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Original Communications.

CASES OF COMPOUND FRACTURE AT THE MASSACHUSETTS GENERAL HOSPITAL. SERVICE OF G. H. GAY, M.D.

Reported by RUFUS P. LINCOLN.

CASE I.—T. H., glass-cutter, aged 35, entered the hospital Oct. 12th, 1867. One hour before entrance, patient fell from the front platform of a horse-car to the pavement, and in his struggles so placed his right arm that the wheels of one side passed over both arm and forearm, the elbow at the time being bent to a right angle.

On examination, there were found two fractures of the humerus, dividing it into three nearly equal parts, the lower transverse and the upper oblique; there was a lacerated wound of the soft parts in the inner aspect of the arm, one inch above the upper fracture, sufficient to admit two fingers, one of which was passed between the fragments; there was also a fracture of both bones of the forearm at the junction of the upper and middle thirds, together with a lacerated wound of the soft parts opposite this point on its inner aspect, which admitted a finger to the fractured extremities of the ulna; at a corresponding point on its outer aspect there was a similar wound, but no bone was detected. There was an oozing of blood from each of these wounds, but not sufficient to require a ligature. The integument of the shoulder, arm, forearm and hand, was severely contused.

The wounds were treated essentially according to the method of Mr. Liston, as follows:—Equal parts of carbolic acid and glycerine were thoroughly applied to the wounds, and sheet lint soaked in the same was placed over them; over this, and extending beyond it, the following, made into the consistency of putty: carbolic acid 1 part, linseed oil 4 parts, and carbonate of lime q. s. To prevent evaporation, there was placed over the whole, and extending beyond the margin of the putty, a piece of tin foil fixed to adhesive plaster. The arm was then extended, the forearm supine, and

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secured between two well-padded straight splints, reaching from the shoulder to the finger tips, and three pounds extension made from forearm.

13th.—Limb swollen, hard and tense; pain quieted by opiates.

17th.—There was a slight oozing of serum, but no pus, from under the carbolic acid applications. The tin foil and putty were removed from day to day, but the lint was not disturbed, and a few drops of the carbolic acid and glycerine added.

25th.—Limb diminished to nearly its normal size. The long straight splints removed, and an internal angular, with a felt shoulder-cap, straight, and spoon splints were substituted. Patient to sit up.

31st.—Apparatus removed, and limb examined. There was union at all the points of fracture, and the wounds have ceased to discharge. Simple cerate dressing substituted for the carbolic acid. Splints re-applied.

Nov. 12th.—Wounds healed. Discharged, still wearing apparatus.

CASE II.—H. H., railroad employé, æt. 35, entered the hospital Oct. 29th, 1867. Patient's wrist was caught between the coupling of cars and injured, twenty-four hours before entrance.

On examination, the right hand and lower part of forearm were tensely swollen, and the radius fractured obliquely one inch and a half above its distal extremity; opposite the point of fracture, on the inner side, there was a lacerated flesh wound, which admitted a probe between the fragments of the radius. There was also a lacerated and contused wound of the soft parts between the metacarpal bones of the thumb and index finger.

The carbolic-acid treatment was employed, as in the previous case, the member being placed on a Bond's splint.

Nov. 12th.—There has been no discharge from the wound at the point of fracture, and but a slight oozing from the wound below; both wounds healing as under a crust. Discharged, and ordered to report as an out-patient.

Nov. 26th.—Both wounds entirely healed.
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ed, and good union of fracture, with no stiffness at wrist-joint.

CASE III.—J. F., engineer, æt. 26, entered the hospital Nov. 2, 1867. The day before, while cleaning the machinery of his engine, the right arm being between the spokes of the "driver," the latter made a partial revolution, fracturing his arm in several places. On arrival at the hospital, two long splints, which were applied soon after the accident, were removed, and there was found a compound, comminuted fracture of the humerus in its middle, and a transverse fracture of the radius and ulna at their middle. On the inner aspect of the arm, opposite the fracture and extending to it, were two lacerated wounds, two inches apart, each sufficient to admit two fingers. The arm and forearm were tense and swollen; the integument blackened and bruised; the hand cold, swollen, and without sensation. No pulsation of the radial artery could be detected. Four incisions, half an inch in length, were made through the integument of the forearm to relieve tension. Carbolic acid and glycerine were freely introduced into the lacerated wounds, and the same treatment followed as in the first case, the arm being fixed straight and supinated between two long splints.

4th.—Warmth and sensation returning to hand.

10th.—Wounds progressing favorably, with but little discharge.

15th.—Swelling and tenderness above the elbow has increased, while the edges of the wound have become dark colored; the integument is red, sensitive, and scattered over with minute bullæ filled with serum. Carbolic-acid dressing omitted, and flaxseed poultice substituted.

16th.—A superficial slough about two inches square has appeared upon the dorsal surface of the forearm.

17th.—Free discharge of fœtid matter from all the wounds.

19th.—Slough nearly detached; granulations healthy.

25th.—General condition good. Discharge creamy, and without fœtor; a small portion of slough still remains. *R.* Tr. cinchonæ comp. $\mathfrak{z}$ i. ter die, before meals, and *R.* Tr. ferri chlor. gtt. v. ter die, after meals.

27th.—Granulating surface of wound above the elbow nearly even with the integument. The fragments of the humerus have united. The clearing off of the slough has exposed the ulna to the extent of one inch.

29th.—Slough wholly detached; suppu-

ration profuse. Poultice omitted, and simple cerate substituted. Tr. fer. chlor. increased to gtt. viij. To have one bottle of ale daily.

Dec. 8th.—Discharge from wound of forearm diminished; healthy granulations filling it up.

10th.—The upper fractured end of ulna could be seen, but healthy granulations were slowly covering it.

25th.—Ulna entirely covered; discharge profuse. Arm bandaged.

Jan. 7th.—Wound of forearm has commenced to cicatrize.

18th.—Cicatrization slow. No union of radius or ulna. General condition continues good. Dress wound with tr. myrrhæ $\mathfrak{z}$ i., aquæ $\mathfrak{z}$ vij. M.

Feb. 5th.—Sitting up. Wound of arm has healed.

23d.—Both bones of the forearm have united; its wound gradually closing.

REMARKS.—The great similarity in the injury sustained in the first and third cases naturally invites comparison, and the questions are suggested:—Why so great a difference in the progress of recovery? and, Is there any special virtue in carbolic acid as thus applied?

It seemed to one watching the last case, that the vicious course took its start in the forearm where the slough appeared, and radiated from this as a centre; and that the vitality of this part was destroyed by pressure already applied when the patient arrived at the hospital.

To condemn the treatment for its apparent inefficiency in this case would be invidious, yet it would be equally unjust to rest our decision on two favorable cases, though the prognosis in the first was as unfavorable as in the last; but, having watched to an unusually successful termination several other severe cases of compound fractures treated by this method in this hospital, we are led to concede to carbolic acid antiseptic qualities possessed by no other compound in use.

RICORD is one of the few writers, living or dead, who have had the candor publicly to acknowledge their errors of doctrine. If all medical writers had been as candid and as free from obstinacy as this great teacher, there would have been more light in the world and fewer false theories. . . . The physician who at the close of a long life clings to the theories with which he commenced it, must expect to find himself classed among the fossil remains of the profession.—Dr. YANDELL, in *Nash. Med. Jour.*