

CME Article

Clinics in diagnostic imaging (I25)

Padungchaichote W, Kongmebhol P, Muttarak M

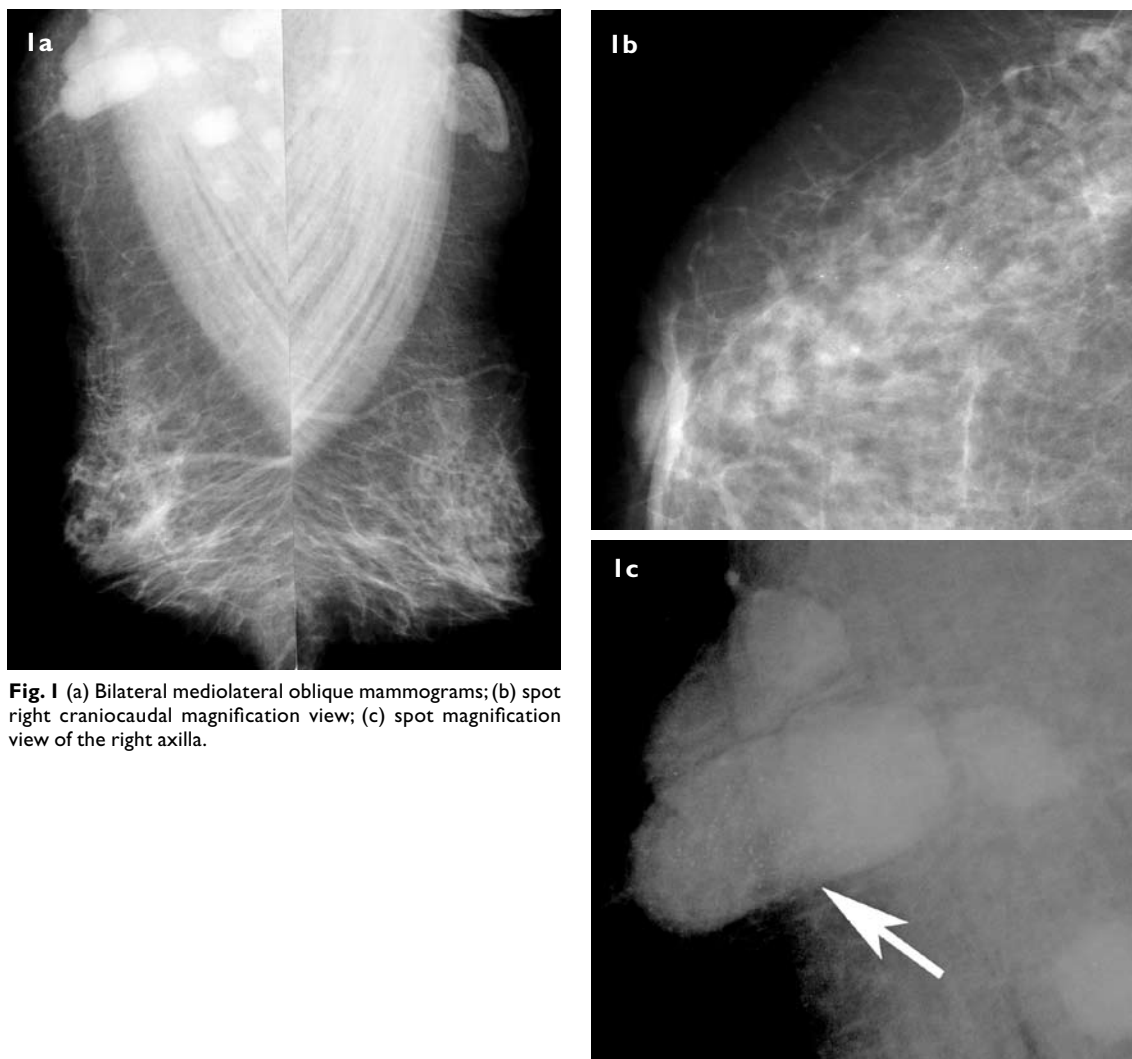


Fig. 1 (a) Bilateral mediolateral oblique mammograms; (b) spot right craniocaudal magnification view; (c) spot magnification view of the right axilla.

CASE PRESENTATION

A 61-year-old woman presented with a palpable painless mass in the right axilla for a few months. She had a past history of poorly-differentiated endometrioid carcinoma of the left ovary, with hysterectomy and bilateral salpingo-oophorectomy, and chemotherapy performed seven years ago. Physical examination revealed a

3 cm mass in the right axilla and no palpable mass in both breasts. Mammography was performed to search for occult primary breast carcinoma. What do bilateral mediolateral oblique mammograms (Fig. 1a), spot right craniocaudal magnification view (Fig. 1b), and spot magnification view of the right axillary nodes (Fig. 1c) show? What is the diagnosis?

