

Quiz Case

Cervical lymphadenopathy with dual pathology: Interesting finding

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A 48-year-old male presented with a rapidly enlarging painless firm to hard, mobile, and non-tender lymph node approximately 2 cm deep in the left level II cervical region. Fine needle aspiration of the lymph node was performed (Figure 1).

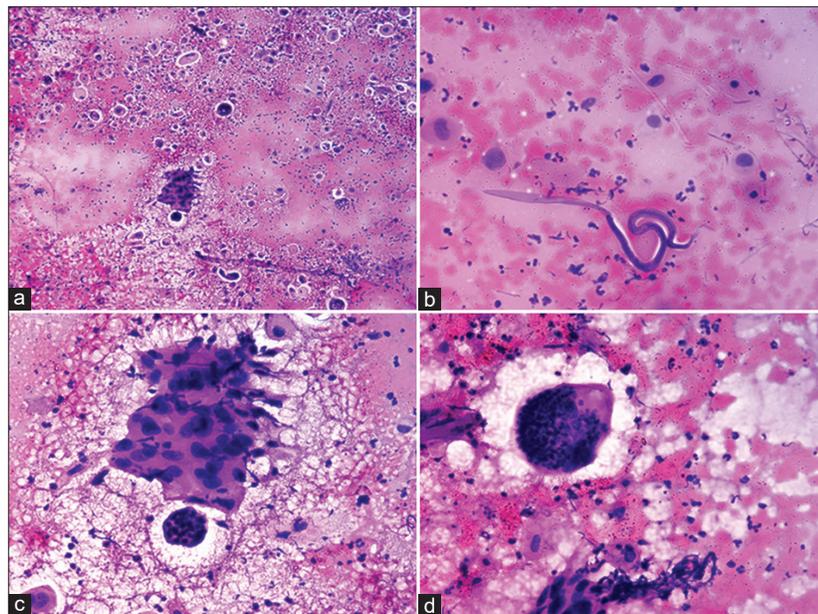


Figure 1: (a) Cellular smear showing discrete population of round to polygonal cells with pyknotic nuclei and dense cytoplasm with smoothly curved filarial worm covered with a hyaline sheath and a pointed tail. (b) Higher magnification showing worm along with tumour cells with squamoid differentiation. (c) Cellular smear showing discrete population of tumour cells having squamoid appearance and of transverse section of gravid female worm with numerous ovoid eggs. (d) Higher magnification of smoothly curved worm covered with a hyaline sheath and a pointed tail, devoid of nuclei. (a) MGG $\times 10$, (b) MGG $\times 40$, (c) H&E $\times 10$, (d) H&E $\times 40$.

Q1. What is your interpretation?

- Metastatic squamous cell carcinoma with microfilaria of *Wuchereria bancrofti*
- Metastatic adenocarcinoma with microfilaria of *W. bancrofti*
- Metastatic squamous cell carcinoma with microfilaria of *Brugia malayi*
- Metastatic adenocarcinoma with microfilaria of *B. malayi*

Answer: a. Metastatic squamous cell carcinoma with microfilaria of *Wuchereria bancrofti*

The cytological findings are consistent with metastatic squamous cell carcinoma with accompanying microfilaria in a necro-haemorrhagic background. The filarial worm is smoothly curved, covered with a hyaline sheath and a pointed tail. The body has multiple discrete evenly spaced nuclei with no terminal nuclei in the tail. The microfilaria is identified as *Wuchereria bancrofti* owing to characteristic smoothly curved worm with pointed tail, devoid of nuclei (Figure 1)

Table 1 elaborates the key differentiating features of commonly occurring sheathed filarial nematodes.

Table 1: Key differentiating features of commonly occurring sheathed filarial nematodes.			
Nematode	<i>Wuchereria bancrofti</i>	<i>Brugia malayi</i>	<i>Loa loa</i>
Length	244–296 μ	177–230 μ	231–250 μ
Cephalic space	Short	Long	Short
Tail	Pointed tail, devoid of nuclei	Two distinct nuclei on tail tip	Continuous discrete row of nuclei at the tail tip
Periodicity	Nocturnal	Nocturnal	Diurnal

Q2. Which of the following is not a characteristic feature of *W. bancrofti*?

- Pointed tail, devoid of nuclei
- Two distinct nuclei on tail tip
- Cephalic space is short
- Length of microfilaria ranges from 244 to 296 μ .

Answer: b

Q3. What could be the possible reason for lodgement of filaria in the metastatic sites?

- Increased vascularity of the tissues
- Transmigration of microfilaria along with metastatic tumor emboli
- Decreased host immune response
- All of the above.

Answer: d

BRIEF REVIEW OF THE TOPIC

Filariasis is a vector borne public health issue and is endemic all over India. In India, *W. bancrofti* accounts for majority of the total filarial infections.^[1] Filarial nematodes can be detected in peripheral blood, body fluids, urine, sputum, lymph node, thyroid, parotid, scrotum, and subcutaneous tissues along with a wide variety of metastatic

sites.^[2-4] Causative agents of human filariasis include *W. bancrofti*, *B. malayi*, *Brugia timori*, *Loa loa*, *Mansonella perstans*, *Mansonella ozzardi*, *Mansonella streptocerca*, and *Onchocerca volvulus*. Of all of the human filarial nematodes, *W. bancrofti* has the widest geographic distribution.^[5] The existence of filarial nematodes in association with metastatic deposits could be coincidental or may involve a different pathogenetic mechanisms. Filarial parasites exert profound immunoregulatory effects on the host immune system with both parasite-antigen specific and more generalized levels of immune modulation.^[6] The immune-modularity effects of microfilaria can be responsible for delayed post-operative healing after neck dissection.

Few authors have speculated that increased vascularity of the tissues and transmigration of microfilaria along with metastatic tumor emboli, decreased host immune response could be a possible reasons for lodgement of filarial in the metastatic sites.^[3,7,8]

SUMMARY

This case highlights the importance of diligent screening of all cytology smears in endemic regions as the occurrence of microfilaria in cervical nodes of patients with oral cavity malignancy requiring neck dissection can have different implications in post-operative healing.

COMPETING INTEREST STATEMENT BY ALL AUTHORS

The authors declare that they have no competing interests.

AUTHORSHIP STATEMENT BY ALL AUTHORS

Each author has participated sufficiently in the work and takes public responsibility for appropriate portions of the content of this article. All authors read and approved the final manuscript. Each author acknowledges that this final version was read and approved.

ETHICS STATEMENT BY ALL AUTHORS

This study protocol was reviewed and approved by the Institutional ethics committee AIIMS, Raebareli. The approval number is F. 8/BIOETHICS/AIIMS-RBL/COMM/OTH/2021/1 dated 03.07.2022.

LIST OF ABBREVIATIONS (In alphabetic order)

B. malayi – *Brugia malayi*
 H&E – hematoxylin & eosin
 MGG – May Grunwald Giemsa
W. bancrofti – *Wuchereria bancrofti*

EDITORIAL/PEERREVIEW STATEMENT

To ensure the integrity and highest quality of CytoJournal publications, the review process of this manuscript was conducted under a **double-blind model** (the authors are blinded for reviewers and vice versa) through automatic online system.

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