

Wright (J. R.)

With compliments of the Author.

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OF
Compound Comminuted Fracture of the Leg:
RECOVERY WITHOUT SUPPURATION.

BY

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AUGUSTA, GA.,

Demonstrator of Anatomy, Medical Department University of Georgia.



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OF GEORGIA, THIRTY-SECOND ANNUAL SESSION,
THOMASVILLE, APRIL 1881.

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Prof. Billroth says, "The most successful operation never gave me such pleasure as the successful union of a severe complicated fracture." And this, I believe, but expresses the sentiment of every surgeon who has had many of this class of fractures to deal with. If we turn to the subject of complicated fractures in any surgical treatise, we find them classed among the most difficult and dangerous injuries to treat,—difficult, because they require on the part of the surgeon good judgment, and no little skill in their management,—and dangerous, because very often a limb and sometimes the life of a patient is in danger of being lost;—if neither of these, they entail great suffering with exhaustive suppuration, and possibly necrosis or caries, with only a partially useful limb as a result. Such being the case, it is with pleasure I place on record the following cases, whose treatment and favorable results are given for what they may be worth.

CASE I.—On the 21st of August, 1879, I was called to see Robt. J., a negro man, about fifty years of age, who had received a severe injury of the right leg. Upon

reaching him I found that he had been hurt by the falling of a heavy timber, twelve inches square, and forty feet long,—this timber catching his leg between it and another piece which was lying on the ground, thus making a kind of scissors joint, which had crushed the limb terribly. Examination of the leg showed a compound comminuted fracture of both bones at the junction of the lower and middle thirds, the bones being very much comminuted for a space of four inches, with a wound through the soft parts the size of a silver quarter, two inches above the external malleolus, from which the blood was flowing very freely, from the wounding of the peroneal artery. The foot, as the man lay on the floor, would lie flat, at right-angles to the limb on either side, showing that the parts had been terribly twisted. In fact, the man afterward told me, that as he fell his body twisted around on the crushed limb. At first sight of the case, I asked myself the question, shall I amputate or try and save the leg? I had seen amputations for less serious fractures, and I had also seen very serious compound comminuted fractures recover with very little trouble and *no suppuration*, upon just the treatment I would put this man upon if the attempt was made to save the limb. However, I sent for Prof. DeS. Ford in consultation, and after a careful examination of the injury he advised me to save the leg if possible. Accordingly, under ether, the limb was straightened out, extension and counter-extension made, and the fragments moulded as nearly as possible into position. A piece of adhesive plaster with a compress was placed over the wound, to control the bleeding if possible. The limb was then placed in a fracture box and packed around with cotton, exten-

sion being made from the foot-piece; this constituted the entire dressing. Ten grains of sulph. quinine was then given, with $\frac{1}{4}$ grain sulph. morphia; 5 grains of quinine was ordered to be given at 6 p.m. At 6 p.m. I saw him again. The temperature was not taken; pulse 100. The bleeding had continued so that the compress was saturated, the blood trickling from beneath it. This was removed and a new compress dipped in cold tar-water applied. One-fourth grain sulph. of morphia was given, and 5 grains of quinine ordered given every four hours during the following day, commencing at 6 a.m.

August 22d, 9 a.m. Temperature 100 2-5, pulse 104; had slept very little during the night; blood still trickling from the wound. Compress again changed.

Six p.m. Temperature 102, pulse 118; at this visit it was found necessary, from the continued bleeding which had soiled the dressings, to change the box, which was done, the leg being placed in a clean box and packed with saw-dust; quinine to be continued as before.

August 23d, a.m. Temperature 101, pulse 110; had slept but little, and complains of severe pain in the ankle. Bleeding about as before. The hemorrhage now began to be a serious matter, and I feared the artery might have to be ligated; before doing this, I determined to adopt a suggestion of Dr. Ford's, and apply pressure along the course of the artery (peroneal) with a piece of rubber tubing laid over it, and firmly bound there by a many-tailed bandage. This was done and the bleeding ceased, giving no further trouble.

Six p.m. Temperature 102, pulse 112; no suppuration; quinine, 20 grains a day as before.

August 24th, a.m. Temperature 99 4-5, pulse 108 ; patient expresses himself as feeling very comfortable. No odor or pus.