Department of Radiology, Lopburi Cancer Centre, Lopburi 15000, Thailand

Padungchaichote W, MD
Consultant

Department of Radiology, Chiang Mai University, 110 Intavaros Road, Chiang Mai 50200, Thailand

Kongmebhol P, MD
Lecturer

Muttarak M, MD
Professor

Correspondence to:
Prof Malai Muttarak
Tel: (66) 53 945450
Fax: (66) 53 9466136
Email: mmuttara@mail.med.cmu.ac.th

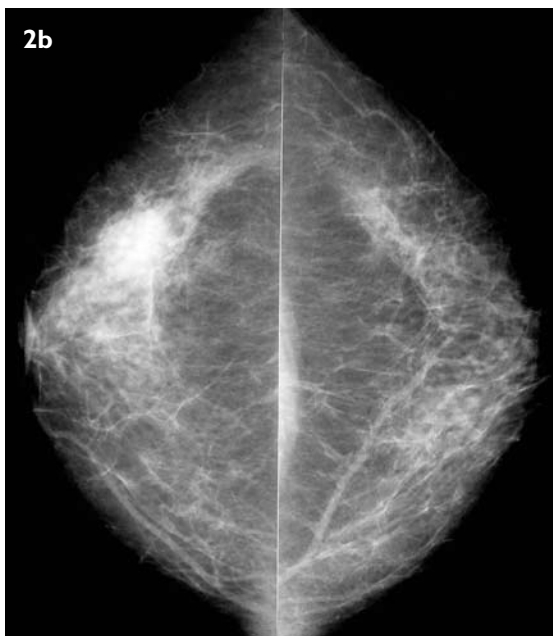


Fig. 2 (a) Bilateral mediolateral oblique mammograms and (b) bilateral craniocaudal mammograms show an ill-defined mass with microcalcifications in the upper outer quadrant of the right breast. No axillary node is seen in the right axilla.

IMAGE INTERPRETATION

Bilateral mediolateral oblique mammograms (Fig. 1a) and spot magnification views of the right breast (Fig. 1b) and right axilla (Fig. 1c) showed segmental-distributed pleomorphic microcalcifications in the upper outer quadrant of the right breast and enlargement of the right axillary nodes with increased density, and loss of fatty hilum. The biggest node contained multiple microcalcifications (arrowed in Fig. 1c).

DIAGNOSIS

Suspicious right breast carcinoma with axillary node metastases.



Fig. 3 Right mediolateral oblique mammogram shows multiple normal axillary nodes, all with fatty hilum.



Fig. 4 Rheumatoid arthritis with bilateral axillary adenopathy. Bilateral mediolateral oblique mammograms show bilateral enlarged axillary nodes with increased density and loss of fatty hilum.

CLINICAL COURSE

The patient underwent right axillary node dissection. Histopathology revealed metastatic adenocarcinoma in 14 of 21 nodes. Unfortunately, the patient was then lost to follow-up. 17 months later, she came back with a palpable mass in the upper outer quadrant of the right breast. Mammograms showed a 2.5-cm ill-defined mass with microcalcifications in the upper outer quadrant of the right breast (Fig. 2). Core needle biopsy of the mass revealed invasive ductal carcinoma, and simple mastectomy was subsequently performed. Pathological examination confirmed poorly-differentiated, invasive ductal carcinoma.

DISCUSSION

On the routine mediolateral oblique mammogram, level I axillary nodes are often visualised. The normal axillary node appears on the mammogram as a round or oval

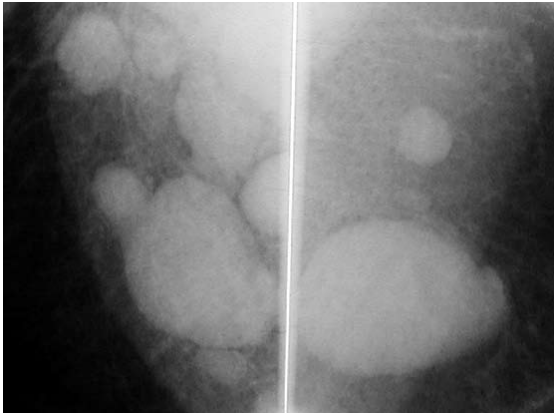


Fig. 5 Non-Hodgkin lymphoma with bilateral axillary adenopathy. Bilateral mediolateral oblique mammograms show bilateral enlarged nodes with increased density and loss of fatty hilum. Note that these findings cannot be differentiated from rheumatoid arthritis. History of patients is helpful for differential diagnosis.

