Dear Editor,

We read with interest the article entitled ‘High-resolution sonographic examination: a newer technique to study ulnar nerve neuropathy in leprosy’.\(^1\) In our opinion, the recent article published by Gupta \(\text{et al.}\) greatly contributes to the knowledge of the correlation between clinical and ultrasonographic findings, and this is the major strength of their work.

Our research group has been studying peripheral nerve high-resolution ultrasonography (US) in leprosy for more than a decade, and, so far, we have studied the largest sample in this field. We agree with the authors that US can contribute to leprosy diagnosis and follow-up, providing important information about nerve morphology. In addition to the articles cited in the study above, there are other relevant papers published by our group that can enhance the knowledge in this field.

In 2013, Frade \(\text{et al.}\)\(^2\) published one work investigating the asymmetry indexes in 77 leprosy patients and 49 healthy volunteers. Two asymmetry indexes were calculated for the ulnar nerve: 1. \(\Delta\text{CSA}\) - absolute difference between the cross sectional areas (CSA) for each nerve point from one side to the contralateral side; 2. \(\Delta\text{TPT}\); absolute difference between the largest and smallest CSAs of the pre-cubital tunnel (above the medial epicondyle) and cubital tunnel points of the ulnar nerve on each side. We found that the asymmetry indexes were greater in leprosy patients than in healthy volunteers, with high specificity for leprosy diagnosis (\(>90\%\)). In this work, we also found that nerve dimensions (CSA) were significantly greater in leprosy patients than in healthy volunteers and the ulnar nerve CSA values were similar to those reported by Gupta \(\text{et al.}\)\(^1\).

In another study we assessed the differences in nerve measurements (CSA, \(\Delta\text{CSA}\) and \(\Delta\text{TPT}\)) between the leprosy classification groups and between patients with or without...
leprosy reactions. Ninety-six leprosy patients underwent peripheral nerve US before starting World Health Organization (WHO) multidrug therapy. Similar to Gupta et al.’s findings, we found that nerve enlargement was common both in paucibacillary (PB) and multibacillary (MB) patients (up to 72.7% of the patients had at least one enlarged nerve). MB patients had greater ulnar nerve CSA (in the cubital tunnel) than PB, and MB patients with previous or active leprosy reactions had greater ulnar nerve CSA (both inside the tunnel and at pre-cubital tunnel area) than MB patients without reactions. Gupta and colleagues did not find differences in nerve dimensions between patients with and without reactions, maybe differences could become evident if the sample size was bigger. Considering the asymmetry measurements, there were no differences between PB and MB nor in nerve measurements (ΔCSA and ΔTPT) or in the frequency of abnormal values, indicating that nerve ‘asymmetry is a characteristic of leprosy neuropathy regardless of its classification’.

The most recent work published by our group investigated the role of high-resolution US in leprosy neuropathy follow-up. Seventy-three patients underwent nerve US before and after WHO multidrug therapy. We think that this article can address one limitation of the study reported by Gupta et al., namely ‘the lack of follow-up to confirm amelioration of sonographic changes on treatment’. In our study, we found that PB patients and patients without any reaction during the study had worsening of nerve enlargement (CSA) at the common fibular nerve after treatment. On the other hand, we observed statistically significant reductions in the ulnar nerve CSA (pre-tunnel and cubital tunnel areas) after treatment in the MB and in the patients with reactions. Although we observed reduction in the measurements of these two groups, they presented higher frequencies of echogenicity abnormalities, indicating that these reductions might have been due to evolution to nerve fibrosis. Considering the whole sample of patients, echogenicity abnormalities were significantly more common in the post-treatment (54.8%) than in the pre-treatment US (45.2%). The frequencies of echogenicity abnormalities reported by Gupta and colleagues were slightly higher (61.4%) than those found in our study, possibly due to methodological differences between the studies. In accordance with the results by Gupta et al. concerning the identification of endoneural or perineural Doppler signal, we also found significant association between Doppler detection and the presence of neuritis, but this association was not significant when we considered any type of reaction (Type 1, Type 2 and neuritis).

Regardless of the increasing use of high-resolution US for leprosy neuropathy evaluation, there is scarce literature in this field. The few studies published should be analysed together to elucidate the role of peripheral nerve US in leprosy patients, and future studies should be encouraged in order to produce high quality evidence.

References