Six p.m. Temperature 101, pulse 108 ; quinine continued.

August 25th, a.m. Temperature 99 4-5, pulse 100 ; no suppuration ; patient doing well ; 20 grains quinine, as before.

August 26th, a.m. Temperature normal, pulse 92.

August 27th, a.m. Temperature 100 4-5, pulse 88 ; no suppuration. At this visit, the leg was placed in a plaster bandage, with paste-board side-splints, a fenestrum being left over the wound. As yet, no smell or suppuration.

Six p.m. Temperature 100 4-5, pulse 76, says, " he feels well " ; 20 grains quinine continued.

August 28th, a.m. Temperature 99 4-5, pulse 80 ; wound healing nicely, and with no suppuration. From this date, the record of temperature and pulse, ranging about normal, was not kept, and the quinine was reduced to 5 grains three times a day, and continued at that for a week, when it was again lessened to 10 grains a day, and continued for a week, and then left off. The patient continued to do well, and at the end of three weeks was allowed to sit up, the plaster bandage forming a perfect support for the limb, the wound having healed without any suppuration. On the 1st of October, six weeks after the injury, the plaster bandage was removed, and union found to have taken place ; a starch bandage supplemented with paste-board side-splints was then applied, and the patient allowed to go about on crutches. Twelve weeks after the injury this bandage was taken off, the

bones being firmly united. The limb was not appreciably shortened—or, as he said, “his right leg used to be a little longer than his left, but now they were just right.” The ankle was a little stiff at first, but soon recovered its mobility, the man using his leg as though it had never been broken.

CASE II.—This case occurred in the practice of Dr. DeS. Ford, who kindly asked me to assist him in dressing, and who allowed me to keep the record. It will be referred to by the Doctor at another time. On the 2d of June, 1880, the Doctor was called to see G. W. (white), aged 45, a butcher and a hard drinker, who had received a compound comminuted fracture of the middle of the upper third of the left leg, by the kick of his horse—the shoe of the horse cutting through the soft parts, and comminuting the upper portion of the tibia; the fibula was not broken. The hemorrhage from the wound was considerable, but readily controlled by a compress and adhesive plaster. The leg was then placed in a fracture box and packed with wheat bran, extension being made from the foot-piece. We saw the case about four o'clock in the afternoon, he being under the influence of liquor at the time. At eight in the evening, when seen again, he was resting quietly; temperature 99, pulse 88; 10 grains sulph. quinine was then given, and 5 grains ordered given at six and eight o'clock in the morning, and at the same hours in the evening.

June 3d, a.m. Had suffered no pain, and rested quietly during the night; temperature normal, pulse 84; quinine to be continued.

June 4th. Continues to do well; no pain, smell, or pus; temperature normal, pulse 84.

June 5th. Complains some of his knee, which was a little hot and swollen; no suppuration; temperature 99 1-5, pulse 84; 20 grains quinine a day as before.

Six p.m. Temperature normal, pulse 85; knee feeling better.

June 6th, a.m. Temperature 99 1-5, pulse 84.

Six p.m. Temperature 99, pulse 84; no suppuration; quinine as before.

June 7th. Temperature normal, pulse 82.

June 8th. Normal temperature, pulse 84; wound in soft parts healed, and with no suppuration. From this date the record of temperature and pulse was not kept; the quinine lessened to 15 grains a day for a week and then discontinued, the patient getting along with no trouble whatever. On the 21st of June, three weeks after the injury, the leg was put up in a starch bandage with paste-board side-splints, the patient then being allowed to go about on crutches. He wore this dressing for a month, when it was removed by the Doctor, and firm union found to have taken place.

CASE III.—W. T., negro, aged 35. On the 11th of Nov., 1880, I was called to see this man, who had been injured by the falling of a heavy piece of machinery. On reaching him seven hours after the accident, I found a compound comminuted fracture of the right leg, at the junction of the middle and upper thirds. The limb was considerably swollen, and was bleeding freely from a wound of the soft parts, just over the fracture, on the inner side of the leg.

