A METHOD FOR APPLYING PRESSURE TO THE SEAT OF A FRACTURE FOR THE PURPOSE OF BRINGING THE BONY FRAGMENTS INTO ACCURATE APPPOSITION AND RETAINING THEM THERE UNTIL CONSOLIDATION HAS TAKEN PLACE.

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On January 25th, L. P. H., a strong and well-built man, 35 years of age, applied at the Surgical Out-Patient Department of the City Hospital for treatment of an injury to the right forearm, sustained two days previously. An examination revealed fracture of the radius, near the middle of the bone. There was anterior displacement of the proximal fragment and posterior displacement of the distal.

On manipulation free mobility of the fragments, and bony crepitus were marked. There was considerable difficulty in keeping the fragments in position, — a circumstance probably due to the small size of the bone at this point and its depth from the surface.

Pads were carefully applied upon the arm, — one in front and one behind the fracture; and while extension was made upon the hand, a plaster-of-Paris bandage was put on over the pads, and reaching from the roots of the fingers to the bend of the elbow. At the end of six days this bandage was removed with great care and the seat of fracture gently examined. The fragments were found out of place, as before, and there had been no apparent attempt at union. Fresh pads with anterior and posterior wooden splints were then applied, only to be removed again within twenty-four hours on account of pain caused by the pressure which it was necessary to exert upon the pads, in order to keep the fragments together.

While I was holding the fragments in place with my thumbs and fingers, and was considering what means, yet untried, would be most effective in keeping this troublesome fracture permanently reduced, I was struck with the ease with which the parts could be held in perfect apposition by the thumbs and fore-fingers alone, and I said to my assistants, Mr. S. Y. Wynne and Mr. A. B. Duel, that, undoubtedly, the best appliance for this case would be one in which a pressure could be brought to bear on the seat of fracture, as nearly like that exerted by digital pressure as possible.

That same day these gentlemen suggested a plan which they put into service in this case with the most satisfactory results, and it is for the purpose of calling attention to this method of theirs that I report its trial.

A turn of bandage was loosely placed about the arm at the seat of fracture, and its upper end was then held by an assistant vertically upwards, the arm being horizontal. This served as a landmark to the fracture. With his other hand the assistant made extension by gently pulling on the hand of the patient. The hand and forearm were then wrapped in a layer of sheet wadding, and a light plaster-of-Paris bandage applied. While the plaster was still soft, pressure was made at the seat of fracture with the thumbs and fingers, as is shown in Fig. 1, the forearm being kept slightly supinated. Under this pressure, which was very slowly and gently applied, the fragments which, up to this time had been out of place, could be felt to slide back into proper position. The pressure was kept up until

the plaster had hardened, when the digital depression was, of course, permanent. (Fig. 1.)

FIGURE I.

The pilot-bandage was then cut away, and the patient, who declared that his arm was more comfortable than it ever had been since the date of fracture, was sent home with his arm in a sling, and told to report the next day.

When he returned a fenestra was cut in the bandage, as shown in Figs. 2 and 3. This was done for the purpose of allowing inspection from time to time of the region of the fracture.

The pressure exerted by the depressions in the plaster appeared to have had no effect whatever in stopping the circulation of the parts, and the fragments seemed to be in perfect apposition. (Figs. 2 and 3.)

FIGURE II.

Twenty-one days after the plaster had been applied it was carefully removed and the union found to be firm and the apposition of fragments apparently exact. There was a narrow annular callus about the seat of the fracture. The plaster was re-applied, as a precautionary measure, and, in a short time, again removed,

FIGURE III.

and the patient directed to use the hand. Improvement continued, and the result was in all particulars, satisfactory.

¹ Read before the Suffolk District Medical Society, April 29, 1893.

I knew that the bone would probably have united readily enough under the old form of treatment, but with these hitherto uncontrollable fragments held in exact apposition by the depression in the plaster, I felt sure that the union would be accomplished with the minimum of deformity and the result, as it proved, justified my expectation.

This same method of using the depressed plaster, instead of pads was employed with excellent results in two cases of Colles' fracture at the Hospital; but, as this is a fracture which, after impaction has been broken up, is usually satisfactorily treated by ordinary splints, or, as some surgeons claim, by no splints at all, I do not use these cases as evidence in favor of the method here spoken of.

The plan, as carried out in the first case, was certainly highly satisfactory, and I see no reason why it should not be of use in certain fractures in other parts of the body, where the fragments cannot be kept in position by the ordinary methods now in use. Dr. T. A. Deblois tells me that a modification of this method has been occasionally used in treating fractures of the nose; but at the time the cases here reported were treated, I was not aware of its ever having been previously used in any case.

