

be repeated at every mouthful. He would apparently have lain and starved without expressing any sense of hunger. The urine and fæces passed involuntarily, the latter only after taking three or four drops of croton oil, and then waiting twenty-four hours. His pulse was feeble, varying in frequency from sixty to eighty beats in a minute. He was emaciated to the last degree, and had troublesome ulcerations over the lower part of the spine, and also on the glans penis. His eyes were insensible to light, but there was no marked dilatation or contraction of the pupils. The right eye, at times, was considerably inflamed. He seemed to have lost the sense of taste, and it made but little difference to him what was given him to eat or drink. He was a complete wreck of a man, bodily and mentally. He died easily, after lying insensible a few hours, at the age of 57.

Autopsy, made by Dr. Ellis. The lateral ventricles contained six ounces of clear serum; the septum lucidum was remarkably transparent.

Projecting somewhat from the base of the cerebellum, on the right side, was a yellowish "capsule," with some transparent cyst-like portions. This was two inches or more in diameter, and formed the lower wall of a large cyst, embedded from one half to three quarters of an inch in the substance of the cerebellum. It contained a brownish, gelatinous substance. The pons Varolii was atrophied, as from pressure by the morbid growth. The medulla oblongata below had also an atrophied look. The optic nerves appeared smaller than usual.

Some old tubercular disease was found at the apex of each lung. The other organs were healthy.

This case seems to confirm the opinion which attributes to the cerebellum "the power of associating or co-ordinating the different voluntary movements." The disease doubtless began in the cerebellum; the effusion into the ventricles occurring at a later period.

It is noticeable that the disease of the cerebellum, and the paralysis, were both on the same side.

CASES IN THE JUDICIARY SQUARE HOSPITAL, WASHINGTON,

UNDER THE CARE OF DAVID W. CHEEVER, M.D., OF BOSTON.

[Read before the Boston Society for Medical Observation, October 20th, 1862, and communicated for the Boston Medical and Surgical Journal.]

CASE I.—M. Spacht, 52d Penn., was wounded at the battle of Fair Oaks, May 31st, 1862. The ball entered from behind the mastoid process of the left temporal bone, passing inside the ramus of the lower jaw, though apparently injuring the articulation, and made its exit through the superior maxillary bone, just beneath the outer corner of the left eye. June 10th, ten days after the injury, he first came under my care. There was inability to open the mouth, except to

admit liquids; but no facial paralysis. There was scarcely any supuration from the wound, but repeated small hæmorrhages, for some days past. His aspect was rather anæmic. He complained of nothing; was fed with broth and milk, and the wound dressed with a solution of persulphate of iron.

In the evening of June 13th, quite free bleeding came on, which was checked by pressure and styptics. The following morning hæmorrhage recurred profusely, pouring out from both the anterior and posterior wounds, displacing the tampons, and rendering the employment of some other means imperative. The *left* common carotid was tied, above the omo-hyoid. In the course of the day, bleeding to the extent of one or two ounces recurred from the gun-shot wound. Afterwards all hæmorrhage ceased; excepting that during the following week there were several small bleedings from the incision made to reach the artery, though not from the main vessel itself. The wound in the head remained rather dry, not suppurating freely. The aspect of the patient was chlorotic and feeble. He was treated with tonics, egg-nogg and beef-tea.

June 18th, or four days after the operation, he was found considerably paralyzed on the *right* side. The right leg nearly powerless—the right arm less so; articulation difficult; febrile, and low.

19th.—Urine involuntary; chills.

21st.—Slight bleeding from incision; paralysis constant, but not complete; aspect very chlorotic.

22d.—Slight hæmorrhage again.

23d.—Failing.

24th.—Died; three weeks after the injury, and eleven days after the ligature. The artery was found to be perfectly plugged with a white, fibrinous clot. It is probable that the patient had lost a very considerable amount of blood before he came under my notice, as evinced by his appearance; and it would seem to be questionable whether the paralysis which supervened on ligature of the carotid was not, in this case, partly owing to the anæmic condition of the brain, rendering it less able to bear the cutting off of one of its main sources of supply.

