

Ultrasound-induced modulation of collagen tissue as treatment of carpal tunnel syndrome (CTS)

Case series as clinical pre-study

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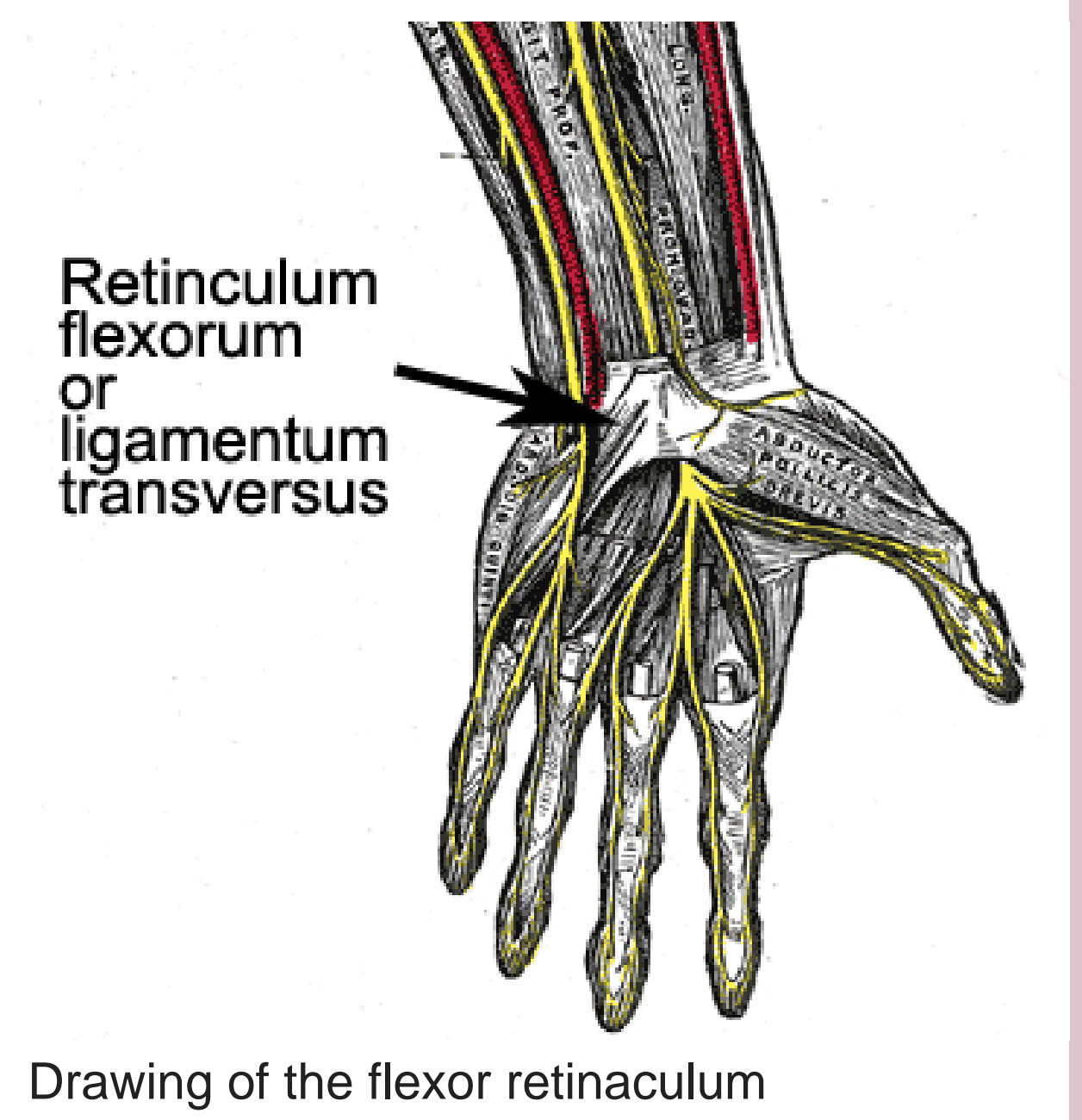
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Background

The carpal tunnel syndrome (CTS) is the most common bottleneck syndrome in a peripheral nerve. Further, it is the second most common outpatient surgical procedure. The ultrasound-induced modulation (UI KM) of the flexor retinaculum is an innovative physiotherapeutic method, which aims on decompression of nervus medianus, analogous to surgical interventions. The thermally induced modulation capacity of collagen connective tissue is used to dilate the retinaculum by traction and thus to increase the space below. The present work scrutinizes if UI-KM has an effect on symptoms of CTS and therefore is effective in the treatment of CTS.



Methods

Five subjects with CTS diagnose were recruited. Data was collected before initiation of treatment (T0), one week post-treatment (T1) and 30 days post-treatment (T2), using the "Disabilities of the Arm, Shoulder and Hand" questionnaire (DASH). Additionally a three-time measurement of nerve conduction velocity (NCV) was carried out for each assessment. The subjects were treated 4 times (2 days per week), in a time period of maximum two weeks.

Results

In 5 of 5 subjects (100%) the symptoms (DASH) improved from baseline to T1 and from baseline to T2. The changes from T0 to T1 were also statistical significant at the level of $p < 0,05$ (Wilcoxon). In 1 of 5 subjects (20%) the NCV improved from baseline to T1 and in 2 of 5 subjects (40%) from baseline to T2.

Discussion

In contrast to established therapies (different types of surgery) this novel method of treatment does not require harming the body surface. Therefore we suggest that it may be more acceptable for patients. In addition to a significant saving of costs may be achieved. As 5 of 5 subjects improved their symptoms, it can certainly be seen as a tendency, especially for T1 also the Wilcoxon test shows a statistical significance. This finding supports further investigations, which may be larger and better objectified.

This study shows several limitations due to study design. However, the significant decrease of symptoms one week after treatment indicates a positive tendency, which provides convincing evidence for bigger and better objectified investigations.

Personal notification

The author is looking for an interested institute in order to implement a follow-up study (clinical trial).

References

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