

Computed tomography as an adjunct to mammography

George Crile, Jr., M.D.

Clinical Emeritus Consultant

Sebastian A. Cook, M.D.

Division of Radiology

Caldwell B. Esselstyn, Jr.,
M.D.

Department of General Surgery

Occasionally a mass in the breast that is clearly visible on the lateral view of a xeroradiogram of the breast is so close to the chest wall that it cannot be palpated and neither can it be seen on the superior-inferior view. Although the surgeon knows where the lesion is in the vertical axis, he has no way of knowing whether it is in the medial, lateral, or central part of the breast. In this situation it is difficult to locate and remove the tumor without extensive dissection, often causing deformity of the breast. In a recent case this problem arose and was solved by computed tomography (CT) which clearly showed the 8 mm carcinoma to be located just medially to the midline and enabled it to be excised widely with little deformity of the breast.

Case report

A 53-year-old nurse, married to a surgeon, complained of discomfort and tenderness in the axillary tail of the left breast. The breasts were ample and no mass could be felt in either. Xeroradiogram showed no abnormality of the left breast, but in the upper quadrant of the right breast there was a circumscribed, slightly irregular mass 1.2×1.0 cm in diameter visible only on the lateral view (*Fig. 1*). A second attempt was made to visualize the mass on the supe-

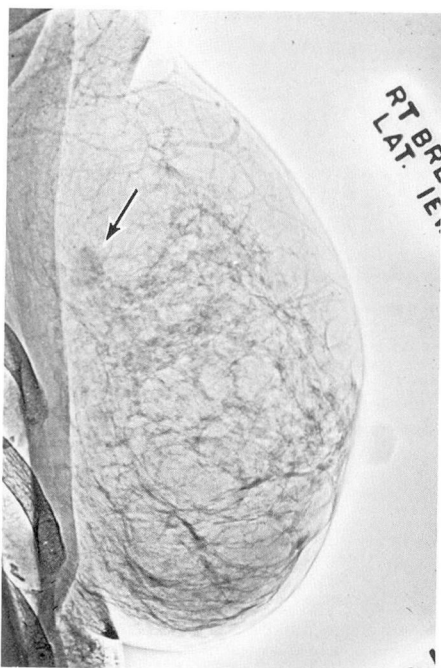


Fig. 1. Mammogram; lateral view showing tumor close to chest wall.

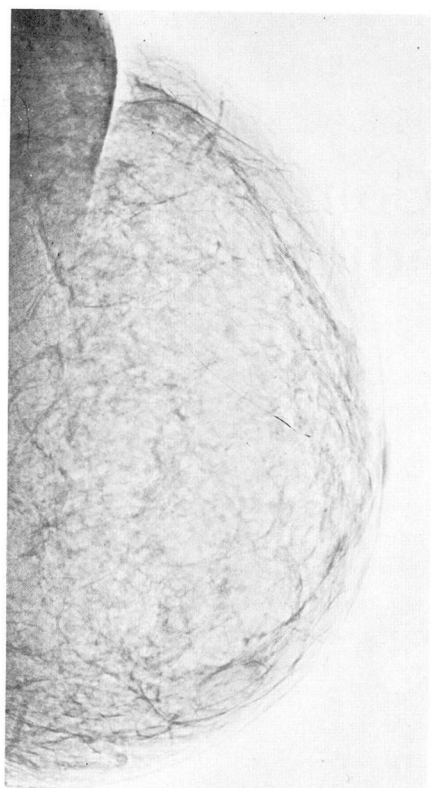


Fig. 2. Mammogram; superior-inferior view. The tumor was too close to chest wall to visualize.

