

Answer to this month's Radiological Conference

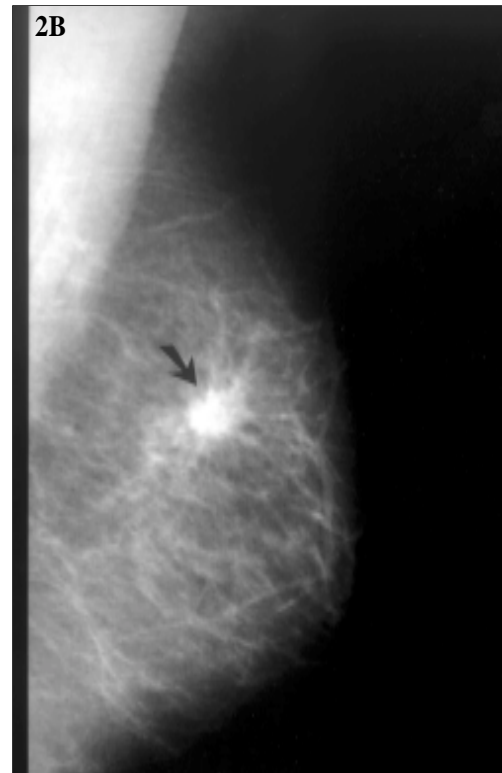
Answer:

d) Carcinoma

Radiological findings

On mammography, the left breast is almost replaced by fat. There is a 1.2-cm spiculated high density mass without microcalcification at the 11 o'clock position of the breast (**Figures 2A, B**). These findings are typical of breast carcinoma.

Figures 2A & 2B: Same figures as Figure 1A & 1B with addition of arrows show a fatty breast with a 1.2-cm high density spiculated mass without microcalcifications at 11 o'clock position



Discussion

Re-examination of the woman revealed a palpable area of thickening at the upper inner quadrant of the left breast. Excisional biopsy of the mass with pre-operative marking by ultrasonography (US) was done. Post-excision specimen radiograph (**Figure 3**) was performed to confirm complete removal of the spiculated mass. Frozen section revealed malignant carcinoma. The patient did not agree to breast conservative therapy and underwent mastectomy for definitive treatment. Histological examination revealed invasive ductal carcinoma (**Figure 4**). No tumour was detected in the 10 axillary lymph nodes that were sampled.

Breast carcinoma

There are 3 main types of breast carcinoma, namely: ductal carcinoma in-situ, invasive ductal carcinoma and invasive lobular carcinoma.¹ The most common mammographic appearance of invasive breast carcinoma, either ductal or lobular, is an irregular mass with spiculated margins and high density, with or without calcifications.^{1,2} The spiculations usually signify invasion of the tumour into the surrounding tissue, resulting in

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Figure 3: Specimen radiograph shows the entire excised spiculated mass

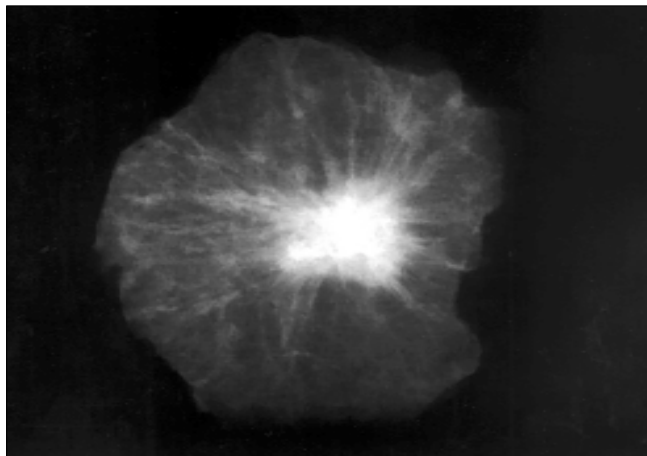
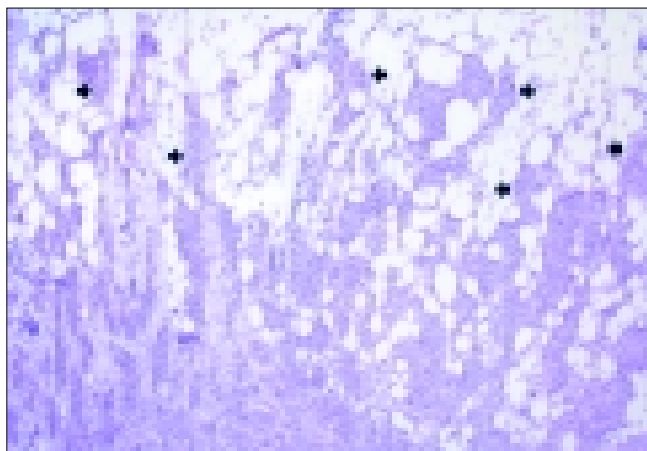