well-defined mass, isodense or hypodense compared with breast parenchyma, and containing a central area of hilar fat (Fig. 3). Size is not important because a normal node with a large, fatty hilum may be as large as 3.5 cm. Abnormality of the axillary node is suggested by an increased nodal density and loss of fatty hilum.⁽¹⁾ Benign causes of axillary adenopathy include infection, collagen vascular diseases such as rheumatoid arthritis (Fig. 4), and a variety of skin conditions.⁽²⁾ Malignant causes of axillary adenopathy include lymphoma (Fig. 5), metastasis from primary breast carcinoma and other primary tumours.⁽³⁾

Both benign and malignant nodes have a similar appearance, but the presence of intranodal coarse calcifications is suggestive of granulomatous infection (Fig. 6) and the presence of intranodal microcalcifications or spiculated margins (Fig. 7) is suggestive of metastasis from the primary breast carcinoma.⁽⁴⁻⁶⁾ In patients who have received intramuscular gold injections for rheumatoid arthritis may have stippled opacities in the axillary nodes which mimic microcalcifications.⁽⁷⁾ However, distinction between malignant calcifications and gold deposits in the axillary nodes is not a frequent problem and is not difficult. The patients with gold deposits should be supported by a clinical history of rheumatoid arthritis with gold injection, and malignant calcifications by the presence of typical malignant calcifications in the breast. To differentiate among the causes of axillary adenopathy, it is recommended to see if the axillary adenopathy is unilateral or bilateral. Causes of unilateral axillary adenopathy include ipsilateral breast carcinoma, mastitis, or inflammation involving the upper extremity. Bilateral axillary adenopathy is usually due to systemic processes such as lymphoma, leukaemia, infection, metastatic tumours, or collagen vascular diseases such as rheumatoid arthritis.

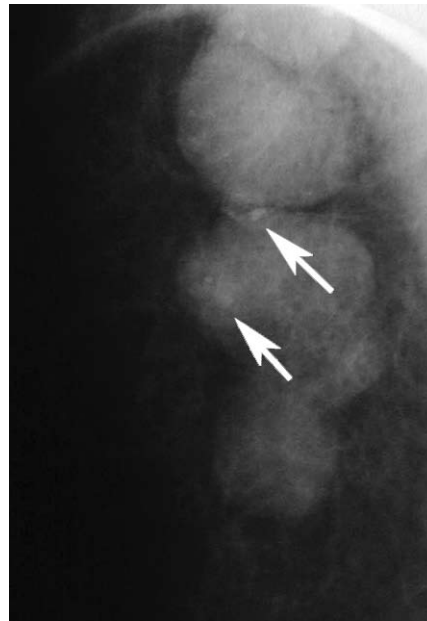


Fig. 6 Tuberculous lymphadenitis. Spot right axillary view shows multiple enlarged nodes with loss of fatty hilum and macrocalcifications (arrows).

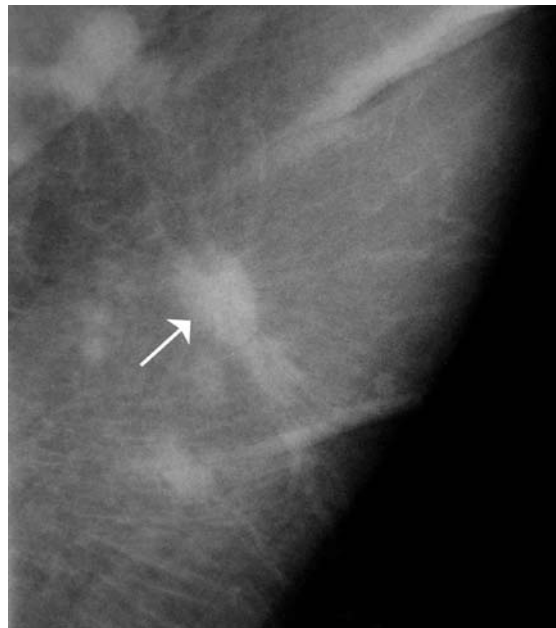


Fig. 7 Metastatic breast carcinoma. Left mediolateral oblique mammogram shows multiple increased density nodes, loss of fatty hilum with spiculated margins in one node (arrow). Note that the size of nodes is not enlarged.