The bleeding from the gun-shot wound was probably from the internal maxillary artery, or one of its larger branches. It may be asked, then, why the external carotid was not tied in preference to the common, since the internal maxillary is one of the terminal branches of the external carotid. For two reasons. Because it was thought it would be a little more difficult to reach safely and quickly on account of its numerous branches—and the operation had to be done promptly; and also because it was feared that hæmorrhage might return from recurrent branches, as indeed it did, to a slight degree, even after the ligature of the common carotid.

CASE II.—J. Campbell, 62d Penn., wounded before Richmond, July 1st, 1862. Entered the hospital, under my care, about one week after the battle. Ball entered at the outer condyle of the

right humerus, and passing inwards, made its exit on the inner side of the arm, near the bend of the elbow, in front. Shattered bone can be felt with a probe, yet the arm admits of very considerable motion, of flexion and extension, without severe pain or crepitus. In a day or two the slough began to separate, and suppuration to be established, with considerable constitutional disturbance. July 13th.—The joint and neighboring parts extensively swollen, red, tender and severely painful. Both wounds suppurating. The wound was explored under ether. The outer condyle and the head of the radius were found to be shattered, and the finger could be passed through the wound of exit, in front of the coronoid process of the ulna. Apparently the ginglymoid portion of the joint was untouched. It was noticed that no pulse could be felt in the radial artery at the wrist; yet, although a fortnight after the injury, the appearance, motion, sensation and temperature of the hand were as good as the other. If, then, the brachial artery had been cut off or plugged, it seemed probable that a sufficient collateral circulation had become established. It must be remarked, also, that the radial pulse of the other wrist was deep seated, and difficult to be felt, probably owing to some peculiarity of the artery, for the patient was robust and rosy, and bore no signs of loss of blood or debility. Since the suffering and general disturbance were very great, it was evident that something must be done to relieve the parts of the shattered bone, which nature could not promptly throw off. It certainly seemed too soon to resort to amputation; and as the articular surface of the elbow-joint was opened into by the injury of the external condyle and the head of the radius, the mischief was sure to extend into the rest of the articulation, if only the broken fragments were removed. Excision of the whole joint seemed therefore to promise most hopes of success, and it was done, on the following day, July 14th. The operation was done with an H-shaped incision. The articulation of the ulna with the humerus was found unbroken, but pus had already burrowed beneath the triceps, and denuded the humerus above the condyles. The injury to the radius, also, consisted not only in a shattering of the head, but a split extended down about an inch farther. The whole articular surface was removed. The humerus sawn half an inch above the condyles; the ulna, just below the sigmoid notch, and the radius, was necessarily removed below the tubercle of the biceps. The operation was well borne, and there was but little hæmorrhage. Sutures and adhesive straps were applied, save at the lower corner of the wound, which was left open for drainage, and the arm adjusted on an inside felt splint. Four grains of opium were given in the night.

July 15th and 16th, there was considerable swelling, but little pain.

17th.—Considerable discharge of dark, sanious pus. Constitutional state good.

19th.—Healthy suppuration was established.

20th.—The edges of the wound had separated and were being

absorbed, while profuse, florid granulations were appearing in great abundance. As they seemed disposed to bleed, they were dressed with a diluted tincture of myrrh.

Everything seemed to be going on finely, the hand and fore-arm appearing well. But on July 21st, one week after the excision, and three weeks after the injury, I was called to find him with a profuse secondary hæmorrhage issuing from the wound of exit, near the bend of the elbow, and coming, by its size and direction, from the wounded brachial artery. A tourniquet was applied. The amount of blood lost was very considerable; the patient considerably reduced. The pressure of the tourniquet produced great congestion and oozing from the granulations of the excision; and denuded bone could be felt above the end of the humerus. Under these circumstances there seemed to be but little chance of recuperative power enough being reserved to make a false joint at the elbow, and it appeared to the gentlemen with me and myself, that early amputation was the only resource. The patient was stimulated, and the arm amputated midway between the elbow and the shoulder. The pulse was very small during the operation, and but little ether could be borne. Stimulants were used very freely, and by evening he rallied. He recovered perfectly, with a good stump, in the ordinary time.

