

DIAGNOSTIC IMAGING

MALPRACTICE MONITOR

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Mammographic markers may lead to confusion and liability

Inconsistent methods as patients move among practices leave radiologists vulnerable to charges of neglect and poor-quality care

Radiologists in a modern mammography practice are often confronted with marking devices that have been placed on a patient's breasts. These situations include cases of palpable abnormalities as well as skin lesions such as moles and even marking of prior biopsy sites and other skin lesions. The type of mammographic marking device used is quite variable, and this lack of standardization may cause major difficulties in interpretation.

- *Case 1.* A 57-year-old patient presented for a screening examination with a prescription from her physician for "routine mammo." At the time of the procedure, the patient indicated that she "felt something new" and noted this finding on the mammography intake form while also telling the technologist. A small round BB was placed at the site of the palpable finding, and a standard four-view mammographic series was obtained (Figure 1).

The next day, a newly recruited radiologist

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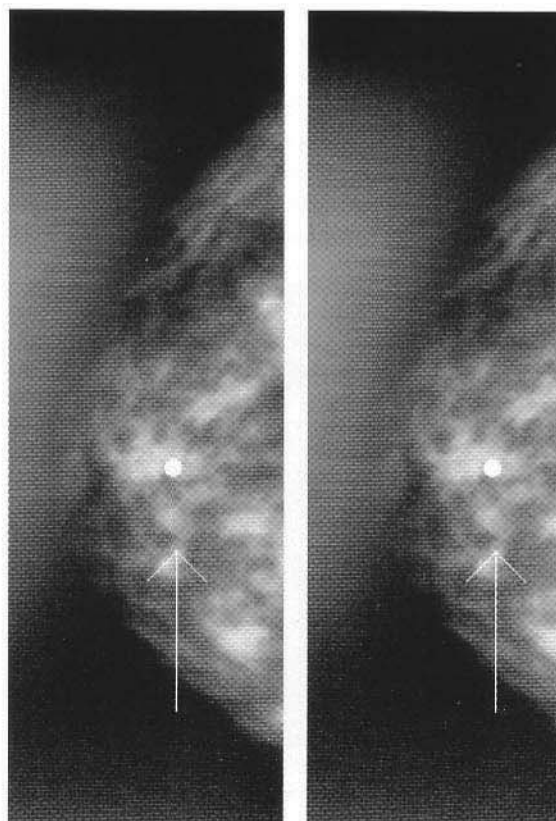


FIGURE 1. Left CC view. Arrow points to metallic BB that interpreting radiologist assumed represented a skin marker. Technologist had placed the marker for a palpable mass.

reviewed the study, interpreting the small round BB to represent marking of a skin mole, as this had been the practice in her prior institution. In addition, the radiologist later testified, she was misled by the fact that only standard views had been acquired and additional views of a palpable abnormality had not been obtained. The radiologist acknowledged that she had reviewed the referring physician's prescription and billing codes indicating a screening examination. She could not remember if she had reviewed the patient intake form.

The mammogram was interpreted as negative, with the radiologist noting a skin lesion. The referring physician made no connection with the fact that the patient did not have a skin lesion. Given the negative results, the referring physician told the patient that everything was normal, and she was asked to return as needed. Seven months later, the patient visited another physician, complaining of a larger palpable mass. This physician did feel the abnormality and sent the patient to a

TABLE 1. PERCENTAGE OF MAMMOGRAPHY SITES USING SKIN MARKERS, BY APPLICATION

	Line	BB	Circle	Triangle
Scars	91%	6.5%	2.2%	0.2%
Nipples	1%	88.4%	10.6%	0%
Moles	0%	22.5%	76.1%	1.4%
Palpable masses	0.8%	58.1%	8.1%	33%

Source: Survey of breast practices, Bristol, CT: Beckley Corporation, 2003.

surgeon. Subsequent workup and biopsy revealed the mass as an infiltrating ductal carcinoma.