Although ovarian carcinoma may spread to the axillary nodes,⁽⁸⁾ the presence of microcalcifications in the breast is suggestive of primary breast carcinoma. Occult breast carcinoma presenting with axillary nodal metastasis is an uncommon manifestation of stage II breast carcinoma. However, the prognosis is similar to and possibly even better than that of stage II patients who present with a palpable breast cancer.⁽⁹⁾ In a patient with known primary extramammary malignancy and axillary adenopathy, it is important to differentiate if it is metastasis from the

primary breast carcinoma or extramammary malignancy because of different prognosis and treatment. Singer et al reported the mammographical appearance of metastatic axillary nodes from ovarian carcinoma to contain amorphous calcifications which differ from that seen in metastatic breast carcinoma.⁽¹⁰⁾ From our experience, metastatic axillary adenopathy from ovarian carcinoma also contains macrocalcifications.⁽¹¹⁾

ABSTRACT

A 61-year-old woman who had a known history of ovarian carcinoma presented with a palpable painless mass in the right axilla. Mammograms showed segmental-distributed pleomorphic microcalcifications in the upper outer quadrant of the right breast with marked enlargement of the right axillary nodes. The biggest node contained microcalcifications. Right axillary node dissection showed metastatic adenocarcinoma which was likely to be metastasis from the primary breast carcinoma. Unfortunately, she was then lost to follow-up and came back again with a right breast mass. Histopathology of the right breast mass revealed invasive ductal carcinoma. The causes and differential diagnosis of axillary adenopathy are discussed. In a patient with known primary extramammary malignancy and axillary adenopathy, it is important to differentiate if it is metastasis from the primary breast carcinoma or extramammary malignancy to provide proper management.

Keywords: axillary adenopathy, axillary metastases, breast carcinoma, mammography, nodal metastases

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SINGAPORE MEDICAL COUNCIL CATEGORY 3B CME PROGRAMME
Multiple Choice Questions (Code SMJ 200812B)

	True	False
Question 1. Concerning normal axillary lymph nodes:		
(a) They are seen as round or oval well-circumscribed masses.	<input type="checkbox"/>	<input type="checkbox"/>
(b) They are hyperdense compared to breast parenchyma.	<input type="checkbox"/>	<input type="checkbox"/>
(c) The size can be as large as 3.5 cm.	<input type="checkbox"/>	<input type="checkbox"/>
(d) They contain a central hilar fat.	<input type="checkbox"/>	<input type="checkbox"/>
Question 2. Concerning mammography:		
(a) Level I axillary nodes are often seen on the craniocaudal mammographic view.	<input type="checkbox"/>	<input type="checkbox"/>
(b) The spot magnification view is useful to evaluate microcalcifications	<input type="checkbox"/>	<input type="checkbox"/>
(c) It is indicated in patients presenting with axillary adenopathy to search for occult breast carcinoma.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Axillary adenopathy with spiculated margins is suggestive of metastasis from the primary breast carcinoma.	<input type="checkbox"/>	<input type="checkbox"/>
Question 3. Concerning axillary adenopathy:		
(a) Benign causes include infection and collagen vascular diseases.	<input type="checkbox"/>	<input type="checkbox"/>
(b) Malignant causes include metastasis from the breast and other primary cancers.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Malignant axillary adenopathy can be differentiated from benign by the loss of fatty hilum.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Axillary adenopathy is suggested by an increased nodal size.	<input type="checkbox"/>	<input type="checkbox"/>
Question 4. Intranodal calcifications can be found in the following conditions:		
(a) Granulomatous infection.	<input type="checkbox"/>	<input type="checkbox"/>
(b) Metastatic ovarian carcinoma.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Metastatic breast carcinoma.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Lymphoma.	<input type="checkbox"/>	<input type="checkbox"/>
Question 5. Concerning breast carcinoma:		
(a) Some patients may present with axillary adenopathy and a nonpalpable breast mass.	<input type="checkbox"/>	<input type="checkbox"/>
(b) The presence of spiculated axillary adenopathy is highly suggestive of metastasis from the primary carcinoma.	<input type="checkbox"/>	<input type="checkbox"/>
(c) The presence of intranodal microcalcifications is highly suggestive of metastasis from the primary carcinoma.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Axillary node metastasis from nonmammary malignancy has a better prognosis than from primary breast carcinoma.	<input type="checkbox"/>	<input type="checkbox"/>

Doctor's particulars:

Name in full: _____

MCR number: _____ Specialty: _____

Email address: _____

SUBMISSION INSTRUCTIONS:

(1) Log on at the SMJ website: <http://www.sma.org.sg/cme/smj> and select the appropriate set of questions. (2) Select your answers and provide your name, email address and MCR number. Click on "Submit answers" to submit.

RESULTS:

(1) Answers will be published in the SMJ February 2009 issue. (2) The MCR numbers of successful candidates will be posted online at www.sma.org.sg/cme/smj by 15 February 2009. (3) All online submissions will receive an automatic email acknowledgment. (4) Passing mark is 60%. No mark will be deducted for incorrect answers. (5) The SMJ editorial office will submit the list of successful candidates to the Singapore Medical Council.

Deadline for submission: (December 2008 SMJ 3B CME programme): 12 noon, 25 January 2009.