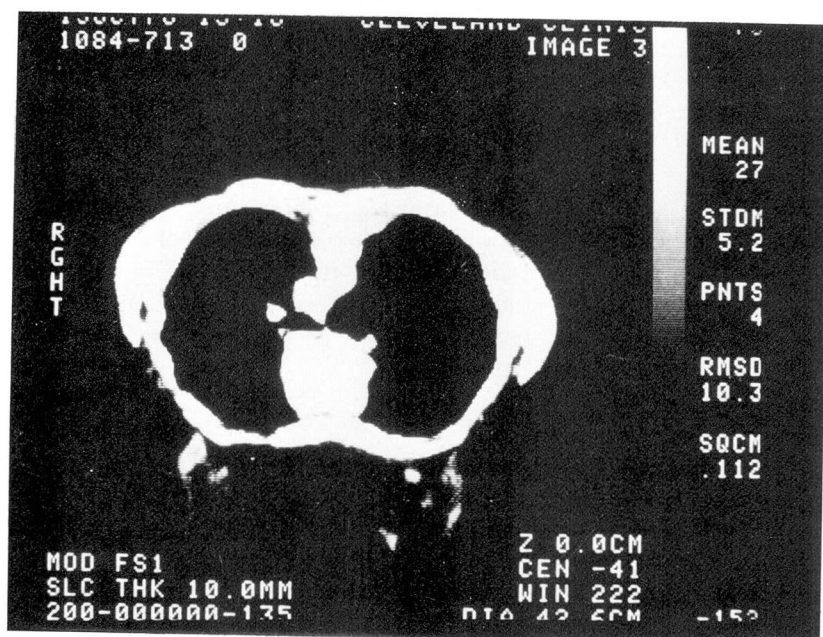


Fig. 3. Body scan taken with patient prone and breasts pendulous shows the tumor in right breast close to chest wall.

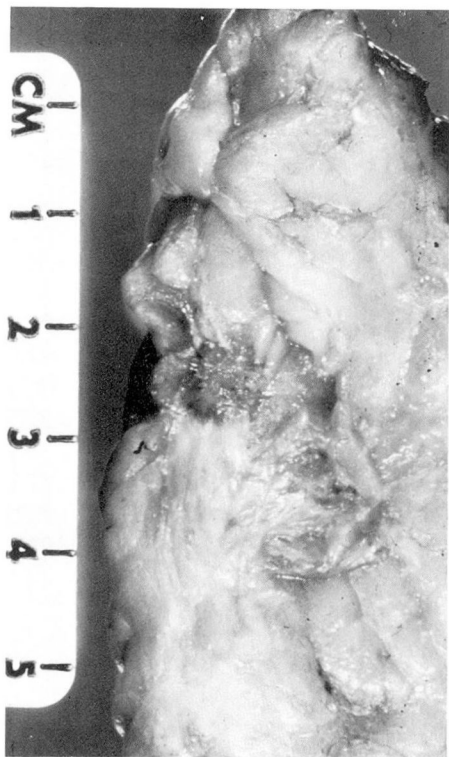


Fig. 4. Specimen showing cancer very close to deep fascia.

rior-inferior view and there was a suggestion of a shadow just medial to the midline, but it was not definite enough to be sure (*Fig. 2*). The patient was placed in the prone position on the CAT scanner, with her breasts pendulous.

CT of the breast was performed, and this revealed a well-demarcated nodule 1.2 cm in diameter located in the central part of the upper quadrant (*Fig. 3*). The density of the nodule was 27, which was significantly higher than other sampled areas where the values ranged from -74 to -5 with no values being above 0. Water has a value of 0. Because of its high den-

sity and the fact that the nodule was not shown on a previous xerogram obtained 3 years earlier, the lesion was suspected of being malignant and wide excision was planned.

The patient was told that if the tumor was malignant and multicentric or if it extended to the edge of the excised specimen, the operation would be viewed as a biopsy and the breast would be removed at a second operation. If it was localized, however, and if it was widely excised, the operation would be viewed as the definitive treatment.

Now that the exact location of the tumor was determined, the surgeon (C.B.E., Jr.) was able to excise it widely by raising an upper flap of skin and fat, cutting down to and through the pectoral fascia, then raising the fascia from the muscle until fingers could be inserted and the tumor palpated between thumb and finger. The tumor, with a wide surrounding zone of breast tissue, was then excised along with the deep fascia.

The pathologist found a typical scirrhous carcinoma in the center of the excised specimen, near the deep fascia (*Fig. 4*). The cancer was 8 mm in diameter and circumscribed, but there were scattered areas of noninvasive intraduct carcinoma elsewhere in the specimen. In view of the findings of the pathologist it was felt that further treatment was desirable. If the patient does not elect to have a mastectomy, she will be followed closely by examination and mammography.

Summary

A case is reported in which CT was helpful in localizing a small, nonpalpable cancer of the breast that was so close to the chest wall that it could not be seen on the superior-inferior mammogram.