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The Rheumatism Foundation Hospital, Heinola, Finland.

ENTRAPMENT OF THE POSTERIOR INTEROSSEOUS BRANCH OF THE RADIAL NERVE IN RHEUMATOID ARTHRITIS

STANISLAV POPELKA & KAUKO VAINIO

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One of the branches of the radial nerve, the posterior interosseous nerve, is subject to entrapment neuropathy in rheumatoid arthritis (rh.a.).

Compression of the posterior interosseous nerve is followed by weakness of the following muscles: extensores digitorum communis, digiti V proprius and carpi ulnaris, abductor pollicis longus, extensores pollicis and extensor indicis proprius.

The dorsiflexion of the wrist is not considerably impaired because the power of extensores carpi radiales remains unchanged. However, ulnar abduction of the wrist becomes heavily outweighed by the strength of the radial abduction.

The distal part of the nerve gives off branches to the carpal joints. However, sensory disturbances are rare.

Spinner (1972) considers entrapment neuropathy of the posterior interosseous nerve to be a rare complication in rh.a. Marmor et al. have published one case (1967) and Chang et al. another (1972).

Popelka et al. (1969) studied 123 rh.a. patients with involvement of the elbows. In 30 hands (12 per cent) marked weakness of finger extension was found which could not be explained by distal changes. A synovectomy of the elbow with removal of the radial head was performed in all of these cases. The improvement of the power of the finger extensors was measured with Mannerfelt's abductometer. One typical case is illustrated in Figure 2.

Figure 1 clearly shows the vicinity of the posterior interosseous nerve and the radial head. It also demonstrates the fact that the nerve can be easily damaged when the radial head is removed (Strachan & Ellis 1971). Resection of the radial head is a common operation in rh.a. It has been performed about 900 times at our hospital. In one case it

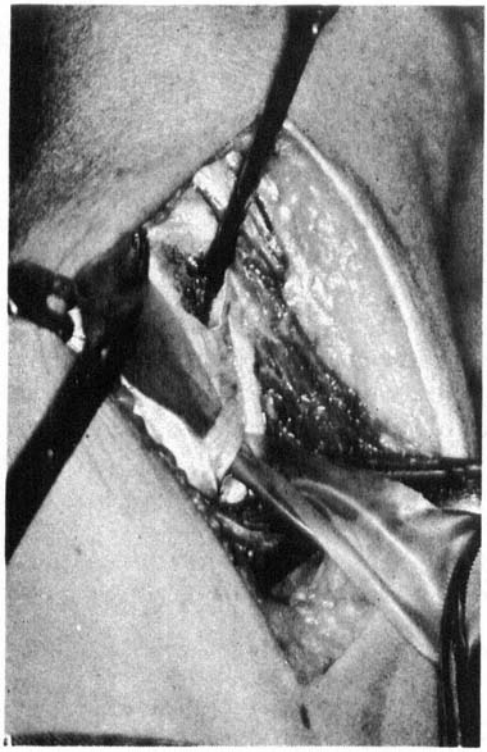

Figure 1. The posterior interosseous nerve, entering under the arcade of Frohse, is isolated by the rubber band. The tip of the probe indicates the place of the removed radial head.

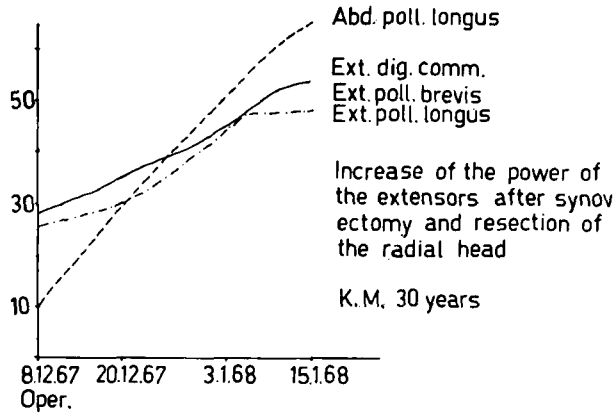

Figure 2. Diagram showing the increase in the power of some extensor muscles after resection of the radial head and synovectomy of the elbow. Numbers on the ordinate indicate the degrees on the dial of the dynamometer.

was followed by permanent weakness of the finger extensors. Otherwise, in rh.a., a carefully performed synovectomy of the elbow, combined with resection of the dislocated or deformed radial head, is sufficient to decompress the posterior interosseous nerve.

CONCLUSIONS

Entrapment syndrome of the posterior interosseous nerve is a fairly frequent complication in rh.a. It has to be considered on every occasion when the elbow is involved and the weakness of the finger extensors cannot be explained by distal changes. Entrapment of the posterior interosseous nerve may also contribute to the development of the common radial deviation of the carpus in rh.a.

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Correspondence to:

Kauko Vainio
18120 Heinola 12, Finland