

Gravid Filarial Worm in Breast Lump Diagnosed on Fine Needle Aspiration Cytology

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Abstract: This study presents a cytomorphological case of 30-year-old female patient who presented with lump in her right breast for 10 months. On examination, the lump was 1 x 1 cm in size, soft to firm in consistency, mobile, non-tender and was not associated with pain. It is concluded that differential diagnosis of filariasis from breast lump should always be kept in mind. Careful clinical and cytomorphological examination is important for its diagnosis.

Keywords: cytomorphological, Aspiration Cytology, Breast Lump.

CASE STUDY

Filariasis has been a disabling parasitic disease worldwide, particularly in tropical and sub-tropical countries of the world. [Tummidi, S. *et al.*, 2017] In India, filariasis is endemic in number of states including Bihar, Kerala, Uttar Pradesh, Andhra Pradesh and Tamil Nadu is found chiefly along the banks of rivers and sea coastal areas. [Barwad, A. *et al.*, 2018] The commonest causative agents are closely related nematodes, *Wuchereria bancrofti*, *Brugia malayi* and *Brugia timori*. Human beings serve as definitive host for the parasite while *Culex* mosquitoes serve as the intermediate host. [Tummidi, S. *et al.*, 2017] It has predilection for lower limbs, spermatic cord and epididymis while breast, thyroid, body fluids and skin are unusual sites. [Tummidi, S. *et al.*, 2017; Afrose, R. *et al.*, 2017] Adult worm is rarely found in fine-needle aspiration cytology (FNAC) smears. The disease mainly affects the lymphatic channels with the lymph nodes. Extranodal filariasis is rare and breast is an uncommon site for filariasis. [Barwad, A. *et al.*, 2018]

We present a cytomorphological case of 30-year-old female patient who presented with lump in her right breast for 10 months. On examination, the lump was 1 x 1 cm in size, soft to firm in consistency, mobile, non-tender and was not associated with pain. FNAC was done and smears were stained with May Grunwald Geimsa & Haematoxylin & Eosin stain. Fine needle aspiration cytology (FNAC) showed gravid filarial worm filled with numerous developing microfilariae, also few microfilariae protruding out from the breach in the cuticle layer [Figure1: A, B, C]. Higher magnification revealed no nuclei present in the tail end [Figure1D]. Diagnosis was consistent with *Wuchereria bancrofti*. It is quite rare to find microfilaria in routine cytological smears and body fluids. [Barwad, A. *et al.*, 2018]

The parasite commonly affects lymphatics and produce lesions in different sites like lower limbs, testes, epididymis, spermatic cord, retroperitoneum, bronchial, vaginal, pleural and pericardial fluids, joint spaces, thyroid and the female breast. [Barwad, A. *et al.*, 2018; Sherwani, P. *et al.*, 2016] In the breast most, common site is upper outer quadrant, but central or periareolar nodules are also occur commonly. The lymphatic vessels of the breast which acquire larval contamination can cause lymphatic obstruction, lymphangitis and fibrosis. Most of the lesions affect the subcutaneous tissue and present as a hard mass with cutaneous attachment, presenting with a non-tender subcutaneous swelling. However, inflammation and edema of skin and axillary lymphadenopathy have also been identified mimicking carcinoma breast. [Barwad, A. *et al.*, 2018; Sangwan, S. *et al.*, 2015]

Adult worms are found in lymphatic vessels of lower limbs, spermatic cord, epididymis, testis, retroperitoneum and breast of humans, while the larval forms (microfilariae) may circulate in the peripheral blood. The adult female worms are usually of 80-100 mm length, ovoviviparous giving birth to ova containing microfilariae whereas males are 40 mm in length. [Tummidi, S. *et al.*, 2017] The probable explanation for the mechanism of microfilariae reaching extravascular tissue spaces from microcirculation is by crossing the vessel wall by their boring ability. [Tummidi, S. *et al.*, 2017]

Patient was treated with oral diethylcarbamazine and she was doing well, after 3 months follow up. We conclude that differential diagnosis of filariasis from breast lump should always be kept in mind. Careful clinical and cytomorphological examination is important for its diagnosis.

Figures Legends

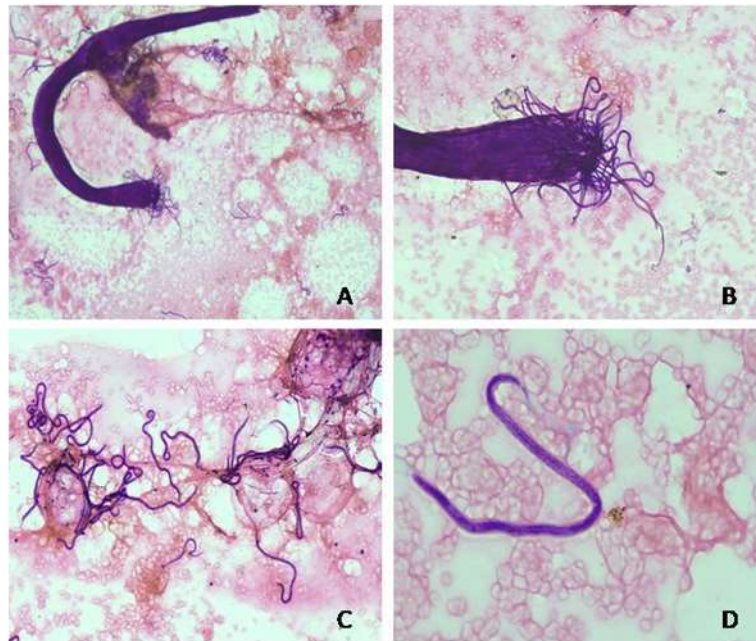


Fig1 A, B, C]: Adult gravid female worm with microfilariae coming out. [MGG Stain, X100, X200, X200],
Fig1D: Wuchereria bancrofti microfilaria with tail tip free of nuclei in a hemorrhagic background. [MGG Stain, X400]

REFERENCE

1. Tummidi, S., Kothari, K., Patil, R., Singhal, S.S. and Keshan, P. "Incidental detection of two adult gravid filarial worms in breast: a case report." *BMC Research Notes* 10.1 (2017): 1-5:412.
2. Barwad, A., Singh, S.K. and Phulwara, R. "Breast filariasis." *IDCases* 14 (2018): e00453.
3. Afrose, R., Alam, M.F., Ahmad, S.S. and Naim, M. "Filarial abscess: aspiration of adult gravid female worm from submandibular region, an unusual presentation." *Journal of Cytology* 34.1 (2017): 66-8.
4. Sherwani, P., Singhal, S., Kumar, N., Narula, M.K., Anand, R. and Pathania, O.P. "Breast filariasis diagnosed by real time sonographic imaging: a case report." *Iranian Journal of Radiology* 13.1 (2016): e17991.
5. Sangwan, S. and Singh, S.P. "Filariasis of the breast." *Medical Journal Armed Forces India* 71 (2015):240-241.

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