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 DR Somatom Plus VD 30(Siemens, Erlangen, Germany) ,  
 HDI Ultramark 9 (Advanced Technology  
 Laboratory, Washington, U.S.A.) Sequoia 512 (Acuson,  
 Mountain View, U.S.A.)

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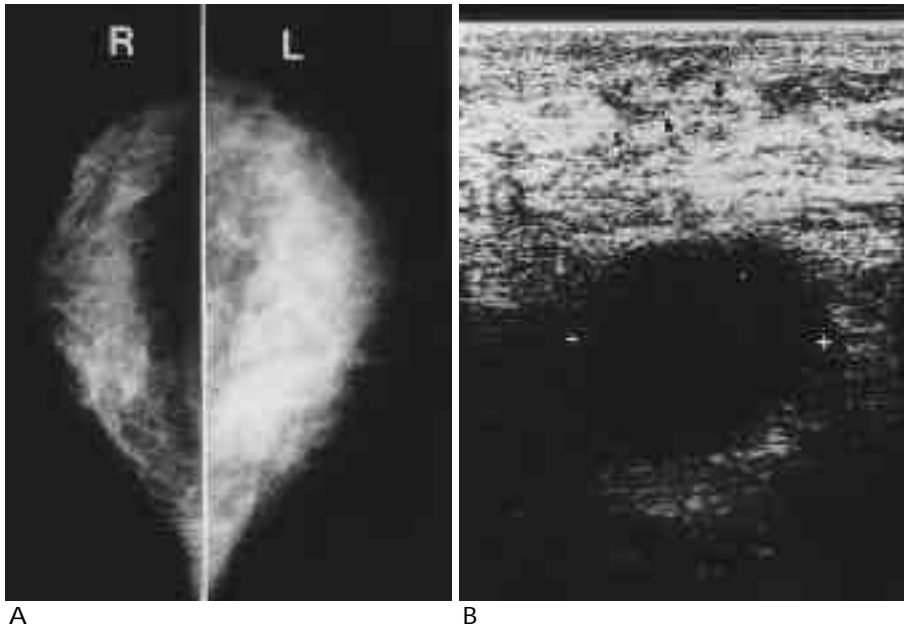
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Fig. 1. A 63-year-old woman with metastatic tumor to the left breast from contralateral breast cancer.

A. Cleavage view of mammography shows diffuse skin thickening and asymmetric increased density (arrows) in the medial aspect of the left breast.

B. Ultrasonography shows diffuse skin thickening, increased echogenicity in the subcutaneous fatty layer and parenchyma and lymphatic dilatations (arrows) in the medial aspect of the left breast.

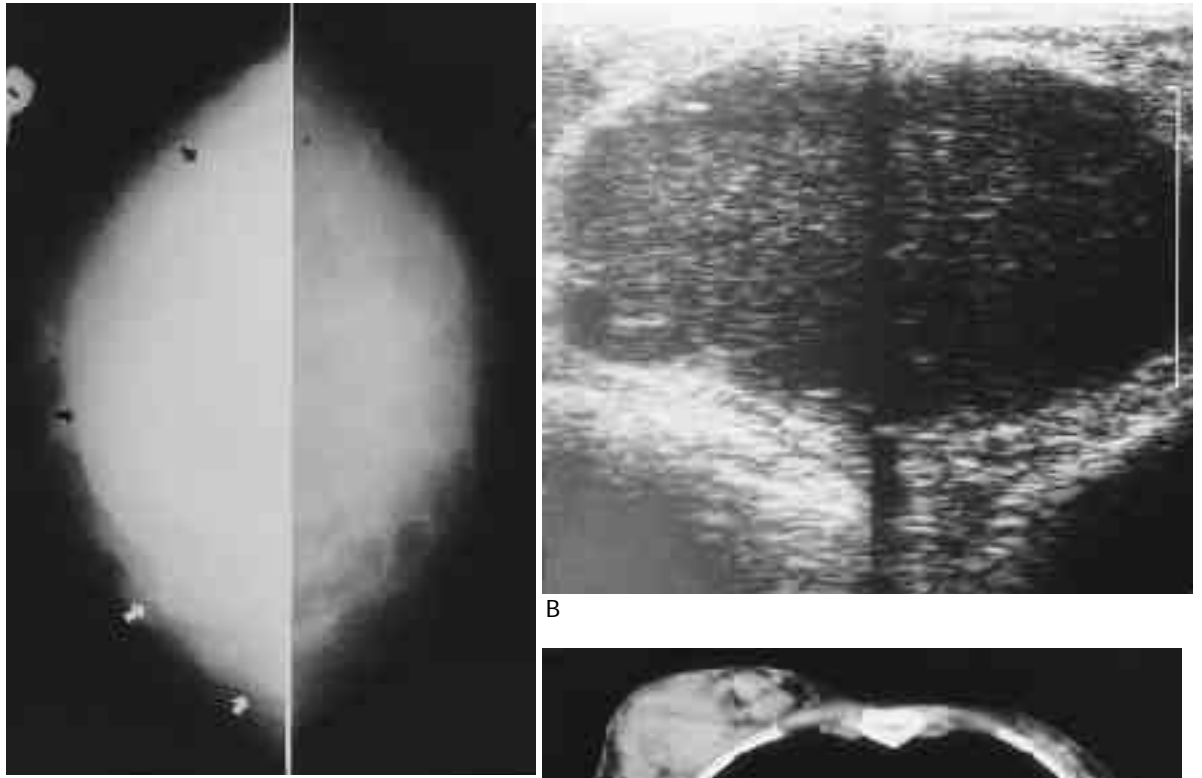
C. Postcontrast CT scan of the chest shows diffuse skin thickening (arrows) and reticular increased density in subcutaneous fatty layer and parenchyma of the medial aspect of the left breast. Contralateral primary breast cancer (C) is seen with internal mammary lymph node metastasis (arrowhead).