The wound was closed with adhesive plaster, and the limb placed in a fracture box and packed with saw-dust. Temperature at time of dressing ($4\frac{1}{2}$ p.m.), 101 1-5, pulse 80; 5 grains quinine given at once and 5 grains at 8 p.m.

Nov. 12th, a.m. Temperature 99 1-5, pulse 68; some little blood oozing from the wound; limb still much swollen, with blebs forming around the seat of fracture. Five grains quinine was ordered given at 6 and 8 a.m., but was not given until 9 a.m., after which 10 grains was given at 12 m., and 5 grains at 8 p.m.

Four p.m. Temperature 101 4-5, pulse 104; still some bleeding; condition of the limb otherwise unchanged. Five grains quinine was ordered to be given at 6 and 8 o'clock morning and evening, and to be continued until further orders.

Nov. 13th, a.m. Temperature 99 1-5, pulse 98; removed the soiled saw-dust and put in fresh; the bleeding had ceased, but blebs were still forming.

Six p.m. Temperature 101 4-5, pulse 104.

Nov. 14th, a.m. Temperature 99 4-5, pulse 100; he complains of pain under the fracture; and removing the saw-dust, it was found that a very large bleb had formed under the calf of his leg and broken, leaving a large ulcerated surface. I then placed the limb in side-splints, extending above the knee, leaving openings in the bandage over the original wound and the superficial ulcer. The whole dressing was then starched so as to keep it firm and stiff. The ulcerated surface was as large as the palm of the hand, and was probably caused as much by the crushing of the limb against the ground as by the breaking of the bleb. The ulcer was then dressed with carbolic acid

and glycerine, 10 grains to the ounce, and the patient turned on his side; no suppuration from the wound.

Six p.m. Temperature 100, pulse 88; patient had turned on his back again, as he said the muscles of his thigh cramped when lying on his side.

Nov. 15th, a.m. Temperature normal, pulse 88; ulcer dressed with carbolic acid and glycerine. As the patient could not lie on his side, and the pressure on the ulcer seemed to make it worse, I suspended the limb in a sling having an opening so that nothing could press upon the ulcerated surface.

Nov. 16th, a.m. Temperature 99 2-5, pulse 88; No suppuration, save a little from the ulcer, which was dressed as before.

Nov. 17th. a.m. Temperature 100, pulse 100; same treatment continued.

Nov. 18th. Temperature 99 2-5, pulse 98; treatment as before.

Nov. 19th. Temperature normal, pulse 88; no suppuration from the wound; ulcer dressed as before. From this date the record of temperature and pulse was not kept; the quinine being dropped to 15 grains a day, and continued for ten days and then left off. The leg was kept in the sling for ten days, at the end of which time both the wound and ulcer had healed; there being no suppuration from the wound over the fracture, and but very little from the ulcer.

On the 25th of Nov. the leg was taken from the sling and a roller bandage run up over the old dressing, the whole bandage being starched again. Five weeks after the accident, this dressing becoming loose it was taken off, and a new starch bandage with side-splints applied;

this was worn for a month longer, and then removed, the patient having made a good recovery without suppuration.

In summing up these cases, there are a few points worthy of a second notice :

1st. There was perfect recovery in each case *without suppuration*, and that without the use of any antiseptic measure, unless we may be allowed to class the sulphate of quinine among the antiseptics. At all events we will place it among the anti-pyogenics. How the drug acts in the prevention of suppuration, I will not attempt to say ; but that it does I most firmly believe, not from my experience with these cases, but from observing the lack of suppuration, after a good many worse injuries and after surgical operations.

2nd. In two of the cases the fractured limb had to be moved several times before the permanent dressing was applied, and in these two the wounds over the fracture were not closed save for a short time, thus leaving them open. I do not believe, however, that it makes very much difference whether these wounds are closed or not ; in fact Billroth says, " For a short time back he has been leaving them open, and has been surprised at the results obtained." In the cases given there was every reason to expect suppuration, for there was not only openings in the soft parts, but comminution of the bones with crushing, and in the first case, twisting of the tissues along with the fracture. Still, no suppuration occurred, and its absence I can trace to nothing save the free use of quinine.

It may be worthy of note that in these cases, while taking the amount of quinine mentioned, there was no cinchonism ; the patients never complaining of tinnitus or other unpleasant symptoms.

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