INTRAOPERATIVE SPECIMEN RADIOGRAPH IS ROUTINELY INDICATED FOR CANCER MASTECTOMY

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BACKGROUND/OBJECTIVE: Specimen radiograph is considered standard of care after breast conservation, however mastectomy rates are increasing and there is no data related to use of specimen radiograph after mastectomy done for breast cancer. The purpose of this study is to define the rate at which mastectomy specimen radiograph changes intraoperative management, in order to determine if routine practice is indicated.

METHODS: A retrospective review was performed over a 9 month period of time (after the purchase of the hospital's intraoperative specimen radiography system) from February to October 2017. All mastectomies performed during this time by a single fellowship-trained breast surgeon with 10 years of experience were evaluated. There were a total of 37 mastectomies performed, of which 25 were for cancer. The remaining 12 were either contralateral prophylactic mastectomies or genetic mutation carriers.

RESULTS: In the 25 mastectomies done for cancer, specimen radiograph demonstrated all expected clips in 23 cases. There were 2 cases (8%) where the expected number of biopsy clips was not seen on initial mastectomy radiograph. In one case, the single clip had migrated subcutaneously and was embedded in the skin. This patient was undergoing mastectomy for multifocal DCIS, and a small focus of invasive lobular carcinoma was unexpectedly found in the tissue adjacent to the clip (in the skin flap, see images.) The second patient had a multifocal invasive ductal cancer with long-standing breast implants in place, with one focus of cancer in the axillary tail. After the implant was removed, the axillary tail focus fell back into the axilla and was not within the standard boundaries of mastectomy. Because the mastectomy radiograph was done intraoperatively, identification of only one clip enabled removal of the second cancer focus with appropriate margin at the time of initial surgery.

CONCLUSIONS: The 8% rate of unidentified clips prompting further intraoperative evaluation is quite startling, and warrants consideration of standardization of this practice in the setting of mastectomy done for cancer. In this small series, both cases with retained clips were associated with residual foci of disease adjacent to the clips. This affected adjuvant treatment recommendations. The implication of a retained clip could be devastating for both the patient and the surgeon, particularly if cancer remains in the body after mastectomy. Identifying the absence of a clip allows the surgeon to take measures intraoperatively, including searching in the mastectomy/axillary cavities, as well as imaging the suction canister and lap sponges, to locate it. In addition, this practice facilitates closer histologic sectioning of the areas of concern in a mastectomy by the pathologist. Routine mastectomy specimen radiograph should be considered a quality of care measure, similar to lumpectomy specimen radiography.

FIGURE 1: Initial attempt at specimen radiograph of mastectomy specimen. It is sometimes challenging to get all the tissue into the field of view.

FIGURE 2: Second attempt at mastectomy specimen radiograph (this time in a container.) No clip was visualized.

FIGURE 3: Clip is present in a small piece of subcutaneous tissue. The anterior skin flap was palpated at the time of surgery, and the clip was noted to have migrated subcutaneously. In this case, 1 mm of invasive lobular cancer was found in the area of the clip, which affected further treatment recommendations.