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Peripheral thermographic manifestations of lumbar-disk disease

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Abstract

Lumbar thermography is an underutilized, safe, and simple complement to other noninvasive techniques that can aid in the diagnosis of lumbar-disk disease. Heretofore, most routine lumbar thermography only included thermography of the lumbar area. The authors present illustrative cases demonstrating thermographic lower extremity changes in lumbar-disk disease. These changes can provide evidence of lumbar nerve-root irritations that may not be apparent clinically or by other means.

The normal thermographic appearance of the lumbar area has been previously described in the American literature.[1,2] These same articles describe the appearance of abnormal thermal signals associated with lumbar-discogenic disease. Peripheral changes in the extremities due to nerve-root irritations of various kinds are not unknown in the literature, and predominantly cold extremity changes have been documented.[3,4]

The routine study for evaluation of lumbar-discogenic disease, however, has been to simply obtain a thermogram of the lumbar area. The authors have included thermograms of the lower extremities for evaluation of any possible peripheral changes secondary to lumbar nerve-root irritation in their routine. Figures 1-3 represent a routine normal examination. Notice that it includes black-and-white standing close-range thermograms of the lumbar area and black-and-white thermograms of the toes. Color (isotherm) thermograms include the lumbar area, the buttocks, anterior and posterior lateral thighs, the legs, and anterior views of the feet. Additional or special views may be obtained as necessary.

Patients and Methods

The equipment used to perform the above studies included AGA Thermovision machines, black-and-white and color, models 680 and 750. The patients presented represent selected cases from the private practices of the authors. We performed the discograms as both a diagnostic and a therapeutic procedure in patients who were still significantly symptomatic and who failed to improve with more-conservative treatment. A posterolateral approach was utilized under neuroleptanesthesia so that the patient was awake and could respond to painful stimuli. Reproduction of the patient's prediscographic symptoms and the x-ray abnormalities were used to confirm the diagnosis, and injection with local anesthetic and steroids was used as treatment. Relief of pain, even transiently, was also considered to be diagnostic.

This article represents a condensation of a paper presented at the annual meeting of the American Thermographic Society on October 1, 1977 in Boston, Mass. Approximately 70 cases of abnormal lumbar disks, as demonstrated by discogram, myelogram, and/or surgery with their accompanying abnormal thermal signals have been documented. They, plus additional cases, will be the basis of a future series. The accumulation of such data is tedious, since the indications for surgery are stringent and since discography is only performed when other noninvasive treatments have failed. This paper represents the essence of our experience to date.

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