Figure 4: Photomicrograph of the mass shows cords of malignant cells (arrows) infiltrating into the stroma (haematoxylin-eosin stain, x40 magnification)



connective tissue proliferation (desmoplastic response). Spicule length is related to the tumour's size. The larger the tumour mass, the longer the spicules tend to be. Approximately 90% of invasive breast carcinomas arise from the duct and are classified as invasive ductal carcinoma. About 10% of invasive breast carcinomas arise from the lobular structures and are referred to as invasive lobular carcinoma.¹ Mammography is currently the best imaging method to detect breast cancer at a small size and early stage, leading to an increased survival rate.³ The differential diagnosis of an ill-defined or spiculated mass on mammogram includes invasive carcinoma, radial scar, sclerosing adenosis, post-operative scar, fat necrosis,

breast abscess, early haematoma, and granular cell myoblastoma.²

Fibroadenoma

Fibroadenoma is the most common benign breast tumour in women younger than 35 years of age.⁴ On mammography, fibroadenoma is seen as a round, oval or lobulated circumscribed mass. On US, fibroadenoma is typically seen as a well-defined homogeneously-hypoechoic mass. In postmenopausal women, fibroadenoma undergoes degeneration and frequently calcifies. Calcifications are coarse and sharply margined. The typical degenerating fibroadenoma contains popcorn-like macrocalcification which is easily recognised by mammography. The presenting case is a postmenopausal patient and the lesion is a non-calcified spiculated mass, so it is not compatible with a fibroadenoma.

Cyst

Cyst is the most common breast mass in women aged 40-50 years.⁴ A simple breast cyst is lined by a single layer of epithelial cells, and contains clear or yellow transudate fluid. On mammography, a cyst cannot be differentiated from fibroadenoma because it shows a similar appearance as a round, oval or lobulated circumscribed mass. US is helpful in differentiating between a cystic and solid lesion. On US, a cyst is seen as a well-defined round, oval or lobulated anechoic mass with posterior enhancement. Diagnosis of cyst can also be made by needle aspiration which is both diagnostic and therapeutic. Mammographic and ultrasonographic features of the presenting case are not consistent with a cyst.

Hamartoma

Hamartoma is an uncommon benign breast mass consisting of variable amounts of fat, glandular tissue and fibrous connective tissue.⁵ The tumour commonly occurs in the fourth and fifth decades of life. The classic mammographic features of hamartoma are a round, oval circumscribed mass of mixed fat and soft-tissue density with a thin radiopaque capsule. Accurate diagnosis can be obtained from mammographic features and surgery can be avoided. The presenting case has no mammographic findings similar to those of hamartoma.

Haematoma

Haematoma may result from blunt or surgical trauma, bleeding diathesis or anticoagulant therapy. Acute haematoma appears on mammogram as an ill-defined mass while organising haematoma is seen as a well-defined lesion. Haematomas will regress with time and usually resolve completely.² The presenting patient has no history of blunt or surgical trauma and the mammographic findings are not consistent with those of haematoma. ■

References

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ANNOUNCEMENT

The American Academy of Family Physicians is pleased to announce a call for International Family Medicine Posters

The American Academy of Family Physicians is currently accepting applications for the 2001 AAFP Scientific Assembly International Family Medicine Poster Presentations. Research and topical posters will be located in the exhibit hall during this special event. The 2001 Annual Scientific Assembly will be held in Atlanta, Georgia from October 3-7, 2001. Participation in the International Family Medicine Poster Presentations provides a unique opportunity for family physicians to meet and exchange research interests and global experiences.

Proposals for poster presentations must be made in writing. The application should be postmarked no later than April 2, 2001. Applications will be reviewed and approved by a panel of peers. **Registration fees to the Scientific Assembly will be waived for up to two (2) principal authors of each approved poster.** The application can be printed off from the Internet at www.aafp.org/int or obtained by sending a request to:

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