

Title: Silent peripheral neuropathy among contacts of Hansen's disease patients by high-resolution ultrasound.

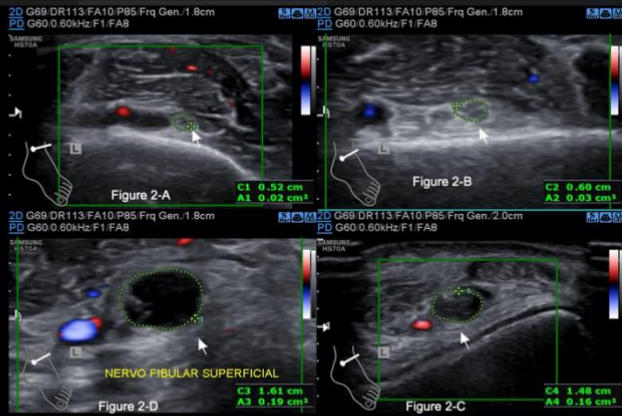
Introduction: Hansen disease (HD) primarily infects peripheral nerves and there are no HD-patients without peripheral nerve damage. Household contacts of HD-patients (HHC) are at 5 to 10 times higher risk of HD than the general population. Neural thickening is one among the three cardinal signs for defining a case of HD according to WHO guidelines, only considering exclusively palpation examination which is subjective and in the earliest cases may not be detected even for well-trained professionals. High resolution ultrasound (HRUS) can evaluate most peripheral nerves, a validated technique with good reproducibility allowing detailed and accurate examination. **Objective:** Peripheral nerves HRUS test using HD-protocol as a diagnostic method for neuropathy comparing HHC with healthy individuals-HVs and HD-patients. **Material and methods:** In municipalities from different regions of Brazil we selected at random 83 HHC to be submitted to peripheral nerve ultrasound to compare to 49 HVs and 176 HD-patients. **Results:** HHC assessed by HRUS showed higher medians and means of the absolute values of the CSAs of the peripheral nerves and greater asymmetries (Δ CSA) as compared to HVs at same points. Our results showed higher median and mean absolute values of peripheral nerve CSAs in HD-patients as compared to HCCs at almost all points and the Δ CSA in all points were equal. Considering the focality (Δ TpT) between HHC and HD-patients respectively, the means \pm SD were 2.7 ± 2.2 / 2.6 ± 2.2 for median nerve and 2.9 ± 2.7 / 3.3 ± 2.9 for common fibular ($p>0.05$) while 1.3 ± 1.3 / 2.2 ± 3.9 for the ulnar nerve ($p<0.0001$). **Conclusion:** HHCs have asymmetric multiple mononeuropathy in at least 20% of the nerves evaluated and have a higher risk to develop HD-neuropathy. So, assessing more nerve points in HHCs, they become more seemed with HD-patients according to the nerve thickening by HRUS which should be a cutting-edge tool for early leprosy case diagnostic.

- HRUS of HHC.

- In the ankle, anterior recess, deep to the common tendons of the extensors, the **superficial fibular nerve is very thickened**, with a fusiform appearance, **heterogeneity** with loss of the fascicular pattern, **hypoechoic**, with an internal Doppler signal present; it measures up to 20.0 mm². **Asymmetrical** in relation to the contralateral that measures 2.0 mm².



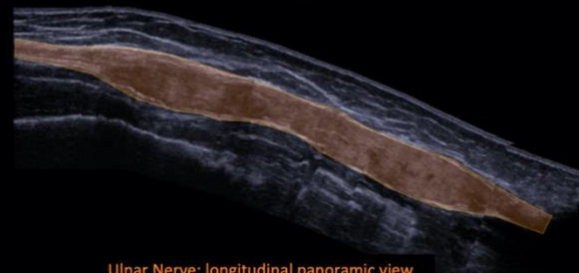
Pattern F: thickened, heterogeneous with thickening of the perineurium and epineurium and distention of fascicles



Longitudinal view of common fibular nerve with fusiform enlargement demonstrating focality (ΔT_pT)



Ulnar nerve: longitudinal view.



Ulnar Nerve: longitudinal panoramic view

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