OBJECTIVE: To evaluate the clinical and electrophysiological results of 26 patients treated with either a hypothenar fat flap or a synovial flap to prevent recurrent scar compression of the median nerve after previously failed carpal tunnel decompression.

METHODS: A total of 26 patients underwent flap coverage as a result of a nerve tethering attributable to a position within scar; 15 were covered by a synovial flap and 11 by a hypothenar fat flap. Only patients in whom the median nerve was significantly enveloped in scar tissue were included. All candidates underwent a thorough clinical examination and nerve conduction test. The pre- and postoperative nerve conduction tests and the results of the two groups were statistically compared.

RESULTS: The reduction rates of brachial nocturnal pain and pillar pain were 25 and 25%, respectively, in the synovial flap group and 64 and 37%, respectively, in the hypothenar fat flap group. The reduction rates of a positive Tinel's sign (25%) and a positive Phalen's test (13%) were lower in the synovial flap group compared with hypothenar fat flap coverage (55% Tinel's sign, 46% Phalen's test). Thenar atrophy and paresthesia were reduced in 44 and 62%, respectively, in the synovial flap group and in 46 and 64%, respectively, in the hypothenar fat flap group. The overall patient satisfaction...
(73%) and the Disabilities of the Arm, Shoulder and Hand score (31 points) appeared superior in the hypothenar fat flap group compared with the synovial flap group (56%; 37 points). Nerve conduction tests demonstrated a significant improvement when comparing the pre- and postoperative measurements in both groups. Distal motor latency decreased in the hypothenar fat flap group from 6.81 ms to 4.92 msec (P = 0.01; mean value) and in the synovial flap group from 6.04 ms to 4.43 msec (P< 0.001; mean value). CONCLUSION: Coverage by an ulnar-based hypothenar fat flap appeared to produce superior clinical results compared with coverage with synovial tissue from adjacent flexor tendons, although conclusive statistical evaluation of clinical outcomes was not possible. Further studies to confirm this are warranted.