an occurrence will be most apt to happen when there has been extensive separation of the dura mater, or rupture of the middle meningeal artery. If, on the other hand, the compression is due to depression of the skull, the symptoms are nearly always immediate.

When the case is one of sanguineous com-

pression, it must be treated very much as one of ordinary apoplexy; at first, by efforts at *gradual* reaction, and afterward by purgatives, bleeding, and means to favor cerebral accommodation and prevent inflammation. The trephine is not thought of unless the unconsciousness obstinately persists, and there is reason to believe, from the nature of the phenomena, especially the existence of a wound or contusion on the head, that the blood may be reached by the instrument.

Gunshot injuries of the skull, with or without lodgment of the ball, may be productive merely of concussion of the brain, or of concussion and compression. When the missile penetrates the bone, and tears up the cerebral tissues and membranes, death usually occurs instantly, or within a short time after the receipt of the accident, without, perhaps, any attempt at reaction. Nevertheless, a number of cases of injury of this nature, in which the patient either partially or completely recovered, have been recorded by military surgeons. In some instances the ball merely penetrates the skull, with no

apparent depression, and in this event the treatment should evidently be very simple, being limited, in great degree, after the occurrence of reaction, to the prevention of inflammation of the brain. A similar course should be adopted when the bone is broken and only slightly depressed, especially if there be no urgent or obstinate symptoms of compression. When, on the contrary, the bone is badly fractured, comminuted, or forced greatly beyond the natural level, the proper plan is to trephine, whether there be any external wound or evidences of compression or not. If the operation be neglected, loss of life from inflammation will be sure to arise within the first six or ten days after the receipt of the injury. In the punctured fracture, as it is named, the trephine is invariably employed at the earliest moment, however flattering, apparently, the head symptoms may be. If the instrument be withheld, fatal cerebritis or arachnitis will be no less certain than when the bone is shattered and driven down upon the brain.

Fracture of the skull by *contre-coup*, so common in civil practice, is seldom met with

on the field of battle; doubtless for the reason that the injury is hardly ever inflicted upon the top or base of the cranium, as it is when a person is struck upon the vertex or falls upon his nates. The most frequent fracture among soldiers is the punctured. A ball has been known to break the internal table of the skull without the external.

The skull is sometimes frightfully injured without any serious lesion of the scalp. Macleod refers to a case, which occurred at the Alma, where it was completely destroyed by a glancing shot, without any material implication of the soft parts. A round shot ("en ricochet") struck the scale from an officer's shoulder, and merely grazed his head as it ascended. The result was instant death. The skull was so completely mashed that its fragments rattled under the scalp as if loose in a bag. The condition of the brain was, unfortunately, not ascertained.

In the more simple forms of fractures of the skull, however induced, the practice of trephining is now much less common than formerly, and there is no doubt that the patient often makes a good recovery, though

it is by no means certain that such a person may not suffer seriously, at a more or less remote period, from epileptic and other affections. I am convinced from my own observation that this happens not unfrequently. Dr. Stromeyer, surgeon-in-chief in the Schleswig-Holstein campaign in 1849, expresses strong opposition to the use of the trephine in gunshot and other fractures of the skull, even with depression, on the ground that, independently of the mischief inflicted in the operation upon the tissues, admission of air to the contused portion of the brain greatly augments the danger of inflammation. Of 41 cases of gunshot fractures of the skull with depression, reported by him, 34 were cured, and of these 1 only had been trephined.

When operative interference is deemed improper, the most simple treatment should be enforced. Any probing that may be necessary should, if practicable, be performed with the finger, and the wound should not be enlarged, except when we are compelled to elevate depressed or remove loose bone.

When trephining is required, it should be

done as early as possible, and without chloroform or ether, unless the patient is very unruly, as the anæsthetic might tend to provoke inflammation of the brain. Every particle of depressed bone should be elevated, and such portions as are loose, detached, or driven into the brain, and easily accessible, removed. All bleeding vessels are tied, the edges of the wound are *gently* approximated with silver sutures, and the head, well shaved and raised, wrapped in warm or cold water-dressing, as may be most grateful to part and system. The great danger after all severe injuries and operations upon the skull is inflammation of the brain and of its membranes, and to the prevention of this, therefore, the surgeon should direct his most zealous efforts. The patient must be frequently visited, and every untoward symptom promptly met by appropriate measures, of which active purgation, loss of blood by venesection, leeching or cupping, a restricted diet, and exclusion of light and noise from the apartment, with perfect rest, are the most reliable.

Wounds of the *brain* must be managed upon general principles; all foreign matter is

at once removed, and the parts being restored as nearly as may be to their normal relations, the surgeon endeavors to keep the resulting inflammation within proper limits. Most of such lesions prove fatal within the first week from their receipt. If the patient survive for any length of time, death will generally come at last from exhaustion, cerebritis, or fungus.

Portions of the *skull*, sliced off by the sabre or sword, should be immediately replaced and secured by wire sutures, even if they are attached merely by small shreds of the scalp.

Scalp wounds of every description, but in particular the contused, lacerated, punctured, and gunshot, are extremely prone to be followed by erysipelas; death may also occur from cerebritis, arachnitis, and pyemia. The slightest lesion, then, of this region of the body should be zealously watched.

