A SIMPLE AND CHEAP SPLINT FOR THE EXTENSION OF CONTRACTED WRIST AND FINGERS.

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TWO years ago, I showed, at the Liverpool Medical Institution, a form of wooden splint which I had made for me, and had used with most satisfactory results in the treatment of contraction of the wrist or fingers. Without going into the question of originality, I think I may recommend its use on the three grounds of simplicity, utility, and cheapness.

A glance at the woodcut will prevent the necessity for much in the

way of description; the essential parts being an arm-piece (A), which should tolerably fit the back of the forearm; a hand- or finger-piece (B), broad enough to somewhat overlap the hand or fingers (to avoid too great compression); a hinge to connect these two portions; a wooden bridge (C) with pulley (D) at the wrist, or, in case of contraction of the fingers, at the metacarpus; and an elastic cord or cords passing over the pulley and attached by hooks to rings in the two portions of the splint. By this means, gradual extension is kept up, at the same time that voluntary flexion is allowed. It is hardly necessary to point out that the extension power may be varied to any extent by the thickness of the elastic, by the number of the cords, and by the position of the rings. To illustrate its practical utility, I will mention two cases, one of which was that for which the splint was first made for me.

A boy, aged 12, was admitted into the Northern Hospital with his right hand flexed at a right angle with the forearm. This resulted from severe thecal inflammation, for which he had been treated six months before at another hospital. That the case had been a serious one, was shown by the cicatrices of various incisions in the hand and along the forearm. Under chloroform, attempts were made by myself and one of my colleagues to straighten the wrist; but not the slightest effect was produced. I then divided subcutaneously the palmaris longus and the flexor carpi ulnaris, which stood out most prominently. By this means, a little more extension was obtained, but not much. The tenotomy-wounds were dressed in the usual method, and after three or four days the splint was adapted. The effect exceeded my most sanguine expectations. Even in twenty-four hours, slight improvement was showing itself, and, in the course of three or four weeks, the hand was straight with the forearm.

This case occurred in July 1875; and after that I had two similar cases, but not of such an extreme degree; I need not allude to them, but will pass on to the second case, which occurred in 1878, and illustrates the treatment of flexed fingers. It was that of a girl aged 7, who had been under treatment about twelve months before in a country hospital for extensive disease of the radius. Apparently, the greater portion of the shaft had been removed, and a new radius formed, containing, however, a few sequestra of the old bone. In this case, all the fingers and the thumb were bent on the palm. Under chloroform, when the hand was placed in a straight line with the forearm, the fingers could not, without risk of breaking them, be forced out beyond the position of a right angle with the palm. The sinuses in the arm having been laid open, and the cloacæ in the new bone enlarged sufficiently, the sequestra were removed. The splint depicted (in this case with the fulcrum or bridge opposite the metacarpo-phalangeal articulations) was adopted; the flexed thumb being supported by a pad of lint adapted over the bandage.

This case, although somewhat more tedious than the last, had a like satisfactory termination. The girl left the hospital six weeks after the operation, with the power of completely straightening the fingers; but, as the extensor muscles were much wasted, she was directed to wear the splint for some time longer.

In this last case especially, it was found necessary to watch every few hours for the first few days, to avoid the chance of gangrene. The

extension force in this instance being applied to fingers somewhat wasted, there was a tendency to blueness of the finger-tips even though cotton-wool padding was freely used, and though the hand-piece well overlapped the fingers, it was found on several occasions necessary to relax the elastic extension.

[Years ago, when I was house-surgeon to the Liverpool Royal Infirmary, the same principle, adapted in a somewhat converse direction, was found most useful in overcoming that tendency to pointing of the toes which sometimes occurs after long treatment of fractured leg. A hinged splint, with slightly hollowed out leg- and foot-pieces, hinged in front of the ankle, was carefully adapted and fixed to the anterior or extensor surface of the limb, and elastic cords attached by rings to the foot-piece and to the leg-piece just below the knee. This was found most useful in cases where the ordinary stirrup and elastic generally used for this purpose could not be borne.]

It has struck me that such a splint as I have depicted might be of service in cases of lead-palsy, and of infantile paralysis. The late Dr. Inman, formerly physician to the Liverpool Royal Infirmary, used to have the hands of his lead-poisoned patients supported by anterior splints; and great relief they appeared to derive thereby. But as in such cases support, not fixation, is required, it appears to me that a splint by which extension is constantly made, while voluntary flexion is possible, must be much more serviceable, by allowing and even encouraging a sort of gymnastic exercise of the affected muscles. This applies especially in the case of children, who, I have found, derive some amusement from working the hinge and elastic. I have not had the opportunity myself of trying it in such cases; but my friend Dr. Rawdon, surgeon to the Children's Infirmary, used one of these splints last year in a case of paralysis occurring in a child, and informs me that it has decidedly proved of service.

N.B.—A light and well hollowed out *anterior* splint for the forearm will be found an additional assistance in some cases, for the purpose of diffusing the pressure of the bandage, and thus allowing a firm application of the apparatus without hindrance to the circulation in the limb.

THE CONSERVATIVE SURGERY OF THE HAND.*

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I FEEL it an act of great presumption to speak on a subject which, in comparison with the rest of those upon the list, must seem to many a very trite and simple one, and should certainly not have thought of doing so had it not been that accidents to the hand are of common occurrence in these large towns of the West Riding of Yorkshire, and that some most trite and simple subjects are really most important and valuable, on account of the interests they involve—interests, at any rate, to the unfortunate persons who meet with these dreadful accidents, if not equally so to ourselves.

I shall not mention injuries to the fingers, further than to say that in cases of smashing of soft parts only, we rarely operate at all (and it is astonishing how well many of these cases do with only simple dressings, the great vascularity of the hand assisting the repair of injuries which elsewhere would be very intractable); but that, if the bone be extensively smashed as well, and we are obliged to operate, we do not amputate at a joint unless it comes naturally in the way, preferring to save even the smallest fragment of a phalanx if sound; we trim off the fractured ends of bone with bone-forceps, and get our covering as we can. We frequently have, however, very severe crushes and smashes, involving not only the phalanges, but also both the bones and soft parts of the palm; and several of these cases, with the fingers in an almost hopeless condition, have also recovered without any operation, a good useful hand being saved entire. There may have been extensive inflammation, perhaps sloughing, and subsequent gluing together of tendons; but the flexors and extensors have preserved a certain amount of mobility, and the crippled hand, even in that state, has been of infinitely greater value than any artificial substitute; not to mention that, with use, a considerable amount of liberation of the tendons takes place in such cases. In other instances, it is impossible to save the hand entire, and our course lies between an amputation of the entire hand and some partial amputation. I need hardly say that we invariably aim at the latter, and my colleague (Mr. Walker) and I have been very successful in a number of extremely unpromising cases. What we have had to consider, in each of these cases, has been how, on the one hand, to save every particle that could be saved with utility, and especially how to retain to the fullest extent the strength and breadth of the hand

* Read before the Yorkshire Branch.