CASE III.—C. Lawrence, 55th New York, wounded at battle of Malvern Hills, July 1st, 1862. Was struck by a ball, or a piece of shell, on the right side of the frontal bone, vertically over the right eye, and about an inch above the superciliary ridge. Now, July 10th, a ragged wound of the integuments, about one inch in extent, reveals portions of the frontal bone, visibly depressed, while the pulsation of the brain can be seen in the fissures of the fracture. No signs of compression. No paralysis. No fever. Pupils natural. Tongue, pulse and bowels well. Aspect fair. Right eye injected. Complains of nausea and constant headache. Although the prognosis of this case must depend much upon the nature of the missile, whether a ball which penetrated the brain, or a piece of shell which glanced off, and although the symptoms were not urgent, yet it seemed proper to remedy the very marked depression, under the fear that the spiculæ of the inner table might gradually irritate the dura mater into something worse than headache and nausea.

July 11th.—He was trephined, and two fragments, half an inch in diameter, and some splinters of depressed bone, removed. The dura mater had a thin clot of blood over part of its visible surface, and at one point a seeming depression, which it was feared might be the wound of a ball, although there was no appearance of wounded cerebral substance, or of pus. No farther exploration was made. The edges of the wound were brought partially together, cold water was applied, and a low diet ordered. There was much pain in the afternoon. Ice was applied.

July 12th.—Pain gone; feels comfortable.

13th.—Laudable pus in moderate amount. Edges of wound look well. No pain. No nausea. No fever.

15th.—Granulations begin to cover over dura mater. Less discharge. Complains of pain only when he moves the head suddenly.

He continued to improve, the wound slowly gaining. At the end of two and a half months from the injury the hole had nearly closed. Treatment consisted in cold applications, quiet, and a strictly vegetable diet.

CASE IV.—J. Jasper, 5th Mich., wounded at Fair Oaks, May 31. Admitted June 10th. Ball entered left arm, midway between elbow and shoulder, on outer edge of *biceps*, and passed inwards. No wound of exit. No ball can be felt by the tract of the wound, which is not very deep; nor are any evidences of it to be seen on inside of arm. Apparently a flesh wound, beginning to suppurate, and doing well. Patient is robust and comfortable. Wound being a little inflamed, it was poulticed.

June 11th.—Chills.

12th.—Arm much inflamed; phlegmonous redness, and hard swelling. Some fever. Low diet, and salts.

13th.—Much worse. Severe constitutional disturbance. Great pain. Fever, sweat and distress. Pulse small and rapid. Arm largely swollen, and of a brawny hardness, indurated from axilla to elbow. Several small black blebs near the edges of wound, slightly raised above skin, and containing a thin fluid. Ordered a lotion of lead and opium. Opium, quinine and brandy internally.

14th.—Worse.

15th.—Gangrene extending. Constitutional disturbance very great. To continue food and stimulants, and apply a yeast poultice.

16th.—No better. Gangrene extended two thirds around arm; line of demarcation beginning above. Add egg-nogg to treatment.

17th.—Tongue brown. Pulse small and frequent. Irritative fever severe. Gangrene extending around under side of arm. Increase stimuli.

18th.—The arm girdled by gangrene, and a line of demarcation set up in most of this extent. Disease extending below, towards forearm, which, with hand, is intensely inflamed. Constitutionally somewhat better.

The gangrene being limited above, and keeping up an exhaustive irritation below, and the general disturbance being less, it seemed that the moment for action had arrived. Amputation was the only resource; and that was felt to be doubtful, since the disease had extended so high as to preclude any other operation than a disarticulation. The patient was stimulated, etherized, and the arm removed at the shoulder-joint by a deltoid flap. Enough sound tissue was got to cover fairly, and that was all. No very large amount of blood was lost. Patient bore the operation well, and before being removed to bed, was given three grains of opium. A water-dressing

was applied, and stimulants, opiates and food given, as often as they could be borne.

June 19th.—Aspect tolerable. Feels more comfortable since the operation than before. Pulse very feeble. Stump looks well. Continue stimulants, &c.

20th.—Stump continues to look well. Thin and serous discharge. No hæmorrhage. Constitutionally failing. Nausea and diarrhœa.

