CLINICAL LECTURE

ON THE

TREATMENT OF SPINAL CURVATURE BY HAMMOCK SUSPENSION, AND THE APPLICATION OF THE PLASTER, FELT, OR GLUE JACKET.

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GENTLEMEN,—In general practice, no cases have given the practical surgeon greater trouble in treatment than those of spinal curvature. He has to combine the general treatment of such cases with instrumentation; and, until the publication of Sayre's work, this combination was most inefficiently performed. Poverty of the patient's friends, intractability of the patient, importunity of the surgical mechanician, and a rapidly progressive disease, each drove the surgeon to his wit's end; and I say it is only since Sayre lifted the surgeon out of the grip of the machine-maker, and made him comparatively independent of the patient's surroundings, that real progress can be reported. The secret of Sayre's success is so well known, and his plan has been so publicly demonstrated by writing and on actual cases, that it is superfluous here to explain his mechanisms; but I advise those of you who have not yet read his book to carefully peruse it, *On Spinal Disease and Spinal Curvature: their Treatment by Suspension and the Use of Plaster-of-Paris Bandage* (Smith, Elder, and Co., 15, Waterloo Place, London. 1877). The work is written in Sayre's graphic style, and reflects much credit upon one of the most ingenious American surgeons. But, guided by my own experience, I must take exception to one or more points advocated by Sayre, and these exceptions will apply principally—1. To the risk and personal discomfort, both to the patient and surgeon, of the tripod suspension; 2. To the cracking, creasing, and consequent insufficiency of the support, due to the necessary shift of the patient's surroundings; 3. To the weight of the plaster-of-Paris.

Noticing, moreover, how Nature expands into such massive bony shields the laminae of diseased vertebrae, and unites them, on the principle of *vis unita fortior*, I fail to see how even carefully regulated hanging can assist her in the process; and my answer to those surgeons who state that they stop suspension the moment that pain is felt, is, "Your interference has arrived one moment too late". As to the principle of treating these spinal curvatures, I have always illustrated it in my surgical lectures by placing a flexible India-rubber column within a glass cylinder. The flexible tube represents the body and diseased spine; the glass cylinder the rigid columnar support or jacket; and I believe that the more you allow these diseased structures to remain in the recumbent posture, the more closely do you approach the natural pose of rest, or, at any rate, you bid fair to accomplish the maximum of good with the minimum chance of evil.

In 1876, the year of the International Medical Congress at Philadelphia, Professor Sayre did me the honour, in New York, of inviting me to visit his office and showing me in detail his plan on a case of angular curvature. I was at the time impressed with the disagreeableness of the suspension, and mistrusted its absolute necessity. On resuming orthopaedic practice in London, I completed a series of experiments by suspending patients in hammocks; and I venture to express my opinion that, in future, more spinal curvatures will be fortified in the manner I am now about to describe than after the suspension-method of Sayre.

A piece of strong canvas is procured, longer than the patient's height; and the arms are passed through two slits in the canvas at suitable points, so that, in the first instance, a loose canvas long apron, with ends one turned downwards over the chest and the other on the floor, fits around the front and sides of the body. This apron is then removed from the patient, and a vest applied, of thicker material and far more open mesh than those usually supplied by the surgical instrument makers. The canvas hammock is next slung, at two fixed points, by attaching its two folded ends with two stout bandages; and the surgeon should test its bearing power by the weight of his own body. The patient is placed in the canvas as represented in this engraving. No dinner-pad is required, because the manipulations are performed after a good meal. (Fig. 1.)

At this stage, an aperture in the hammock is made over the patient's lips, to permit free breathing and conversation. The patient is then finally localised in position, according to the variety of spinal curvature (extension by the head, arms, and legs being applied by those surgeons who deem it to be necessary), and the surgeon leisurely applies the plaster-of-Paris or other fixing material, including the canvas, which, of

Fig. 1.

With regard to the risk of suspension by the chin and armpits, I have no wish to play the part of an alarmist, nor to unduly exaggerate the dangers of extension to the spine; but, as a pupil of the late John Hilton, I ask if any surgeon who values past surgical records can carefully read Lecture 5 in his work on *Rest and Pain*, and be ready to fearlessly suspend cases of cervical caries?

course, has been accurately cut to shape the dorsal contour. After the bandages have been carefully laid on (and the ease of so doing is very great in this position), the patient presents the following appearances. (Fig. 2.)

The free current of air around the patient's body, and, if the surgeon please, the hammock's suspension near to a fire, facilitates the regular

Fig. 2.

and simultaneously complete drying of the plaster; and so very comfortable are young children in these hammocks, that they either enjoy the swinging motion, or not unfrequently fall asleep. When the bandage has firmly set (and not before, for the patient can remain swung for any reasonable space of time), the whole hammock and patient are taken down; the superfluous ends are neatly cut off with scissors, and the general effect is shown in the sketch taken from my last patient (Fig. 3); so that in these instances it may be literally said, and without irreverence, they take up their bed and walk; the canvas remnant acting as an accessory vest to the patient's frame.

Fig. 3.—Patient in the erect posture; the upper and lower ends of the canvas having been neatly trimmed off.

I am ready to endorse much that has been written by Dr. Walker, Surgeon to the Peterborough Infirmary, on the utility of the recumbent posture (BRITISH MEDICAL JOURNAL, March 1st, 1879); but think that my method negatives No. 4 conclusion in his summary: "The only way in which such a jacket can be applied with the patient recumbent is by the method which I have demonstrated."

