

# Tuberculosis of the Axillary Node and Breast: Sonographic and Mammographic Features

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## INTRODUCTION

Tuberculosis of axillary regions and breasts are not common in industrialized countries. Axillary and breast tuberculosis can be encountered in patients with clinically innocuous symptoms. Imaging findings may lead to unnecessary worries and surgical treatment due to lack of knowledge and misinterpretation. The purpose of this study is to report the sonographic and mammographic findings on tuberculous infection of axillary nodes and breasts.

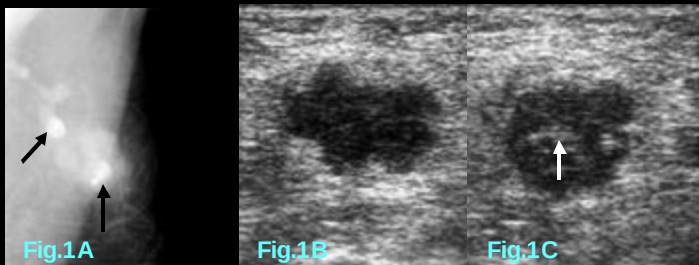
## MATERIALS & METHODS

Sixteen patients with histologically proved axillary ( $n = 15$ ) and/or breast ( $n = 2$ ) tuberculosis were included in this study. Sonography was performed in all patients and mammography was performed in 8 patients

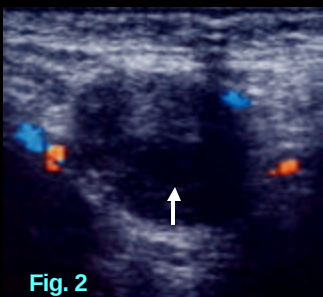
## RESULTS

Sonographic findings of axillary tuberculosis were loss of central fat ( $n = 9$ ), calcifications ( $n = 6$ ) and anechoic areas ( $n = 3$ ) in enlarged nodes or well-demarcated masses (Fig. 1-4).

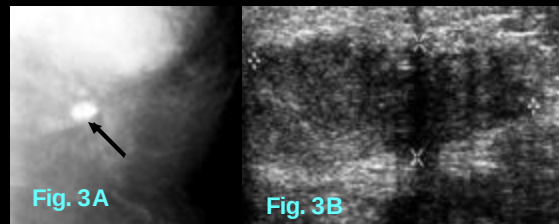
Mammographic findings of axillary tuberculosis were multiple enlarged nodes with ill-defined margin ( $n = 3$ ) or well-defined margin ( $n = 3$ ), loss of central fat in the nodes ( $n = 5$ ), button-shaped round to ovoid calcifications ( $n = 2$ ), and coarse calcifications ( $n = 1$ ) (Fig. 1, 3, 5). In one case, enlarged nodes were not covered on the mammogram. Sonographic findings of breast tuberculosis were well-defined mass with anechoic and slightly hyperechoic areas ( $n = 1$ ) and ill-defined hypoechoic area ( $n = 1$ ) (Fig. 6, 7).



**Fig. 1.** 58-y-old woman with tuberculous lymphadenopathy. A. Mammogram (MLO view) shows multiple enlarged axillary nodes with loss of central fat and partially ill-defined margin. Note three button-shaped calcifications in the nodes. B, C. Sonograms show a hypoechoic lobulated mass without fatty hilum. Note calcification (arrow).

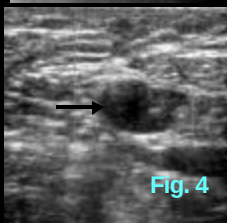


**Fig. 2.** 28-y-old woman with tuberculous lymphadenopathy. Color Doppler sonogram shows no Doppler signals in the enlarged node. Note central anechoic area (arrow).



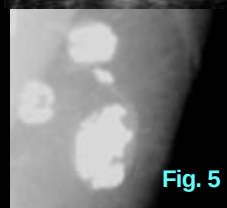
**Fig. 3.** 72-y-old woman with previous history of contralateral mastectomy due to breast cancer. A. Mammogram shows a large ill-defined mass and a button-shaped calcification (arrow) in the axilla. Metastasis to the contralateral node was considered initially.

B. Sonogram shows a large hypoechoic mass with a lobulated margin. Histology showed chronic granulomatous inflammation with caseation necrosis.



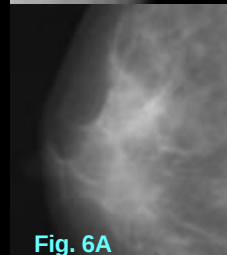
**Fig. 4**

**Fig. 4.** 56-y-old woman with tuberculous lymphadenopathy. Sonogram shows eccentric cortical thickening (arrow) with preservation of central fat.

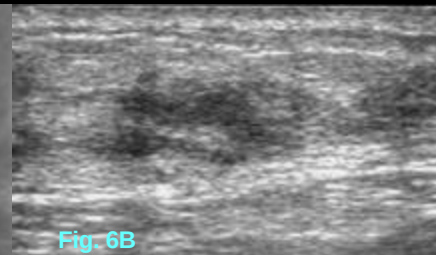


**Fig. 5**

**Fig. 5.** 58-y-old woman with healed tuberculous lymphadenopathy. Mammogram shows multiple coarse, popcorn-shape calcifications.



**Fig. 6A**



**Fig. 6B**

**Fig. 6.** 49-y-old woman with a palpable mass in the left upper inner breast. A. Mammogram (CC view) shows no definable mass. B. Sonogram shows an ill-defined hypoechoic mass with intervening breast parenchyma. Histology obtained by US-guided core biopsy showed chronic granulomatous inflammation with caseation necrosis.



**Fig. 7**

**Fig. 7.** 18-y-old girl with a palpable mass in the right upper outer breast. She had been treated for active tuberculosis in upper lobes of both lungs. Sonogram showed a 3 cm-sized well-defined mass with hypoechoic areas and spotty calcifications. She also had axillary lymphadenopathy (not shown). Surgical specimen revealed granulomatous inflammation with caseation necrosis.

## CONCLUSION

Tuberculous lymphadenopathy can not be easily differentiated from metastasis by imaging findings alone. However, findings of central anechoic areas and calcifications can be clues to differential diagnosis of axillary lymphadenopathy.

Tuberculous infection of the breast may mimic benign and malignant masses at sonography. Coexistent lesions in axillary nodes or chest wall abscess may be helpful in interpretation of imaging findings in patients with breast tuberculosis. US-guided core biopsy of the breast and axillary lesions may be helpful in histologic diagnosis and management of tuberculosis.