CLINICAL VIGNETTE

Use of Intraoperative Chest Xray in Removal of All Appropriate Breast Tissue During Mastectomy for Ductal Carcinoma In Situ (DCIS)

Gregory Senofsky, MD, FACS and Namita Shyam, BS

Presentation

This case illustrates a creative approach to an intraoperative situation during mastectomy when the original biopsy clip is not present in the specimen radiogram. Breast surgeons often Xray the mastectomy specimen when the original biopsy shows ductal carcinoma in situ which is not a palpable lesion to verify that the area has been appropriately removed during the mastectomy. However, there is no standard of care for intraoperative confirmation of margin clearance during mastectomy as there is for lumpectomy.[1,2] Verification of the clip on the specimen radiogram is critical to confirm that the DCIS has been removed at surgery.

This 71-year-old female recently underwent bilateral mastectomy for bilateral DCIS (ductal carcinoma in situ). Preoperative evaluation showed right 4mm DCIS at 5 o'clock and a left 8mm DCIS in the deeper 5 o'clock position. She had prior right breast radiation therapy and elected bilateral mastectomies with reconstruction as a surgical treatment for her current situation. Genetic testing was negative for known deleterious mutations. Past medical history was positive for smoldering multiple myeloma. Physical exam included normal breast exam and a normal BMI. Figure 1 shows her preoperative mammogram after clip placement on the left side.

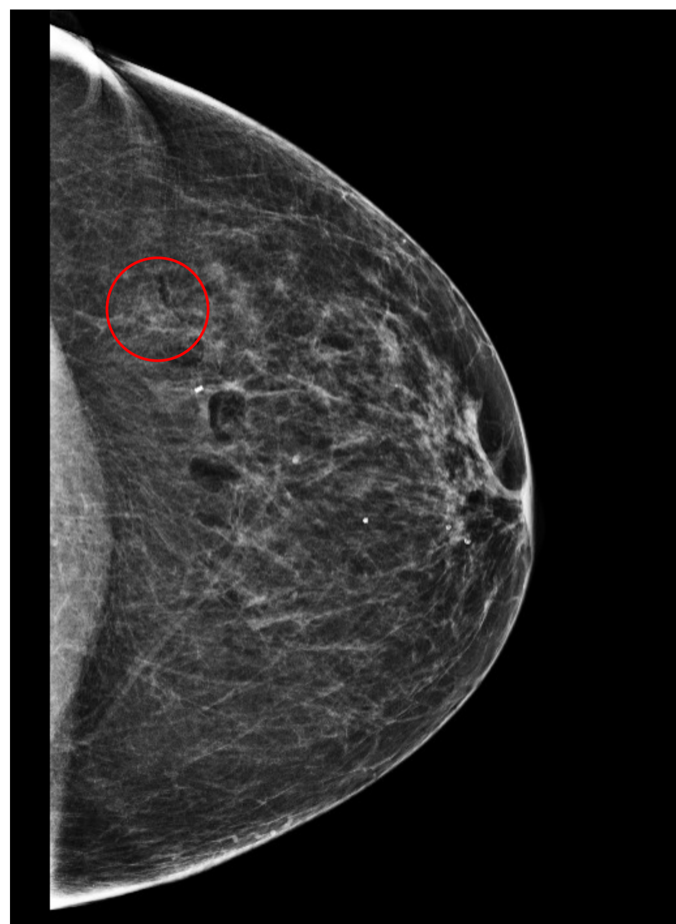

Figure 1

During the operative procedure the clip was seen in the right mastectomy specimen radiogram but not in the left mastectomy radiogram. We requested that radiology use a portable chest Xray machine to perform a chest Xray over the left breast using double magnification. This revealed the clip to be present. Figure 2 shows the chest Xray with the clip close to the tip of the left surgical clamp. The clamp was repositioned several times with sequential chest Xrays and I was able to resect the deep lateral chest wall fat showing the clip in the final specimen. Figure 3 shows the Xray of this specimen after the tissue with clip has been removed. The intraoperative chest Xray was critical in allowing correct positioning of surgical clamps where the tip of the clamp directed me to the proper tissue to be resected. This was lateral and inferior to the base of her left breast. Pathology of the left mastectomy specimen showed the ductal carcinoma in situ to be within the primary mastectomy. The clip had apparently migrated inferolaterally after the initial needle biopsy, which is why it was not in the breast itself. Figure 4 shows the chest Xray intraoperatively after the clip with the relevant breast tissue was removed.

