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## Embryonated eggs of filarial worm with granulomatous reaction: An unusual finding!

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### Abstract

Filariasis is not uncommon in the Indian subcontinent. It is detected most commonly by the presence of microfilaria in the peripheral blood smear with associated eosinophilia and sometimes in the fine needle aspirates performed from various sites with strong clinical suspicion. The adult worm resides in the lymphatic channels causing inflammation and fibrosis. Clinically, this presents as lymphoedema usually in the dependent parts of the body. Filariasis presenting as subcutaneous or lymph node swellings is uncommon and presence of a granulomatous reaction in response to the filarial worm has hardly been reported. Here we report a case of 14-year-old boy presenting with a painless swelling on the flexor aspect of left arm. Fine needle aspirate cytology revealed numerous embryonated eggs, larvae and a segment of gravid female filarial worm with granulomatous reaction. There was no evidence of lymphoedema or microfilaremia.

**Keywords:** Arm swelling, embryonated eggs, Filariasis, granulomatous reaction

### 1. Introduction

Filariasis as a potential health risk is mainly seen in tropical countries especially the Indian subcontinent<sup>[1]</sup>. Maximum number of cases are caused by *Wuchereria bancrofti* and humans are the only hosts<sup>[2]</sup>. Most commonly it presents as microfilaremia which later on progresses to chronic lymphadenitis or lymphoedema in the dependent parts of the body<sup>[3]</sup>. The lymphatics of the scrotum, testes, epididymis or abdominal region are the common sites of residence for the filarial worm<sup>[4]</sup>. Filariasis presenting as lymph node swellings is very uncommon (0.047%) with a tendency to cause retrograde lymphangitis<sup>[5, 6, 7]</sup>. The diagnosis is usually confirmed by the presence of microfilaria in the peripheral blood or by demonstration of microfilaria/adult worm in the clinically evident swellings. At times, microfilaria/ adult worm have been reported in FNAs from unsuspected cases with no microfilaria in the peripheral blood. On rare occasions, embryonated eggs with gravid female worm have been found in aspirates from the subcutaneous/lymph node swellings.

### 2.1 Case report

A 14-year-old boy presented with a single firm, mobile, non-tender swelling in the left upper arm, near the cubital fossa (Figure 1). The swelling measured 1x1 cm and was not associated with fever or swelling of the arm. FNA from the lesion was performed using a 23G needle with non-aspiration technique and giemsa stained smears were prepared. Light microscopic examination revealed numerous epithelioid cell granulomas and giant cells against a background of reactive lymphoid cell population (Figure 2a) and with certain round to oval structures resembling pigment laden macrophages (Figure 2b). On closer view, these structures were faintly amphophilic containing coarse darkly stained basophilic granules (Figure 2c). On extensive examination of all the smears, few coiled and uncoiled microfilariae with sheath and multiple, coarse, discrete nuclei were seen (Figure 2d). At one edge of a smear, a small gravid segment of the mature adult filarial worm was also observed (Figure 2e). Complete blood counts with Eosinophil count with Peripheral smear was performed subsequently which showed Eosinophilia, however microfilaria could not be found. Based on the above findings a diagnosis of granulomatous lymphadenitis with presence of all stages of the filarial worm, was rendered. The patient was started on Diethylcarbamazine, however was lost to follow-up.

**2.2 Discussion**

Filariasis is endemic in tropical and subtropical countries and diagnosis of filariasis is not difficult in these areas [1]. The filarial worm commonly resides in the lymphatics of the scrotum, testes, epididymis or abdominal region. Some cases have presented as subcutaneous swellings in the breast, thyroid and upper arm. Filariasis presenting as lymph node swelling in the arm is very uncommon and presence of a granulomatous reaction in association with the filarial worm has hardly been reported. More so, the cumulative occurrence of various stages of development of the filarial worm including the embryonated eggs, coiled and uncoiled larvae and the adult form is a prime finding rarely seen in clinical practice. It is to be noted that in cases where predominantly primitive forms are seen, the diagnosis can be difficult for the untrained eyes as the nuclei of the embryonated eggs can be mistaken for hemosiderin/ melanin pigment granules, amastigotes of leishmania sp., bradyzoites of toxoplasma or forms of histoplasma sp. Thus adequate knowledge of the morphological features of all stages of the parasite including the earliest forms is essential and extensive screening should be performed to find the

diagnostic larval/adult stage which will give strength to the diagnosis. Cases in which the primitive forms predominate can very easily be misdiagnosed in absence of a strong clinical suspicion or when a pathologist is not well versed with different stages of life cycle of the filarial worm. This highlights the importance of thorough screening of every FNA slide.

**2.3 Conclusion**

This case highlights the uncommon presentation of filariasis as an asymptomatic arm swelling in a young boy. Granulomatous reaction to the filarial worm is a very unusual occurrence. The presence of all stages of the filarial worm including the eggs, larvae and adult worm is an uncommon finding in cytology smears. Adequate knowledge and diligent microscopic examination is of utmost importance for the cytopathologist for reaching at the correct diagnosis.