• **Case 2.** Confusion of mammographic markers is particularly evident with small cancers located posterior to the nipple. These may be palpable and are occasionally marked with a metallic BB (Figure 2A), which may result in delayed diagnosis and potential legal action if not appreciated by the interpreting radiologist (Figure 2B). The close proximity to the nipple can be confusing, or the BB can be mistaken for a nipple-marking device. Depending on the training of the radiologist and the marking system used at that individual's prior institutions, these important findings may be overlooked on the mammographic study.

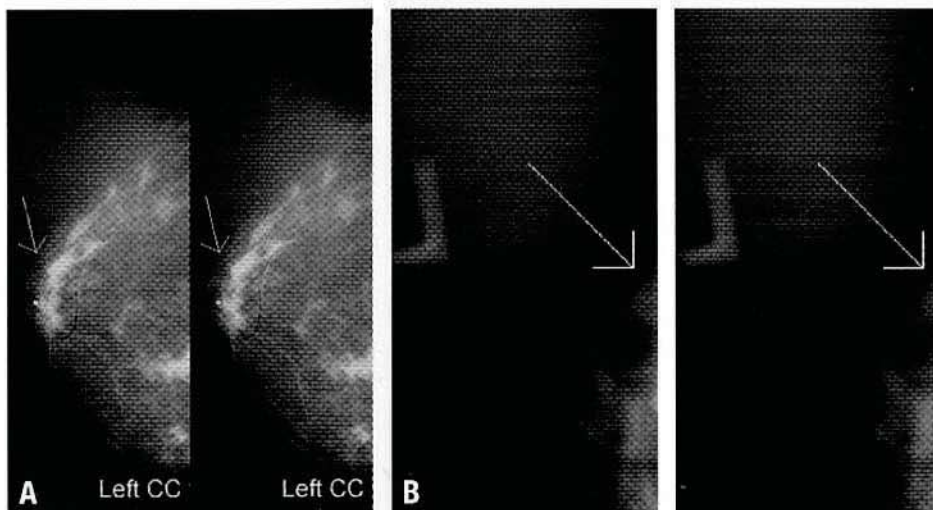


FIGURE 2. A: Left CC view. Metallic BB near the nipple (arrow) marks the site of a palpable mass. This was assumed to represent a nipple marker and was not commented on in the radiology report. **B:** Spot CC view of the left breast. Diagnostic workup seven months later revealed a larger spiculated mass at the site of prior palpable finding (arrow).

Careful correlation with the patient's intake information and institution of standardized procedures can help to minimize these mistakes.

VARIABILITY CREATES LIABILITY

The prudent radiologist understands the need for conformity to generally accepted practice and evidence-based medicine. Just

as an airline pilot reviews a 150-point checklist prior to every takeoff, the prudent radiologist follows standard procedures that are proven and accepted within the practice. While dealing with patients and certain aspects of film interpretation may be an art, following standardized procedures and protocols is a proven science based on experimentation and clinical experience.

In my medicolegal practice, I have seen a number of cases in which mammographic markers were incorrectly interpreted and harm to the patient resulted. These types of cases are difficult to defend, because the underlying malpractice reveals a lack of standardization within the profession. Even within a single practice, I have seen different technologists and radiologists taking a nonstandardized approach to marking of breast lesions.

3. In one case that came for review, a patient had multiple skin moles and a palpable mass, each of which was marked with a small round BB. The interpreting radiologist completely missed the fact that there was a palpable finding. Of course, the prudent radiologist is careful in reviewing the intake form and reconciling it with the billing codes and referring physician notes or prescription (if available).

My practice uses a standardized approach to marking breast lesions. Technologists are simply not allowed to deviate from the following depart-

mental protocol: Scars are marked with a thin radiopaque line. Nipples are marked with a small metallic BB. A skin mole or skin lesion is indicated with a circular "O" marking device. Palpable abnormalities are marked with a discrete radiopaque triangle.