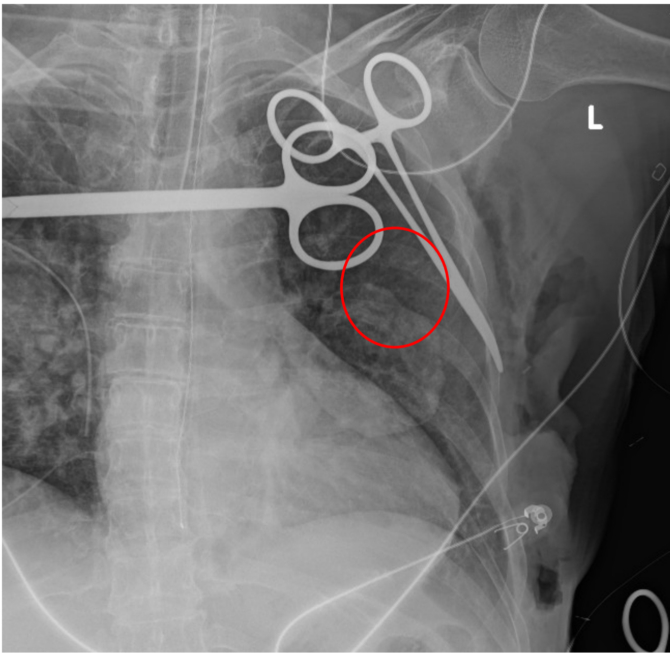

Figure 2

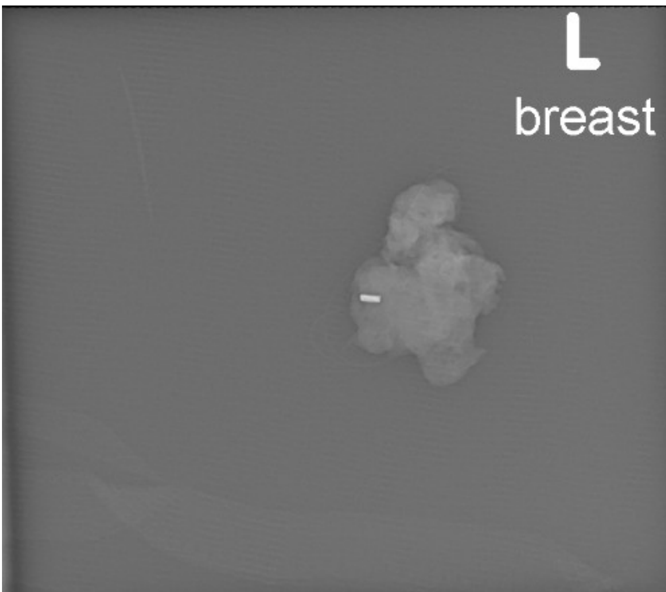

Figure 3

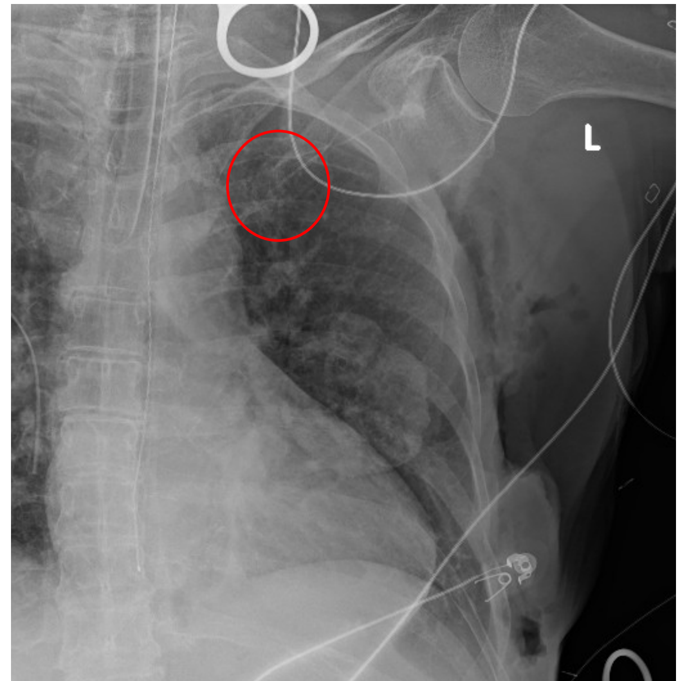

Figure 4

Typically, when operating on breast cancer, the biopsy clip placed by the breast imager performing the initial needle biopsy denotes the location of the breast cancer.[1] It is critical to remove the clip during the surgical procedure, whether the patient is undergoing a mastectomy or a lumpectomy. The specimen radiogram documents this. When the clip is not present in the specimen, there is a high likelihood that the cancer is still in the patient. This is usually more of an issue during a lumpectomy rather than mastectomy; however, in this particular case, the DCIS was close to the edge of the mastectomy. It is possible to do a mastectomy and have residual cancer left in the patient if the clip is not removed. If recognized this would require a second separate surgery. If the situation was not recognized, cancer could be left in the patient.[3]

The use of intraoperative chest radiographs was critical to finding the left image placed biopsy clip which was not in the mastectomy specimen. The clip was within a separate resected specimen that was found with assisted intraoperative imaging. Mammography was not possible in this situation and ultrasound would likely not have shown a tiny clip. We were able to leave the operating room confident that the cancer had been removed.

REFERENCES

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