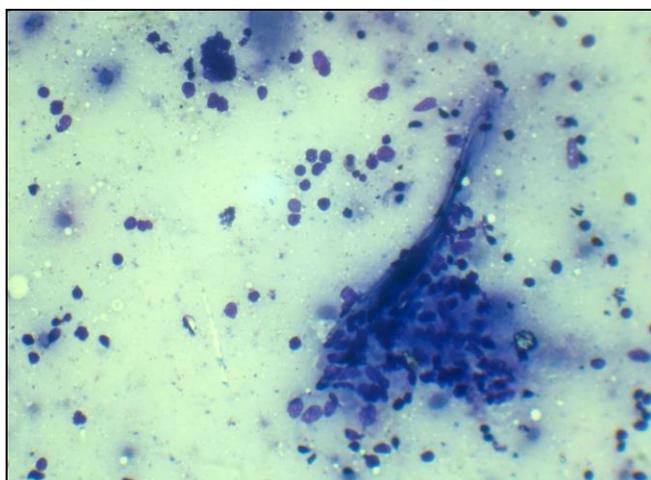
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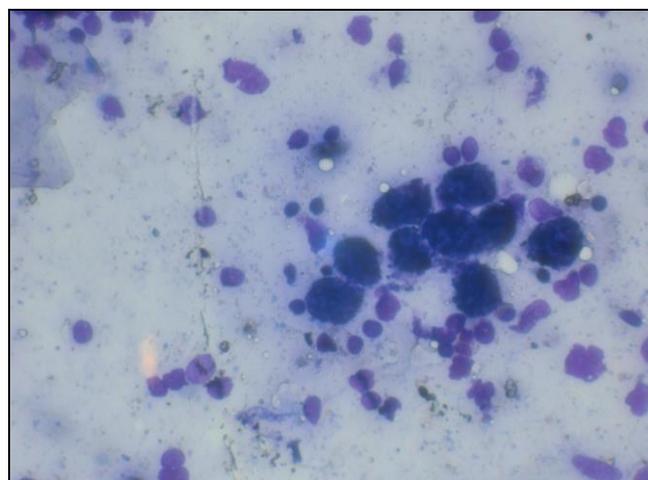
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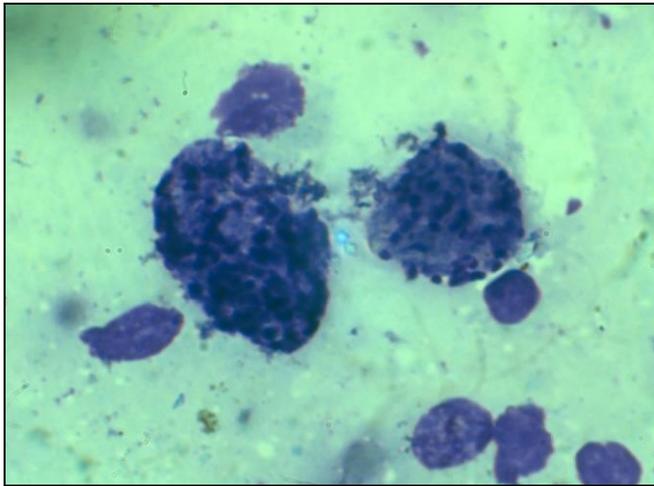
**Fig 1:** Swelling on the flexor aspect of left arm



**Fig 2A:** Epithelioid cell granulomas with pigmented structures against a lymphoid background (Giemsa x 100)



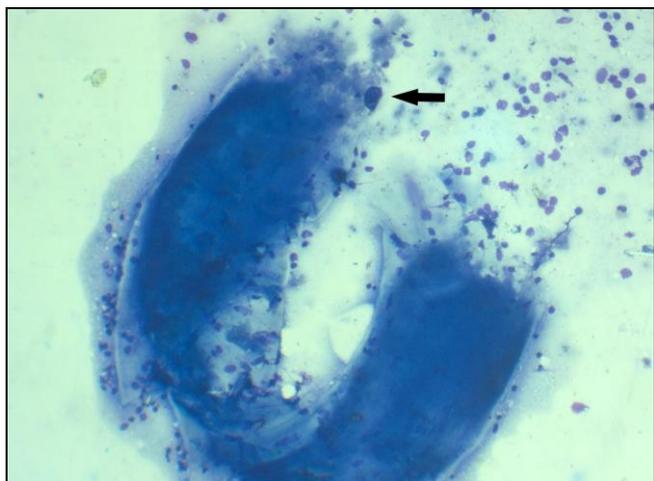
**Fig 2B:** Embryonated eggs showing basophilic pigments in the cytoplasm resembling pigment laden macrophages (Giemsa x 400)



**Fig 2C:** Embryonated eggs (Giemsa x 1000)



**Fig 2D:** Single sheathed microfilaria (Giemsa x 400)



**Fig 2E:** Gravid adult worm with an egg (marked with arrow)  
(Giemsa x 40)

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