

Breast Cancer Only Detected By Thermography

A Case Report

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A case of breast cancer that was only detected by contact thermography is presented. The 50 year old patient had no distinct breast tumor and had only multiple indurations of the left breast. Mammography revealed no tumor. However, thermography showed a prominent pattern of abnormal hyperthermic vessels and a hyperthermic region in the upper inner quadrant of the breast. Biopsy of the region revealed an invasive ductal carcinoma which was 0.8 cm in maximum diameter. Contact thermography appears useful for detecting early breast cancer. *Ann Cancer Res Ther* 4(2) : 89-90, 1995/Received 17 Aug, Accepted 13 October 1995

Nonpalpable breast cancer is usually detected on the basis of microcalcification, on a mammogram or by ductography for nipple discharge. In addition, Gautherie⁽¹⁾ has reported that 60% of nonpalpable lesions can be detected by thermography. Here we report a case of breast cancer that was *only* detected by thermography.

Case Report

A 50 year old woman was referred to our department in 1992 with soft induration of the left breast. She had a past history of uterine myoma treated by hysterectomy at age 47. Multiple soft and tender indurations were palpable throughout the whole breast. Mammography detected no evidence of tumor, suggesting a diagnosis of mastopathy. However, contact thermography indicated a prominent pattern of abnormal vascular vessels and a hyperthermic region in the upper inner quadrant of the breast. (Fig. 1). The hyperthermic region and the vessels showed resistance to cooling.

On the basis of these thermographic findings, we biopsied the hyperthermic soft induration of the upper inner quadrant of the breast. The biopsy specimen revealed histologically invasive ductal carcinoma and schirrhous invasion of the surrounding fat tissue. Mild vascular and lymphatic invasion were also seen. The tumor was 0.8 cm by 0.7cm in size and positive for estrogen and progesterone receptors. Additional breast conserving surgery was performed in January 1993 followed by breast irradiation. There was no residual tumor by the biopsied gland and no lymph node metastasis was found.

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Discussion

There is no doubt that early detection improves the prognosis of breast cancer. Mammography can detect microcalcification or minimal opacities as a sign of nonpalpable early breast

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cancer. However it cannot find all of these lesions. Our previous study(2) showed that the sensitivity of thermography was 81.1% in 55 patients with breast cancer, while its specificity was 83.5% in 109 patients with benign breast disease. The predictability and accuracy of thermography in both groups was 71.4% and 82.9%, respectively. Two out of six patients with noninvasive or nonpalpable breast cancer had positive findings on thermograms.

The sensitivity of thermography for detecting larger tumors was higher than for smaller lesions. Thermography had almost the same ability for detecting breast cancer compared to mammography and ultrasound. Thus, it is one of the useful diagnostic tools. The principle of detecting abnormalities on thermography is different from that with imaging diagnosis such as mammogram and ultrasound. Thermography detects the heat that is produced by tumors. Therefore, even if a tumor is very small, thermography can detect a heat producing lesion.

Gautherie et.al (3) reported 204 out of 958 patients who only had thermographic abnormalities developed breast cancer after follow up for 41 months. These patients might have been overlooked due to the limited tumor-detecting power of physical examination, mammography and/or ultrasound. Therefore, we should plan to examine any hyperthermic areas of the breast.

Breast cancer patients with a higher thermographic score were reported to show shorter survival compared with other breast cancer patients (4). Thermograms of 127 patients of breast cancer obtained at our department provided objective information on the histological grade of malignancy(5). Therefore we must follow these patients carefully even if there is no lymph node activity.

As mentioned above, thermography provides useful information for the diagnosis and follow-up with patients with breast cancer.

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