21st.—Stump the same. Otherwise worse. Pulse very feeble. Hiccough. Delirium. Died at 6, P.M., three days after the operation, and three weeks after the injury. There was no extension of gangrene, and the patient died of *shock*.

It may be fairly questioned whether very free incisions should not have been made when the phlegmonous inflammation came on. One patient, in another ward, had apparently been treated so in a different hospital, but he had saved his limb, at the expense of a tibia denuded over eight inches, forming a large exfoliation, with subsequent slow granulation, which was far from covered when I last saw him. The case narrated does not seem wholly like hospital gangrene. The ward contained 40 cases of wounds, and it did not extend. Only one other instance of gangrene occurred in 400 cases, in two months.

CASE V.—G. Cook, 63d Penn., wounded at Fair Oaks, May 31st. Ball entered just above right elbow, shattering humerus, and made its exit transversely on the inner side of the arm; by the size of the wound of exit, probably a Minié ball. Patient had refused to submit to amputation, which was advised, on the field. Subsequently, strenuous efforts had been made to save the arm. About three weeks and a half after the injury he came under my care. He was then suppurating enormously, but the pus was laudable. There were large masses of fungous granulations in both wounds. The arm was helpless, and no attempt at union seemed to have taken place. A number of large and small splinters had been removed, and spontaneously discharged. The patient was young and robust, but the general health was just beginning to suffer from hectic. The arm was not inflamed.

June 25th.—An exploration was made, under chloroform. The humerus was found to be badly fractured, with many spiculæ, and was besides split upwards fully three inches, so that the finger lay in the medullary cavity, and the two fragments pointed inwards and outwards, with sharp, jagged ends. These pieces were firm and immovable. Below, the fracture was sharp, the condyles roughened as by caries, and the inner one broken off; and, as afterwards appeared, the fracture extended into the elbow-joint.

As there was no prospect of reparation, and an excision must include all the parts from the upper third of the arm to the tubercle of the radius, it was decided, after a consultation, to amputate. The arm was removed, by the circular operation, about three inches below the shoulder, on June 28th.

June 29th.—Doing well.

30th.—Very comfortable. No hæmorrhage.

VOL. LXVII.—No. 13A

July 1st.—Slight chills, otherwise well. Ordered quinine.

2d.—Chills quite bad, three times to-day. Nausea and vomiting. Sweats. Aspect bad, but stump looks well. Beef-tea and stimulants moderately. *R.* Calomel, gr. ss., et opium, gr. ss., every hour until easy, and vomiting relieved.

3d.—Looks badly. Complexion a little jaundiced. Occasional chills. Tongue brown and dry. Skin moist. Pulse small. Respiration hurried. Stump continues to look well. Stimulants.

4th.—Increase of all bad symptoms. Quite yellow. Respiration impeded. Sinking. At 11, A.M., copious, but not very rapid hæmorrhage from stump. Died in an hour.

It is to be remarked that in malarious regions, and in this hospital, where fever and ague is of daily occurrence, it is difficult to distinguish, in the beginning, between the chills of intermittent and those of suppuration. This death was ascribed to pyæmia. The following is more marked in some respects.

CASE VI.—J. English, 52d Penn., wounded at Fair Oaks, May 31st. Ball entered upper third of left thigh, near outer edge of rectus; ball still in.

June 10th.—Wound probed, but no ball could be found. Pretty comfortable. Water-dressing.

11th and 12th.—Pain and fever. Poultices, purgative, low diet, opium.

13th.—Wound suppurating. Feels better.

14th.—The same.

15th.—Much distress. Febrile. Thigh painful and very tender; not swollen or inflamed. No chills or sweats. Great jactitation. A little jaundiced. Drowsy. Ordered compound cathartic pill.

16th.—Thigh easier. Jaundice increased. Aspect much distressed. Pulse small and frequent. Wound the same.

17th.—Intense jaundice. Dyspnœa. Looks moribund. Wound unchanged. Died at 10, P.M.

