

## **The usefulness of ultrasonography for burn-related compression neuropathy: A Case report**

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### **Introduction**

We reported that compression peripheral neuropathy was found in burn patients by using ultrasonography. In burn patients, the nerve can be compressed by fibrosis or tissue swelling. Electromyography (EMG) is used for finding burn-related neuropathy. However, EMG is a painful test and it cannot be done in case of severe skin defect in burn patients. Therefore ultrasonography can be the useful diagnostic Method for burn-related compression neuropathy.

### **Case reports**

A 64-year-old woman was referred to the department of rehabilitation medicine for evaluating tingling sensation in her right hand. She had a 2nd-degree contact burn injury with bullae on her right wrist four weeks ago (Figure 1.). When she came to our department, there were no bullae and we could only find swelling in her wrist. Physical examination revealed Poor grade of right thumb abduction and Good grade of right 5th finger abduction by manual muscle test. She complained diffuse tingling sensation on her whole right palm and fingers and the Tinel's sign was positive. For evaluation of the peripheral nerve, we conducted ultrasonography and EMG. On ultrasonography, there was compressive median nerve with overlying swollen soft tissue around the injury site (Figure 2). In the transverse scan, the thickness of soft tissue on the right side was about two times longer than in the left side (Figure 3). Therefore, it was considered that the soft tissue swelling made the compression median neuropathy. We conducted the EMG test for diagnosis of peripheral neuropathy. On the EMG study, sensory nerve action potential and compound muscle action potential of the right median nerve were not evoked. We could find that the EMG findings were compatible with the ultrasonography findings.

### **Conclusion**

Ultrasonography is the useful diagnostic tool for burn-related compression neuropathy. Burn-related neuropathy is a common disorder. However, sometimes it is diagnosed only with clinical features. In a patient with burn-related neuropathy, ultrasonography is a simple and easily accessible examination of peripheral nerve.



Figure 1. Bullae on the wrist

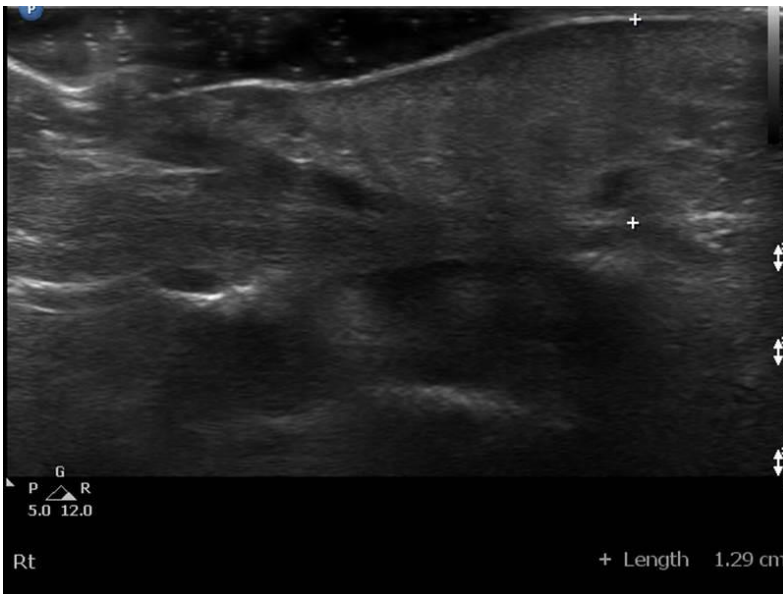


Figure 2 Longitudinal scan of the right wrist. The length of soft tissue swelling was 1.29cm.

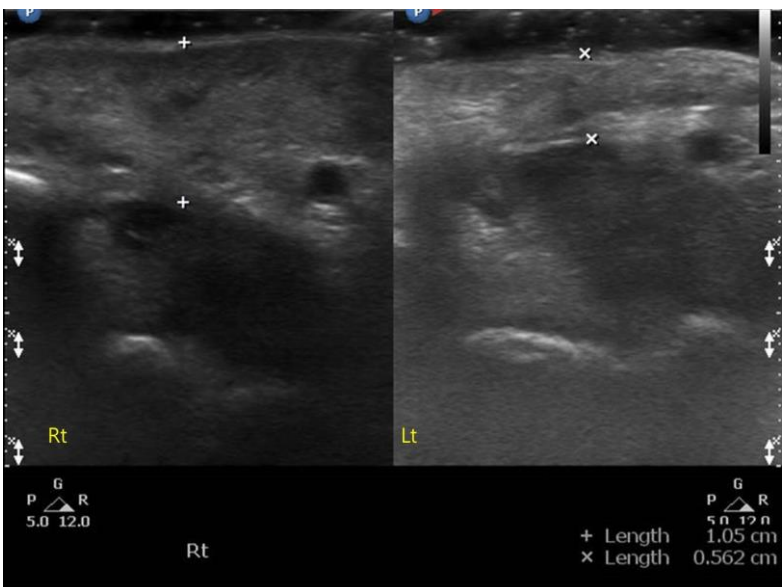


Figure 3 Transverse scan showed soft tissue swelling on the right side (1.05cm) comparing with the left side (0.56cm).