There is no deviation from these marking devices, and every marking device placed on the breast is also noted by the technologist on the intake form. No marking device is placed on the breast without a corresponding notation on the intake form to explain why it is there. Conversely, no notation of a breast lesion is made on the intake form without a marking on the mammogram. No exceptions.

It is fairly common to have the mammography billing information, and even the referring physician's prescription, indicate a routine screening mammogram. If the patient indicates a palpable finding on the intake form, however, these cases must be treated as a presumed palpable abnormality. Certainly, the intake form will be available to the plaintiff's lawyer in the event of litigation.

In my experience, the patient usually insists that she told every person she spoke to that she had a palpable finding. Thus, the lawsuit revolves around the fact that a patient's clinical complaints were ignored by the medical community. These are tough cases to defend; juries tend to consider the medical professionals involved as rather callous and uncaring. If this impression is extreme, it may result in excessive jury awards.

When the malpractice lawsuit occurs three years later, the radiologist will have only the report, the mammographic images, and the patient intake form to plan a defense. The prudent radiologist will have protocols in place for additional views of every patient with a palpable finding. In this way, a screening examination will not be confused with a diagnos-

TABLE 2. SUGGESTED STANDARD MARKERS

Palpable masses	Triangle
Scars	Line
Mole	Circle
Nipple	BB (pellet)

tic study for a palpable finding. The radiologist will have not only standardized views, but at least two additional views, typical spot compressions, or true lateral projections to aid in the evaluation. These additional films will also serve as a reminder that this is not an average screening case. Finally, the prudent radiologist will always remember that certain cancers are not mammographically or sonographically visible. Any palpable findings should have a clinical evaluation and follow-up.

A survey sent out by a large film-marking device manufacturer found results that were quite revealing for members of our profession (*Survey of breast practices*. Bristol, CT: Beekley Corporation, 2003). Table 1 shows very little uniformity of opinion within the radiology community. Although 91% of the respondents used a radiopaque line to mark scars, 9% used other marking devices. Nipples were marked with a pellet in 88.4% of cases, but some practices used circles and lines. Skin moles were more variable, marked with a pellet 22.5% of the time and a circular marker in 76.1% of cases. More confusing, however, a triangular marker was placed at the site of the skin mole in 1.4% of cases. If this were to happen in my practice, it would undoubtedly result in a recall of that patient to confirm that the triangle did not represent a palpable finding.

Most disturbing was the lack of uniformity in marking palpable masses: 58% of surveyed institutions used

a pellet or a small round BB to mark the site of the palpable finding, 8.1% used a circular marker, and 33% used a triangular marker. A very small number of practices also used a line to indicate palpable findings. As seen in the cases above, this lack of uniformity may create misinterpretations of studies, particularly in patients traveling back and forth among various medical institutions.

In my opinion, the prudent radiologist and practice should immediately standardize the marking of palpable abnormalities and skin lesions, to reduce variability within the practice.

Our practice observes these standards (Table 2). In every case, palpable masses are marked with a triangular marker. In marking the nipple, a pellet is always used. Skin lesions are marked with a circular marker, and the radiopaque line is used only to mark scars. It is important for the technologist to remember that marking a scar represents the site of prior biopsy, and it is important to know whether this biopsy was for benign or malignant disease. The patient should indicate this on the intake form, which must be carefully reviewed by the technologist prior to submission to the radiologist.

While much of medicine is an art, much of our day-to-day practice is based in science and proven practice protocols. Lack of standardization has the potential to create significant liability for the radiologist and institution. Marking mammographic lesions is a process that should be standardized within a practice. It would be helpful to have this standardization instituted on a national scale, so patients traveling between institutions could benefit from standardized care. Any marking of breast lesions must also be clearly indicated on the patient intake form, as this becomes part of the permanent medical record. ■