## ( TECHNOLOGISTS' COLUMN

## Most Commonly Used Additional Views, Part 3: Defining Structures and Clarifying Presence of Abnormalities

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In this Most Commonly Used Additional Views series, we have discussed "Variations of the Craniocaudal View" and "Minimizing Superimposition and Identifying Location." Technologists who maintain a strong knowledge of additional views can add value and assist the radiologist in making a definitive interpretation. In this third and final part of the series, we discuss additional views that can help define structures and verify the presence of abnormalities within the breast.

## Spot Compression View/Magnification Spot Compression View

Spot compression and magnification views assess focal areas of interest in the breast. These views are particularly beneficial when the following are necessary<sup>1,2</sup>:

- Facilitate localized compression
- · Minimize superimposition of overlapping structures
- · Reduce thickness of the area of interest
- Improve spatial resolution
- · Enhance tissue contrast, margin visibility, and image detail
- Increase geometric sharpness
- Reduce noise from scatter radiation<sup>1,2</sup>

When patients return for additional imaging, the technologist should review the previous images and the radiologist's recommendations on the initial imaging report. This is an opportune time for the technologist to ask the radiologist any questions regarding the additional imaging. Being proactive and investigating before patient arrival can reduce unnecessary patient exposure and create an efficient process. Having established department-specific protocols for additional imaging scenarios posted in the mammography room(s) is another effective tool to facilitate this process. This information, along with a department-specific procedure manual including all screening and diagnostic protocols, should be reviewed frequently and be readily available for reference. Most importantly, it is essential for the technologist to have a clear understanding of how to precisely and accurately obtain spot compression and magnification views<sup>1,2</sup>:

- The area of interest is generally noted by the radiologist.
- The location of the abnormality and established department-specific protocols will determine which views will be obtained. The breast localization map (Figure 1) can be used to help select the appropriate view.
- Determine the location of the area of interest. The area of interest can be figured by the following (Figures 2 and 3):
  - Measure back from the nipple in its axis, posteriorly along the posterior nipple line.



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- 2. From the imaginary line made in measurement 1, now measure the distance to the lesion.
- 3. A third measurement may also be made from the lesion to the skin.
- The technologist must remember that compression must be simulated when locating the area of interest.
- Place the area of interest under the compression paddle and compress the breast.
- Taut compression is essential for optimizing visualization of tissues for spot compression and magnification views.

Manufacturers offer a variety of spot compression devices. The preference for using the small round spot compression paddle versus the square spot compression paddle differs among radiologists and technologists. Compression is applied and measured in pounds per square inch. Therefore, the smaller the area under compression, the more pounds per square inch applied and the greater the separation of tissue. While the larger spot paddle allows reassurance that the area of interest is in the field of view, the smaller paddle provides true focal compression.<sup>2</sup> To demonstrate this point, an experiment was performed using a phantom created with liquid gel and small radiopaque objects. The phantom position remained stationary while thickness and compression force were kept consistent throughout the exposure(s) (Figures 4 and 5).



**Figure 1.** Breast localization map. Image courtesy of Mammography Educators, Louise C. Miller.



Figure 2. Craniocaudal view spot localization. Image courtesy of Mammography Educators, Louise C. Miller.



Figure 3. Mediolateral oblique view spot localization. Image courtesy of Mammography Educators, Louise C. Miller.



Square paddle

Round paddle

**Figure 4.** Compression thickness for both exposures was 23 mm. Note that separation of structures is more effective using the round paddle. Images courtesy of Robyn Hadley, RT(R)(M).

The implementation of new technologies and equipment changes warrants consideration for frequent review of department protocols and the requirements of additional imaging. By using knowledge of supplemental views, technologists can contribute to ongoing protocol revisions and updates and, most importantly, can assist their radiologist in answering important questions necessary to help make the appropriate diagnosis.

## References

 Long SM, Miller LC, Botsco MA, Martin LL. Handbook of Mammography. 5th ed. Mammography Consulting Services; 2010:51-53,154-170.
Kopans D. Breast Imaging. 3rd ed. Lippincott Williams & Wilkins; 2005: 316-321.





Square paddle

Round paddle

**Figure 5.** Compression for both exposures was 15 lb. Note that separation of structures is more effective using the round paddle. Images courtesy of Robyn Hadley, RT(R)(M).