

Thermal Image Analysis

FABFE

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Announcement of Official Change in Thermal Reporting

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There has been much controversy within the thermal imaging community, and much comment by outside observers concerning two factors related to the interpretation of thermal imaging of the human breast. In this regard, I have spent quite some time investigating alternative language and reporting methodology and I have determined to make changes to my interpretation reports as follows:

1) The Thermal Rating System is being dropped.

The thermal rating system has proven to be a hindrance to proper communication and understanding of actual findings with referring physicians and indeed, with patients. The rating system has not been updated nor revised since its initial inception and utilization in the mid 1980's. There are two significant problems which routinely occur with the utilization of the reporting system; however there has not been a proposed change that makes good clinical sense until now. The two key problems with the thermal reporting or thermal rating system are:

A) Unresolved anxiety for both patient and physician when TH3 - TH5 class thermograms are not confirmed by so-called conventional methodologies such as Mammography, Ultrasound or MRI. We all know that a positive thermogram is often many years ahead of anatomical testing as confirmed by the scientific research, but this does not help us when we "label" a breast as suspicious and no other method can confirm or deny the thermal findings. This creates the medical impression of a false positive and the resulting loss of confidence by the referring clinician.

B) Inaccuracy of the Rating System itself. This rating system was designed decades ago to provide for a more accurate and quantifiable system of reporting risk, however it has inherent errors which I feel cause tremendous confusion for the primary care physician and indeed the patient. Many patients with cancer have only one rating factor, for example a marginal 1.1C delta at the nipple, and are as such, rated TH-3 Equivocal. Other patients may have three or more low level rating factors with a completely healthy breast and as such are rated TH5 Suspicious. Often these patients present in my practice for many years with absolutely no change in thermal patterning. In other words - no increase in vascular or heat signature. Very often these patients have anatomical testing which is clearly within the normal parameters (not equivocal).

In the world of diagnostic imaging, the premise of any system, be it mammography,

ultrasound or thermography is simply to identify risk factors which may not be determined in any other way. As such, a heads up is given to the primary care doctor that there may be pathology requiring further investigation. That is all.

The attempt of earlier thermographers to create a rating system which is more objective and meaningful has actually created confusion within and outside of the thermal imaging community, and as such, this system should be abandoned.

This does not mean however, that reporting should simply be a series of circles or squares drawn over areas of clinical concern. Some rating factors, especially those in the “primary factors” category, still require description as a methodology to alert the primary care physician to areas of higher concern. To label these patients as equivocal, abnormal, suspicious or for that matter, normal is an inappropriate reporting methodology and as such, is no longer to be utilized.

2. The use of the Thermal Cold Stress Challenge for Breast Evaluations is being dropped.

This protocol has never been scientifically proven to be reliable and may indeed; affect the clinical management of a patient in the wrong way, for the wrong reason.

There are several solid reasons for this decision and these factors are related to my 20 years of clinical practice in the realm of thermal imaging. I wish to share these factors with you as a practicum.

A) There is no reliable literature nor blinded study to validate the use of the procedure for breast thermal imaging studies, contradictory to many studies on Reflex Sympathetic Dystrophy (RSD) and Chronic Regional Pain Syndrome (CRPS) (CMPS) Many thermographers have inappropriately applied the cold stress challenge designed for neurological conditions to the female breast.

B) The use of the stress challenge does not, and should not be used as an indicator of “aggressiveness” or “staging” of breast cancer. Some interp clinicians actually utilize a (+) or (-) in their reporting methodology to indicate whether for example, a Suspicious breast (TH5) is more (+) or less (-) suspicious depending on whether or not the area cooled. This is not a verifiable protocol and it is to be discouraged. (TH5+ or TH5-) An abnormal breast factor is ratable as a factor and requires clinical correlation, period.

C) The degree of cooling, or lack thereof, has also not been scientifically established as an indicator and I feel this has been an anecdotal use of the procedure. As such the stress challenge can be very misleading to both physician and patient. Depending on dietary influences, hormonal levels of the particular day, and the amount of stress within the patient from a variety of sources, the stress challenge may be more or less effective. Some days, a patient will cool 0.2C in a given area, and six months later 1.0 and on the next visit, 1.5. Some patients will not cool on a particular visit even 0.1C and on a

subsequent visit they may cool 1.2C. Of course there are many instances of patient's temperature increasing on the stress challenge and then on subsequent visits the area cools or stays the same. These variances have cast great doubt on the reliability of the stress challenge.

D) Some anatomical factors which are benign can severely compromise the ability of the sympathetics to provoke vasoconstriction. This would include blood vessels which have been compromised by surgery, incisional biopsy, lumpectomy, local trauma and even thoracic spine instabilities. These factors can provide for permanently dilated vessels or capillary networks which fail to respond to sympathetic stimuli.

E) The patient's own apprehension of the procedure may produce sympathetic fight or flight responses prior to the stress challenge, often seen when patients can view the monitor during exam for example. This provokes a cooling response and "sets" the sympathetic tone prior to the actual cold challenge thus producing potential failure reporting when the fight or flight response actually took place minutes or moments before. Other examples of this are fear of the exam, an event proximate to the exam that has upset the patient (phone call) (rude comment) (slip and fall) etc. Many of these variables simply can not be accounted for.

F) Finally, and most simply, the fight or flight sympathetic response has never changed the thermal rating nor denies the need for further testing and correlation. Some clinicians will make a decision on whether or not to order additional testing based on the Success or Failure of the stress challenge procedure. The very fact that we can not with thermography, determine the amount or aggressiveness of angiogenesis validates this fact. The question must be asked- At what point of existing cancer development does angio-neo-genesis override sympathetic input? It is a great concept in theory, but it is not practical in day to day practice.

These factors (the thermal rating system) and (the cold stress challenge) contribute greatly to an overall confusion of the basic purpose of breast thermography and are based largely in Dogma. The purpose of breast thermal imaging is to view with a complimentary technology, the human breast and to determine if there are areas of clinical interest that require further clarification that can not be seen by other methods.

Thermography is a screening procedure. To continue to follow dogma and unproven methods will further restrain and constrain the advancement of this noble science.

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