One of the attractive features of this method of applying pressure is that the fracture can be reduced after the bandage has been applied, and the fingers and thumbs can thus regulate the degree and distribution of the pressure to a nicety.

It seems to me that Messrs. Wynne and Duel have suggested a new and simple expedient which may occasionally be found of great use in the treatment of certain troublesome fractures after the ordinary means have failed.

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CASES OF PNEUMOTHORAX.¹

BY H. F. VICKERY, M.D.

ON May 24, 1892, I was called to see Miss D. L., a rather delicate girl of nineteen, who had suddenly become very ill. As to the family history of the patient, her mother was robust; her father was not vigorous, but yet not suffering from any particular chronic disease; one sister had died of diphtheria, and an aunt of consumption.

Twelve days before I saw her, my patient noticed that she had to clear her throat oftener than usual; but she had no cough. Ten days later — two days before my visit — she had a slight hæmoptysis, followed in a few hours by a profuse one. She was apparently recovering from this as rapidly as could be expected, when in the night of the 23d-24th, she became suddenly cyanosed, and greatly distressed for breath. When I arrived, the heart was feeble and rapid, and demanded active stimulation. The chest presented the following condition: The left lung was normal, except for excessive, vicarious action. The heart was not displaced. The base of the right lung in front was tympanitic, and over it very little respiratory murmur was to be heard; but the heart-sounds were unusually audible in this region. The patient was too feeble to allow of examining the back. Dr.

¹ Read before the Suffolk District Medical Society, April 29, 1893.

E. N. Whittier now saw the case in consultation with me. He also was struck by the remarkable transmission of the heart-sounds to the right, without any evidence of a consolidated lung. Nevertheless he concurred in a probable diagnosis of right pneumothorax, and he joined me in urging the removal of the patient to the Massachusetts General Hospital.

Accordingly, she was transferred thither, and entered Dr. Whittier's wards; where he very kindly invited me to see the girl with him, once more, in the afternoon of the same day. Hoping to relieve the dyspnœa, we inserted an aspirating needle in the lower part of the right chest. It entered a cavity, in which it could be freely moved about, and it is probable that we drew some air out of the thorax; but no fluid was obtained, nor was the patient rendered any less uncomfortable.

She did, however, benefit greatly by inhaling the oxygen which was ordered for her immediately upon her entrance to the hospital. It was given more or less continuously for the first twenty-four hours, and I think no one around her bed could doubt that it saved her life, at least for the time being.

After considerable improvement, however, fresh hæmorrhages occurred, the cough increased, tubercle bacilli were found in the expectoration, and on August 13th, after three months' illness, she died of pulmonary tuberculosis.

Around this case I should like to group a few others, some of which I have had the privilege of observing, but none of which have been under my own care. With one or two exceptions, to be hereafter noted, they have all been in charge of the Visiting Staff of the Massachusetts General Hospital, to whose courtesy I am indebted for permission to report them. It should be premised that it is not my endeavor to write a monograph upon the subject of pneumothorax, but merely to bring out a few interesting points.

One striking fact about the case just narrated was the abrupt onset of the trouble. The patient had had no real cough and only for ten days a slight hacking, when the hæmoptysis occurred, to be followed within forty-eight hours by the pneumothorax. A still more remarkable event is recorded by Lundie in the *Edinburgh Medical Journal*.² A lawyer's clerk, aged twenty, with a tubercular family history, but in apparent health, while sitting quietly at home after dinner, was seized with sudden severe pain in the left chest, and obliged to take to his bed at once, with left pneumothorax.

As regards etiology, my patient is an example of nine-tenths of all cases. Tubercular infiltrations, breaking down, open a communication between the bronchi and the pleural cavity. The tubercular focus need not necessarily be on the surface of the lung, however, for it may be connected with the pleural space by a sinus.³

The next most common cause is empyema, ulcerating into the lung. This was probably the mode of origin of a case of Dr. Gannett's: Case 2, Elizabeth S., whose father died of probable phthisis, had influenza in January, 1890, followed by pneumonia; after which it was said there was fluid in her chest. In May, she became much worse and had profuse expectoration, raised suddenly by mouthfuls. She was brought to the hospital June 7th, when the left chest

² American Journal of Medical Sciences, February, 1892.

³ Powell, quoted by Donaldson, Pepper, iii, p. 575.