Wounds of the *face* must be treated with an eye to the avoidance of disfiguring scars, by wire sutures and cold water-dressing. When a large portion of the lower jaw is shot away, the tongue will be apt to fall back upon the glottis, causing suffocation. The organ should

be drawn forward with the finger or tenaculum, and the patient observe the prone position until the tendency is lost.

One of the great sources of annoyance and danger, in gunshot wounds of the face, is secondary hemorrhage. It frequently appears soon after the accident, and, although it often ceases spontaneously, it is sometimes controlled with much difficulty. Paralysis, partial or complete, is not uncommon, owing to injury of the branches of the facial nerve.

In the management of wounds about the mouth, throat, and face, great care must be taken not to allow the offensive mucous and salivary secretions to pass into the stomach. The neglect of this precaution is apt to be followed by a low typhoid state of the system, very similar to what occurs in pyemia, or blood poisoning. I have repeatedly witnessed these effects after operations upon the jaws, mouth, and even the nose.

In fractures of the bones of the face from gunshot an exception should be made to the general rule of removing fragments which are nearly detached, observation having shown, says Mr. Macleod, that the large supply of

blood in this region will enable them to resume their connection with the other tissues, in a way that would be fatal to similarly placed portions in other situations.

Gunshot and other wounds of the *chest* are, as stated elsewhere, extremely fatal; death, if the lesion be at all severe, being usually speedily caused by shock, hemorrhage, or asphyxia; or, at a more or less remote period, by inflammation and effusion. When the lungs are wounded, the characteristic symptoms will be hæmoptysis, with suffocative cough, great prostration, and excessive alarm. A copious flow of blood may take place in the thoracic cavity from a wound of one of the intercostal arteries.

Any foreign matter that is easily accessible is at once removed, but officious probing is out of the question. The wound, if small and unaccompanied by serious hemorrhage, is closed in the usual manner, the chest being firmly encircled by a broad bandage, to compel diaphragmatic respiration. Under opposite circumstances, it is kept open, the patient lying upon the affected side to favor the escape of blood, with as much elevation of

the head as the case may admit of. The main reliance for arresting pulmonary bleeding is upon venesection, copious, and frequently repeated, unless the exhaustion amounts to absolute collapse. Sugar of lead, opium, and veratrum viride are frequently exhibited, sinapisms are applied to the extremities, and, in short, everything is done to control cardiac action. Inflammatory symptoms are counteracted in the usual manner, and effused fluids, causing oppression, and resisting ordinary measures, are, unhesitatingly, evacuated by puncture, as the only chance of escape.

Wounds of the *heart* and *aorta*, of whatever nature, are usually fatal; now and then, however, an astonishing exception occurs.

Wounds of the *abdomen*, merely penetrating its walls, but not its contents, are brought together by sutures, extending down nearly to the peritoneum, otherwise they will be followed by hernia. When they involve the intestine, and are incised, they are sewed up with a fine needle and silk thread, either interruptedly or continuously, the ends of the ligature being cut off close.

Contusions of the walls of the abdomen by

round shot are among the most dangerous injuries to which the body is exposed, often rupturing both the hollow and solid viscera, and rapidly causing death, without much apparent sign of so severe an accident. The most important symptoms of these contusions are vomiting, and pain in the abdomen; and the great object of the treatment, in the event the patient survives their immediate effects, is the prevention of peritonitis, which often comes on in the most stealthy manner. Laceration of an internal organ is nearly always promptly fatal. Shell wounds of the walls of the abdomen are generally followed by extensive sloughing. Abscesses among the muscles of the abdomen are not uncommon after gunshot injuries.

Balls often traverse the walls of the abdomen for a considerable distance without entering its cavity, or they pass in without injuring any of the contained viscera.

"The fatality of penetrating wounds of the belly," observes Macleod, "will depend much on the point of their infliction. Balls entering the liver, kidneys, or spleen are well known to be usually mortal, although excep-

tional cases are not rare. Wounds of the great gut are also always recognized as much less formidable than those which implicate the small. Thomson saw only two cases of wounds of the small gut, after Waterloo, in the way of recovery; but Larrey reports several. Gunshot wounds of the stomach are also exceedingly fatal. Baudens records a remarkable case of recovery, although complicated with severe head injuries. The syncope which followed the severe hemorrhage in this case lasted for ten hours, and doubtless assisted, along with the empty state of the stomach at the moment of injury, in preventing a fatal issue."

Gunshot wounds of the *bladder* occasionally occur; the ball may penetrate the organ in any direction, and at the same time commit extensive havoc in the neighboring parts, both soft and osseous. Such lesions are generally fatal. Simple gunshot wounds, on the contrary, are sometimes recovered from, especially when they are treated by the retention of the catheter, thus allowing the urine to flow off as fast as it descends from the kidneys. The operation of laying open the wounded

viscus through the perineum, as originally proposed by Dr. Walker, of Massachusetts, might be performed in such a contingency. Such a procedure would be much more likely to prevent urinary infiltration than the catheter, however carefully retained, during the detachment of the sloughs, as well as before the contiguous structures have been glazed with lymph.

Balls, pieces of cloth, fragments of bone, and other foreign bodies, if retained in the bladder, generally serve as nuclei of calculi, and should, therefore, be as speedily extracted as possible, either through the perineum, or by means of the forceps or lithotriptor. Quite a number of cases, in which the operation of lithotomy was successfully performed for the purpose of effecting the riddance of balls and other extraneous substances, have been reported by different writers, as Morand, Larrey, Baudens, Langenbeck, Guthrie, and Hutin.