

# Incidental Filariasis in Abdominal Neoplasm: Cytodiagnosis of Two Cases with a Review of Literature

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### ABSTRACT

Lymphatic filariasis is a major health problem in Indian sub-continent. Their presence at extra-nodal sites is very rare since they are found predominantly in the lymphatic channels and nodes. Very few numbers of cases have been reported till date showing the presence of microfilariae concomitant with abdominal neoplasm. It has been postulated that neo-angiogenesis in the malignancies as well as obstruction caused by microfilariae leads to the rupture of these fragile vessels causing extravasation of microfilariae. So in suspected cases cytology can prove to be an effective tool for early diagnosis and management.

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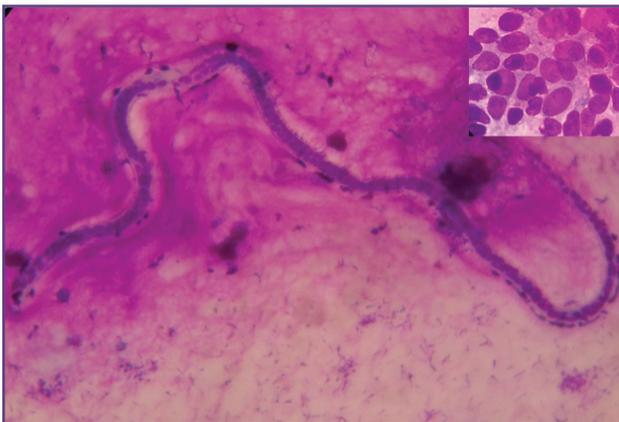


## Introduction

Lymphatic filariasis is a major health problem in the Indian sub-continent with *Wuchereriabancrofti* comprising the commonest species. Transmission in India is chiefly via bite of the *Culex quinquefasciatus* mosquito<sup>[1-2]</sup>. Other filarial species include *Brugia malayi*, *Onchocerca volvulus*, *Loa loa* etc. Extra-nodal filariasis is a rare entity. Microfilaria have been detected at various extra-nodal sites like breast, thyroid, bone marrow, pleural cavity etc<sup>3-5</sup>. Till date only few cases have been reported where filariasis coexisted with the malignancy of hepato-biliary system and ampulla of Vater together<sup>6-10</sup>. We hereby report the rare coexistence of microfilariae in association with the adenocarcinoma of gall-bladder and peri-ampullary carcinoma in two separate cases.

## Case Reports

**Case 1:** A 50-year-old female presented with a painful abdominal lump measuring 5×5 cm for the past 4 months. Ultrasound abdomen revealed a heterogenous mass measuring 5.2×5.0 cm in the gall-bladder infiltrating into adjacent liver parenchyma. There was no history of fever, jaundice and gastro-intestinal bleed. Clinically the lymph nodes were not palpable. Ultrasound-guided fine needle aspiration cytology (USG-FNAC) was done and the cytological smear showed presence of sheathed microfilariae of *Wuchereria bancrofti* having tail end free of nuclei, along with clusters of malignant cells having hyperchromatic nucleus with moderate atypia (Fig 1). Laboratory investigations including both biochemical and hematological were within normal limits. Peripheral smear showed no eosinophilia or microfilaremia. This case was diagnosed as ‘adenocarcinoma of gall-bladder with coexistent filariasis’. The patient underwent surgical resection for the malignancy. The histopathological



**Fig. 1: High-power photomicrograph showing sheathed microfilariae of *Wuchereriabancrofti* with no nuclei at the tail end. Inset shows malignant cells forming acini. (MayGrunwald Giemsa, 100X)**

examination revealed well-differentiated adenocarcinoma of gall-bladder having short and long tubular glands lined by columnar cells having hyperchromatic and pleomorphic nuclei. The patient also received single dose of diethylcarbamazapine (DEC) 6mg/kg body weight for the concomitant infestation.

**Case 2:** A 58-year-old male presented with pain abdomen for past 2 months. Clinical examination revealed jaundice with moderate hepatomegaly. Computerized tomography (CT) abdomen revealed peri-ampullary mass measuring 3.2×2.8 cm, infiltrating the surrounding retro-peritoneal fat. Few mildly enlarged left para-aortic lymph nodes were also seen. CT abdomen revealed a peri-ampullary mass measuring 3.2×2.8 cm, infiltrating the surrounding retro-peritoneal fat. Few mildly enlarged left para-aortic lymph nodes were also seen. CT guided FNAC was undertaken which yielded blood-mixed fluidy aspirate with presence of microfilariae and few degenerated cells. FNAC was repeated and the smear showed malignant clusters. No filaremia was noted in the repeat FNAC smear. The patient underwent endoscopic retrograde cholangio-pancreatography (ERCP) biliary stenting for the malignancy and received DEC for the filariasis.

## Discussion

Filariasis is an endemic problem in India affecting Bihar, West-Bengal and coastal region of south India<sup>11</sup>. Microfilaria gain access to the human lymphatics on being transmitted by the bite of *Culex* mosquito. Man is the definitive host while mosquito is the intermediate host. The microfilaria is picked up by the mosquito during human bite. Then microfilaria undergoes the developmental stages and forms a highly active and motile larval form (3<sup>rd</sup> stage) which migrates to the proboscis of the mosquito. Human infection occurs when this 3<sup>rd</sup> stage larval form is released into the puncture site by the female *Culex* mosquito during blood-feeding. Morphologically the microfilariae of both *W. Bancrofti* and *B. malayi* are sheathed. It is important to remember that sheaths may be lost during smearing, and stain poorly with Giemsa, thereby creating confusion. *Wuchereria* larvae are large, have relatively smooth outlines with multiple columns of prominent nuclei in the body, a tail tip free of nuclei and a cephalic space as broad as it is long<sup>12</sup>. Though the presence of microfilariae at extra-nodal sites is seen as an incidental finding but possible mechanism for the same may be the fragile vessels formed by angiogenesis and lymph-angiogenesis in tumor may rupture on their own or due to trauma caused by FNAC thus leading to the extravasation of microfilaria. The reported cases of this uncommon association are mentioned in Table 1.

The filarial genome project points towards role of some immune-suppressant molecules in lowering the immunity of the host or resultant poor immune surveillance. The molecules which help in evading the immune mechanism are cysteine protease inhibitor, TGF homologues, serine protease inhibitors. Though some glycoprotein molecules secreted also provide anti-oxidant effect against free-radical injury. This lowered immunity predisposes the host to opportunistic infections and neoplasm. DEC is the drug of choice for filariasis being effective against both adult and microfilarial form. Ivermectin in a single dose of 200-400 microgram per kilograms of body weight can be used as second line of treatment<sup>13</sup>.

**Table 1: Incidental association of microfilariae with abdominal neoplasms.**

STUDY	ASSOCIATED NEOPLASM
Agarwal et al. [6]	Cavernous hemangioma of liver
Mohan et al. [7]	Carcinoma pancreas
Arakeri et al. [8]	Hepato-cellular carcinoma
Khan AA et al. [9]	Metastatic Adenocarcinoma
Gupta K et al. [10]	Non-HodgkinLymphoma

## Conclusion

In endemic areas the cytological smear for suspected neoplastic disease must be properly evaluated for detecting coexistent filarial infestation. Patients with benign or malignant pathological conditions may be the silent carriers of filarial infection and cytology can be an effective tool for timely eradication and treatment.

## Conflict of Interest

The authors declare that they have no conflict of interest related to the publication of this manuscript.

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