Mr. Cocking, the well-known felt manufacturer for spinal jackets, attended one of my demonstrations in the theatre of Westminster Hospital on May 18th, 1880; he considers that this hammock-suspension may prove very convenient for the application of his felt supports; as yet, he has only tried it in one instance. This hammock-suspension, then, in my own practice obviates all the inconveniences and risk to patients; secures the advantages of Sayre's method; facilitates the manual procedures of the surgeon; permits of quick and equable drying; and necessitates no change of posture between the application of the supporting bandage and its final setting.

The third point is the weight of the plaster-of-Paris. I am experimenting now on felt bandages saturated with a quickly drying solution, but will defer judgment on them until my experience is confirmed by further practical trial.

I can highly recommend a solution of plaster-of-Paris and hair intermixed. You have seen me put up many cases of talipes with this mixture; the hair plays an important intertangling part, and from its elasticity and lightness, a very easy and accurately-moulded cast results. This species of felt packing will undoubtedly supplant the plaster-of-Paris, on the sole argument of its specific weight. Nothing can go against the grain of a thoughtful surgeon more than to handicap an already puny patient with a heavy weight, for most of these clients with paralysed muscles can scarcely carry their own weight, much less that of even a few ounces extra.

One word, in conclusion, on the subject of portability and expense. Any country surgeon can carry hammock and bandages in his coat pocket, and so operate easily at the child's home instead of its being brought to the tripod. The cost of the hammock is under one shilling, and it may be extemporised out of a common sheet or a long night-shirt. I can truthfully state that, although we possess the complete tripod and

apparatus at the Westminster Hospital, and have used it seldom, its joints are become very tricky, and it may yet become more impaired from desuetude, giving way to the simpler, but equally practical system of hammock suspension.

THE TREATMENT OF ASTHMA.

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II.

CASE II.—Wm. R., a tailor, aged 66, was seen July 29, 1879, labouring under great dyspnoea. He stood with his hands resting on a table, his neck stretched, his chin raised, gasping for breath, and pathetically told me that thus he had passed most of his nights for the last fourteen years. He complained of tightness across the chest, of incessant cough, and of scanty and difficult expectoration. In short and broken sentences, he stated that he had been subject to "colds" for many years previous to the appearance of his asthmatic seizures, which had come upon him with an attack of bronchitis. Treatment had hitherto been of little avail; at times his distressing symptoms had somewhat abated, so that he had been able to do some work, but they had never entirely disappeared. For years he had been unable to lie down at nights; he could sleep only in a half-sitting posture. He had seldom passed a night without spending part of it on the edge of his bed, coughing.

W. R., of average height, pale, emaciated, had, as is typical in such cases, marked kyphosis. The upper costal arches were wide and prominent, the lower contracted. Respiration was heaving, 24; expiration relatively prolonged. Resonance of the upper third of the lungs was deficient, and that of the middle and lower rather tympanitic. Both lungs extended to the sixth ribs. Vesicular murmur was completely masked by sonorous rhonchi, which were heard with inspiration and expiration over the greater part of the chest, front, and back; while at the bases a faint cooling was audible. Cough produced no change in these sounds. There was epigastric pulsation. The heart was covered. The impulse of the apex was neither seen nor felt, and the sounds were drowned by the noise in the lungs. Pulse 78, regular, somewhat large and soft. The patient was with difficulty put to bed, and at 3.45 P.M., ten drops of a two per cent. solution of pilocarpin* were injected into the left forearm. The injection, it is needless to add, was absolutely painless.

3.49 P.M. His face was flushed. Perspiration commenced at the forehead. Tears ran down the left cheek, on account of epiphora of the left side. There was no salivation. The oppression at the chest was relieved; the breathing was less noisy than before.

3.55 P.M. Pulse 84, fuller than before. Breathing was easy and noiseless. The patient could recline. His body was covered with perspiration. There was no salivation. Rhonchi were considerably diminished; inspiration and expiration were now audible over the upper lobes. The obstruction at the bases had diminished.

4 P.M. He looked flushed. There was copious perspiration all over the body. No salivation. Breathing was easy, not accelerated. The patient repeatedly acknowledged the relief.

4.3 P.M. A small quantity of limpid urine passed without pain.

4.10 P.M. Pulse 92, regular, less full, but of greater tension than before. He complained of uneasiness at the epigastrium.

4.12 P.M. He had some nausea. A few thick, yellow, roundish sputa were raised without difficulty. Perspiration continued.

4.30 P.M. Nausea persisted. Breathing was easy. There was no cough nor expectoration. Respirations 20. The rhonchi had disappeared. Pulse 84, small, regular. Perspiration continued.

6 P.M. Perspiration had entirely ceased. There was no vomiting. A cup of tea at five o'clock had immediately stopped sickness. Breathing was easy. The resonance of the chest was considerably improved; respiratory murmur was audible all over the thorax; there were no rhonchi. The patient felt sleepy.

July 30th, 11 A.M. The patient passed a very good night; he awoke only once, at about 2 A.M., with slight cough. For the first time for many years, he had been able to lie down. Breathing was easy, and air freely entered and passed out of the chest.

CASE III.—Henry B. P., carman, aged 37, of intemperate habits, applied at the hospital on February 13th, 1879. He complained of dyspnoea, of cough, of difficult expectoration—the sputa being thick and yellow. Rhonchi were heard all over the chest. His tongue was clean; appetite good. The bowels acted daily. He was ordered to

* Messrs. Corbyn and Co. were good enough to place a quantity of pilocarpin at my disposal.