

still possible for him. He ceases to be able to distinguish what he can from what he cannot do, loses confidence in his powers, becomes nervous as regards all motor actions, probably often fails from concentrating his attention too strongly upon the execution of them, so that the range of disablement is indefinitely extended. Could we, however, restore his confidence, make him feel that he was regaining his former powers of easy coördination of muscular action, we should relieve him of many of his symptoms—namely, those indirectly or remotely connected with the actual lesion, although the direct signs of structural mischief in the cord would remain unchanged. Now, there can be no doubt that the patients do thoroughly believe in suspension, and in some unexplained way they regain during treatment their lost confidence in their own powers. When they improve their first statement is that they feel better and stronger, have a sense of improved well-being, can do more, walk further, step out more vigorously, and no longer fear to go into crowded streets. Later on, as the next most constant signs of benefit, we have relief of pains, of giddiness, and perhaps of ataxy. On the other hand, the physical signs of organic disease remain unaffected. It is thus by busying itself on the more indirect symptoms that suspension appears to me to act, but in what manner I am quite unable to suggest. I believe that in the feeling of general well-being and of regained power of coördination of movement that it induces its real *modus operandi* is to be sought.

In a disease like *tabes dorsalis*, where the progress of the disorder is attended by frequent remissions or may be arrested at almost any stage, it is difficult to estimate aright the value of any particular mode of treatment, but I think that the following conclusions are justified:—1. That suspension is capable of affording relief in a certain proportion of cases of *tabes dorsalis*, and that cases in the "pre-ataxic" stage derive the most benefit from it. Where locomotor ataxy has progressed so far as to prevent walking it is useless. 2. The duration of the disease appears to have little influence on the result, but the prospect of relief is somewhat more favourable in those in whom it has not lasted over six years. 3. If it is carefully carried out no untoward results need be feared; but in patients who suffer severely from gastric crises its use demands caution. 4. A twelve-weeks' course of suspension is likely to give as good results as one of more prolonged duration, but it should be continued for this length of time. 5. A relapse may occur after the patient has remained well for some time, and then fresh benefit may be derived from a second course of from eight to twelve weeks.

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## CASE OF "SKEWER" AMPUTATION OF THE ENTIRE UPPER EXTREMITY.

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IN THE LANCET of April 19th, 1890 (page 847), I described the use of a combination of skewers and elastic cord for the purpose of preventing hæmorrhage in removing large tumours. I mentioned in that paper a case of amputation of the entire upper extremity by Mr. Joseph Bell of Edinburgh, in which the use of this combination had contributed to a brilliant success, so far as recovery from the operation was concerned. I have recently performed a similar operation, the success of which I attribute to the employment of similar measures. The details of the case are as follows:—

H—, a Mahomedan female aged fifteen, was admitted into the Medical College Hospital on the 21st of March, 1891. About three months before admission she noticed a swelling of the right arm and shoulder, which has continued to increase rapidly. Beyond the pain and inconvenience caused by the growth, her general health and comfort have not been injuriously affected. On admission a large globular tumour was observed beneath the right deltoid muscle, which was tightly stretched over it. Its lower limit corresponded to the insertion of the deltoid, and it reached the top of the shoulder, the acromion process being imperceptible. The circumference of the limb at the shoulder was nineteen inches, and the vertical arc of the tumour measured eight inches and a half. The growth was

firm at its circumference, but soft and fluctuating at its centre. It filled the axillary space. The scapula was evidently implicated, and no movement existed at the shoulder-joint, the scapula and clavicle moving with the tumour. The outer end of the clavicle was lost in the mass. The skin over the tumour was tightly stretched and œdematous, but not infiltrated or broken. The tumour was tender to pressure and manipulation. The right arm and forearm were œdematous, and the right pulse somewhat weaker than the left. Patient was fairly nourished and had a healthy colour. Lungs and heart healthy; liver and spleen of normal size. Slight pyrexia (100° F.) occurred towards evening, but beyond sleeplessness and slight indigestion she was in the enjoyment of good general health.

An operation was performed on March 23rd for the removal of the mass, which was evidently a sarcoma, originating in the head of the humerus, and secondarily implicating the adjoining portion of the scapula and the muscles inserted into the head of the humerus. The part having been thoroughly cleansed and the patient chloroformed, a puncture was made in the floor of the axilla and another above and behind the tip of the shoulder, and a stout packing needle, about eight inches long, was passed from below upwards through the cavity of the axilla, behind the vessels and nerves, within the girdle of the shoulder bones, and finally made to emerge through the second puncture. A second needle of the same size was entered at the lower puncture, directed transversely beneath the scapula, and made to emerge behind the posterior or vertebral border of the bone. A strong indiarubber cord was wound, figure of 8 fashion, round the projecting ends of these needles, encircling the part with a tight elastic loop which was held in position by these skewers. A circular incision was now made about two inches on the distal aspect of this loop. It was first deepened in front, and the clavicle was reached and divided at the junction of the middle and outer thirds. The plexus and vessels were thus exposed and they were isolated, and a clamp forceps put on them for additional security. The attachments of the scapula were then rapidly divided and the extremity removed. The arrangements for preventing hæmorrhage were perfectly effective. The axillary artery was now identified, isolated, and tied; the elastic cord gradually loosened, and the vessels as they presented were secured. The skewers were finally withdrawn and the nerves cut short. The axillary glands were removed *en masse*. Two drainage-tubes were inserted, one at the lower angle of the wound, and the other through an opening made where the lower angle of the scapula had rested. The flaps were stitched with silk and horsehair. They were rather scrimp, and required a little traction to bring them together. The wound was dressed with scrupulous antiseptic precautions, and the patient, who exhibited some signs of shock, ordered frequent doses of a diffusible stimulant. During the first few days the pulse remained abnormally rapid and the stomach very irritable. Patient was sleepless and complained of severe pain in the epigastrium. The morning temperature was normal, and there was a slight rise to 99° or 100° towards evening for a week. The wound remained aseptic. Some suppuration occurred in the track of the posterior tube. The tubes were gradually shortened and finally withdrawn on the 1st and 3rd of April. The lips of the wound united, but there was some tension of the deep stitches, which began to cut, when they were withdrawn. The granulation material stretched to the extent of about an inch and a half. The wound eventually healed by granulation, the cicatrix being linear and freely movable over the ribs.

The tumour was found by Dr. Gibbons to be a spindle-celled sarcoma, growing and degenerating very rapidly. Having previously performed this operation, with the result of death from hæmorrhage and shock on the same day, the favourable issue in the present instance was peculiarly gratifying to me. The subject was certainly more promising than either of the other two, but the signs of shock were very evident and somewhat alarming on this occasion, and had loss of blood been superadded, it is almost certain that death would have taken place. The skewers and cord were applied with very great ease and speed, and the control which they exercised over the bleeding was absolute. The arrangement also permitted of gradual relaxation of the cord, and the vessels requiring deligation were thus secured *seriatim*.

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