At the autopsy it was found that the ball passed down below the ramus of the ischium, laying bare, but not fracturing the bone, and was lost in the soft parts. There was considerable disorganization, but no pus. The liver was intensely congested, but presented no other change. The gall-bladder and ducts were normal. Nothing else abnormal was found in the abdominal or thoracic cavities. No dépôts of pus. The head and the muscular structures were not examined. There was no swelling of the limb, like phlebitis, during the sickness, nor any marked difficulty of micturition. The bowels were sluggish, and attempts were made to move them and arouse the liver by mercurials and saline cathartics.

If this case was pyæmia, it was without marked chills or sweats. Such a form of pyæmia is described as coming on insidiously, accompanied by jaundice. This seems the more probable explanation, from several other cases of death of a low, asthenic form, with jaundice, occurring in the hospital, but not under my immediate care.

These cases were, some of them, complicated with secondary hæmorrhage, more or less grave.

CASE VII.—J. McLaughlin, 1st Penn. On June 11th he was brought into my ward. He was deaf, stupid, with difficulty comprehending or answering questions, febrile, bleeding from the nose and throat, and with bloody stools. No history of the case. He was first given stimulants.

June 12th.—Bleeding continues; body and extremities sprinkled with blue, extravasated spots, like huckleberries. Ordered beef-tea, lemons, and Tr. ferri muriat., 3 ss. every four hours.

June 13th.—Worse. Bleeding from ears. Spots of extravasation copious and increasing. The abdomen so closely covered that they resemble deep-blue striæ, in semi-parallel lines. Nose, mouth and tongue constantly bloody. A little diarrhœa, tinged always with blood. Pulse small, frequent and irritable. Very stupid and deaf. Aspect bad. No pain. No soreness. No complaint of anything. Continue good diet. Three to four lemons daily. Iron, 3 ss., *every hour*.

June 14th.—A little better. Less bleeding. More sensible. Pulse 88. In the afternoon, copious hæmatemesis.

June 15th.—Looks very badly. Dull, deaf, and in a wandering delirium. No more bleeding. Continue iron, and add wine.

June 16th.—The same. Is so tired and disgusted with the Tr. ferri muriat., that the following is substituted. *R.* Ferri sulphat., 3 iss.; acid sulphuric aromat., ʒ i.; aquæ, ʒ ii. M. Tea-spoonful every hour—equal to four grains of ferri sulph. The lemons were omitted, and the wine changed to egg nogg.

17th and 18th.—A little better.

19th.—Still better; medicine every two hours.

21st and 22d.—Improving. No bleeding for several days. Purpuric spots brighter, and less livid. More intelligent. Less deaf. Aspect better. Continue iron every two hours.

24th.—Much improved. Spots fading. Medicine every four hours.

July 1st.—Everyway much better. Spots about gone. Iron, three times a day.

27th.—Walking about, convalescent.

It is not, perhaps, probable that the immense quantities of iron (amounting to 3 iss. of the tinct. ferri muriatis, or over ʒ iv. of the sulphate of iron, in twenty-four hours), given in this case, were all absorbed. They produced no effect, save that improvement steadily followed their administration. No irritation of pulse, head, stomach or bowels, followed these doses. When first seen, the case seemed pretty desperate, and the remedy was given in unusual amount, from a hope that it might benefit, and could do no harm. This was considered as a case of purpura hæmorrhagica, complicated, or not, with fever; and it is introduced here, among surgical cases, as typical of a certain hæmorrhagic tendency which seemed

to prevail in very many of the cases under my observation. A poor, thin, and probably scorbutic state of the blood was noticeable in the majority of wounded men. The aspect of some was chlorotic. Robust health, suddenly stricken down by a wound, was an exceptional appearance. A lingering form of sub-acute rheumatism was very common. Diarrhœa, or a tendency to it, easily induced by fresh meat and broths, was also prevalent. Suppuration was tardy and not vigorous. There was no strong reaction after injury. A full, bounding pulse was a rare complication. The aspect was that of fatigue. The spirits were cheerful, but that was partly owing to the unusual comforts of a hospital—a bed, clean linen, quiet, and regular food. Convalescence was slow and lingering—the patient not regaining a rosy color, or the look of firm health, as often here, as I have seen in northern and sea-side hospitals.

