

The role of thermography in the evaluation of lumbosacral radiculopathy

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Article abstract—We studied 27 normal subjects and 30 patients with low back pain to evaluate the diagnostic accuracy of thermography in the diagnosis of lumbosacral radiculopathy. Thermographic abnormality was defined as the presence of either interside temperature difference exceeding 3 standard deviations from the normal mean, or an abnormal heat pattern overlying the lumbosacral spine. In patients with clinically unequivocal radiculopathy, thermography and electrophysiologic study were similar in diagnostic sensitivity, and the 2 methods agreed on the presence or absence of abnormality in 71% of cases. However, the thermographic findings had limited localizing value. Relative limb warming was often seen in patients with acute denervation on EMG, and limb cooling in those with more chronic lesions, but the side of the root lesion could not be identified confidently by thermography alone. Moreover, thermographic abnormalities appeared not to follow a dermatomal distribution and failed to identify the clinical or electrophysiologic level of radiculopathy in most cases. Thus, the thermographic findings are nonspecific, of little diagnostic value, and of uncertain prognostic relevance.

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High sensitivities have been claimed for thermography in the diagnosis of neuromuscular disorders such as entrapment neuropathies and cervical and lumbosacral radiculopathies.¹⁻⁵ Although the technique has been advocated as both quantitative and objective, interpretation for the most part relies on visual reading of a color-coded thermogram. While a commonly quoted criterion

for abnormality⁶ is an interside difference in skin temperature that exceeds 1 °C, the actual temperature is seldom measured quantitatively. Moreover, the 1 °C criterion is applied to both the distal and proximal portions of the body and does not take into account the greater variability of distal skin temperature.^{7,8} Another difficulty in interpreting many published studies invol-

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