

The (Protopathic) Sensory Nerve Areas of the Hand

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Gunshot wound of the arm, owing to the frequency with which the nerve trunks are involved, has made most of us revise our anatomy. Of course, in the majority of cases a glance at the resultant deformity of the hand makes it obvious at once which of the main nerve trunks is involved; but when more than one nerve is affected the matter is not always as simple, and it becomes important to map out accurately the anaesthetic areas. Before the war we all realised in a general sort of way that the ulnar nerve supplied the little and half the ring finger; that the median and radial supplied the other half of the ring finger, the middle and fore fingers, and most of the thumb; and that the radial branch of the musculo-spiral supplied the back of the base of the thumb: the present frequency of nerve lesions has made us appreciate more accurately the distribution of these nerves and caused us to modify our ideas of the unalterable nature of their distribution.

Of the four nerves supplying the hand, the ulnar is the most constant in its distribution, and vagaries of area are quite rare. Occasionally, however, there is no branch to the ring finger and the whole of this finger is supplied by the median nerve. I have only met this latter condition twice amongst all my cases, and the phenomenon would appear to be due to conduction via the communicating filaments from the radial and median nerves.

One fallacy has to be guarded against: the case may be examined when in a recovering condition, and the ulnar nerve tends to

recover in a definite sequence of areas. Thus sensation returns first either on the ulnar edge of the hand or on the ulnar surface of the first phalanx of the ring finger. The little finger, and especially the distal phalanx of the little finger, may continue anaesthetic for months after the other areas have recovered, and a hand examined at this stage may give apparently abnormal results.

The remaining area of the hand is much more variable in nerve-distribution, owing, apparently, to the varying degree of anastomosis of the nerves concerned, the median, radial branch of the musculo-spiral, and the musculo-cutaneous, so that there is, except in two areas, a debatable "no man's land."

These two areas are the dorsum of the two distal phalanges of the fore and mid fingers, which is claimed to be the exclusive territory of the median nerve, and a pear-shaped area on the dorsum of the hand between the metacarpals of the thumb and forefinger, which is supplied by the radial branch of the musculo-spiral alone. With a view to defining this latter area, highly important from a diagnostic point of view, I mapped it out in a large number of uncomplicated cases of complete musculo-spiral paralysis. The diagram Fig. I. shows the results in four consecutive cases. It will be noted that, while the area varies widely in every case, yet a certain pear-shaped area, shown shaded, remains common to all.

Figs II. and III. show the areas of anaesthesia in two cases of median nerve injury, uncomplicated by injury of the other nerves.

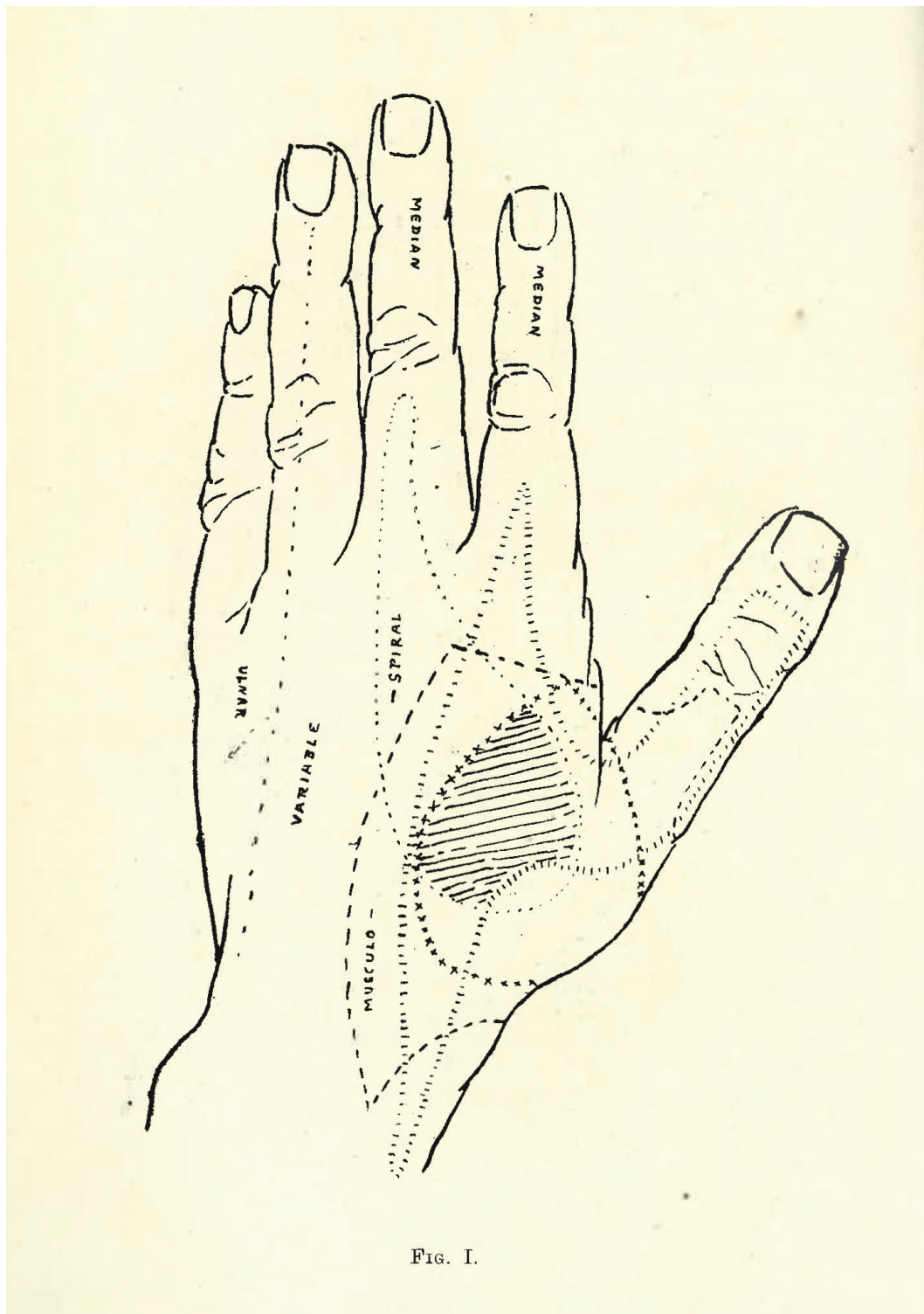




FIG. II.

MEDIAN I.



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