Secondary hæmorrhage was pretty frequent, and sometimes fatal. It rarely failed to recur, and carry off the patient, where it had been checked. All the cases of ligature of a great vessel to check hæmorrhage, died; of these, there were two of the subclavian, one carotid, and one axillary. Three out of the four showed a tendency to bleed from other parts than the original wound—as from small vessels, and, in one instance, from the bowels.

The tendency of the wounded to jaundice, and an obscure form of pyæmia, has been already spoken of. It was so frequent as to be very marked and noticeable. All the patients were liable to intermittent, and a considerable number suffered from it while in the hospital. This, of course, variously complicated their previous state. One case of bilious remittent occurred in a patient who had been in the hospital a month. He was wounded in the foot, and I had removed portions of the third, fourth and fifth metatarsal bones, three weeks after the injury, and he was going on well, when seized with the fever, which speedily proved fatal. Yet, with the exception of the tendency to diseases of a malarious origin, there was no epidemic in the Judiciary Hospital. There was no tetanus, and the pyæmia was sporadic. The gangrene did not extend, and there were very few cases of erysipelas. The number of patients averaged five hundred.

The construction of the hospital was good. It was of wood—one story high, and built in ten pavilions. The pavilions had an upper and a lower row of windows all round, opening into the ward: and thus a very admirable top-ventilation was secured. There was no ceiling, and each pavilion held from thirty to forty beds. As far as any hospital smell was concerned, the air of these wards was the purest of any I ever visited. The nursing was pretty good; the food, abundant in amount, and of excellent quality. The kitchen and the cooking were the weak spots of the establishment, and unavoidably so. Yet the sick did not want for luxuries; and by the commutation of their rations, a hospital fund, sometimes of one thousand dollars a month, was expended in extras for their comfort.

Five hundred loaves of soft bread, thirty dozen of eggs, a keg of butter, and many gallons of milk, were daily consumed. Government furnished medicines and stimulants without stint; and the Sanitary Commission made up many lesser deficiencies.

Obviously, therefore, the bad sanitary state of the patients, their tendency to various morbid complications, indicating debility and impure and feeble blood, could not depend on the surroundings of their hospital life. The cause is to be found in their mode of living and enduring in camp, and on the march. All the cases here alluded to came from the Peninsula, after the siege of Yorktown, and the sojourn in the pestilential swamps of the Chicahominy. Climate, fatigue, exposure, want of sleep, and, above all, too little and poorly prepared food, and food of a bad quality, with no margin of extras to revive the appetite or enrich the blood—all this supervening on habits of ease and plenty, and continuing to act on yielding constitutions for months, had gradually undermined the strength, and led to that state of prostration described above. Such a condition of things is perhaps inseparable from war. Those interested may find descriptions of an exactly similar state of health, and its constitutional sequences under injury and wounds, in Hennen and Guthrie, and in McLeod's details of the hardships of the Crimean campaign. All military writers are unanimous in like descriptions. It is not surprising, among such cases, that the mortality should be large. The operations done at this hospital were necessarily all secondary; of these, about 50 per cent. died. All the cases of excision of joints, which fell under my observation, were fatal. Excisions of ends of bones, not involving an articulation, were more successful.

Although it is often said that limbs are needlessly sacrificed to the knife on the field, it has seemed to me that there was another large class of cases where life was ultimately lost through too great conservatism. When we consider the many perils to which the long recovery from a shattered limb, or an excision, exposes the private soldier, of bad transportation, hospital diseases and malaria—when he cannot be sent home—and all these supervening on a feeble state of the blood, such as has been described, we may well hesitate to submit him to such risks, which an amputation will, to a considerable extent, do away with.

There are only two other points which demand a brief allusion.

Mercury seems to exercise a very good effect on some ill-conditioned wounds in this latitude, and also to be required in those cases tending to congestion of the portal circle and jaundice, which were frequent in this hospital; and, in short, to be really more useful and more needed than we think it in Boston.

Chloroform and ether were both furnished by government, and were used indiscriminately. In some fifteen or twenty cases of the administration of chloroform, not the slightest ill effects resulted.