**Fig. 2. A 34-year-old woman with metastatic stomach cancer to the left breast.**

A. Craniocaudal view of the mammography shows extensive skin thickening and asymmetric increased density in the left breast.

B. Ultrasonography of the left axilla shows an oval shaped mass with homogeneous low echogenicity representing metastatic lymphadenopathy with lymphatic dilatations (arrows), and increased echogenicity in subcutaneous fatty layer



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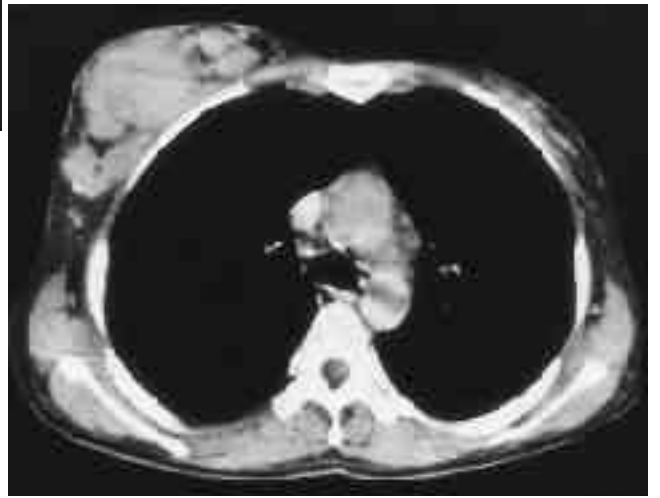
Fig. 3. A 34-year-old woman with metastatic tumors to the right breast from the non-Hodgkin's lymphoma.

A. Craniocaudal view of the mammography shows several well-defined masses (arrows) in the right breast. Notice absence of microcalcification or spiculation.

B. Ultrasonography shows a well-defined and homogeneously low echogenic mass with posterior enhancement. The rest of masses are seen on other view.

C. Postcontrast CT scan of the chest shows several well-defined masses with homogeneous contrast enhancement in the right breast.

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## **Radiologic Findings of Metastatic Tumors to the Breast<sup>1</sup>**

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**Purpose :** To analyze the radiologic findings of metastatic tumors of the breast.

**Materials and Methods :** We retrospectively analyzed the findings of mammography (n= 12), ultrasonography (n= 9) and CT (n= 4) of 13 patients with metastatic tumors of the breast. Methods for confirmation were biopsy (n= 8) and clinical follow-up (n= 5). The patient 's ages ranged from 24 to 63 (mean 43) years.

**Results :** Primary malignancies were contralateral breast cancer (n= 3), non-Hodgkin 's lymphoma (n= 3), stomach cancer (n= 2), uterine cervix cancer (n= 1), laryngeal cancer (n= 1), esophageal melanoma (n= 1), malignant thymoma (n= 1), and lung cancer (n= 1). Patterns of metastasis from contralateral breast cancer and the stomach cancer were diffuse and infiltrative, while metastasis from other cancers was of the focal mass-forming type. The radiologic findings of metastasis from contralateral breast cancer (n= 3) were diffuse skin thickening and increased density or echogenicity in the medial aspect of the breast, while in cases involving metastasis from stomach cancer (n= 2) radiographs revealed extensive skin thickening, increased density or echogenicity, lymphedema and ipsilateral lymphadenopathy in the left breast. In cases of metastatic tumors to the breast in which focal masses were seen on mammography (n= 7), marginal spiculation or microcalcification of the tumors was not present. In six such cases, ultrasonography revealed well-defined margin, posterior acoustic shadowing or an irregular thick echogenic boundary was not seen. In two patients who underwent CT scanning, well-defined masses with moderate contrast enhancement were present.

**Conclusion :** Radiographs of metastatic tumors to the breast from contralateral breast cancer and stomach cancer showed diffuse infiltration. The metastatic tumors with focal masses showed oval to round, smooth-marginated, well-defined masses without spiculation or microcalcification on mammography, and a well-defined mass without posterior acoustic shadowing or irregular thick echogenic boundary on ultrasonography.

**Index words :** Breast neoplasms, diagnosis  
Breast neoplasms, metastases  
Breast, radiography  
Breast, US

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