AN IMPROVED SPLINT FOR RADIAL (MUSCULOSPIRAL) NERVE PARALYSIS

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The new model of this spring splint for radial nerve paralysis—originally described by the writer in 1944—is an improvement in that it allows movements of the wrist. The patient with wrist-drop appreciates the ability to flex the wrist in many activities—particularly writing. The appliance is simple in design and weighs only 2½ ounces. It requires no straps to hold it in place, and can be worn over the shirt sleeve and under the jacket.

Construction and use of the splint are shown in the drawing (Fig. 1) and the photographs (Figs. 2 and 3). The thumb wire is detachable in order that the same splint can be used for right and left hands.

![Detail drawing to show construction of the splint.]

**Fig. 1**

The splint in use. Note how the springs permit a wide range of movements.

**Fig. 2**

**Fig. 3**
In putting on the splint the affected hand is passed through the forearm loop, and the
finger tips manoeuvred into the hand loop; the coil spring is then grasped between the index
finger and thumb of the opposite hand and lifted strongly upwards to raise the aluminium
plate clear of the knuckles. The hand can then be slipped home into its loop.

If the splint is to be comfortable and fully effective it must be correctly adjusted. The
hand and forearm loops can be bent to fit any size of limb. The padded aluminium plate
must lie over the proximal half of the back of the hand, and it may need bending for a
snug fit; when the wrist is flexed the plate moves with the hand, to which it should remain
closely applied in all positions of the wrist; there should be no relative movement between
plate and hand. The loop of the thumb wire must lie just distal to the interphalangeal
crease on the palmar aspect of the thumb. The loop can be bent proximally or distally to
secure a correct fit. The finger wire passes between the third and fourth fingers, and the
finger rod must lie across the proximal interphalangeal joint of the middle finger. If any
adjustment is required here, the finger wire may be bent at the point where it is angled
through 90 degrees. The splint fits most hands without modification, and adjustments are
necessary only when fitting the appliance to a small hand.

Although intended primarily for radial nerve palsy, there are other uses to which this
splint has been put. 1) Patients with weakness or paralysis of the extensors of the wrist
and fingers after poliomyelitis find the appliance a great help, and it can be worn continuously
whilst awaiting recovery or tendon transplantation. After tendon transplantation for wrist
drop, the wearing of the splint helps to rehabilitate the hand by providing exercise for the
fingers and wrist against spring resistance. This mobilises stiff fingers and strengthens the
grip. 2) The splint has been fitted to patients with wrist and forearm fractures after
removal of plaster. Patients wearing it have regained normal strength and mobility of the
hand and wrist more rapidly than could be expected with free active use. 3) Mild spastic
flexion of the wrist and fingers can be controlled by the splint. If considerable flexion
spasm is present, the splint should not be used because excessive pressure on the palm is
liable to produce a pressure sore.

The spring components of the appliance are being made from stainless steel by Messrs Herbert Terry &
Sons Ltd. The complete splint may be obtained from Messrs Chave & Jackson Ltd., Hereford.

REFERENCE

Surgery, 26, 3.