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Case Report

A Rare Case of Periocular Parasitic Granuloma (Dirofilariasis) Presenting as Infraorbital Swelling: A Cytology–Histopathology Correlation

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ABSTRACT

Human dirofilariasis is an emerging zoonotic infection caused primarily by Dirofilaria repens, most often presenting as subcutaneous or periorbital nodules, while ocular involvement remains uncommon and frequently misdiagnosed clinically. We report a case of a 40-year-old male who presented with a rapidly developing infraorbital swelling following a blood splash injury near the eye. Imaging revealed a cystic lesion with surrounding edema, and fine-needle aspiration cytology showed features of chronic inflammation with foreign body giant cells, suggesting a possible parasitic etiology. Subsequent surgical excision demonstrated a parasitic granuloma containing remnants of a degenerated filarial worm, morphologically consistent with Dirofilaria species. This case underscores the importance of considering dirofilariasis in the differential diagnosis of infraorbital swellings, especially in endemic regions, and highlights the critical role of correlating imaging, cytology, and histopathological findings for definitive diagnosis.

Keywords*: Dirofilariasis, parasitic granuloma, periocular swelling, FNAC, Dirofilaria repens, infraorbital nodule.*

INTRODUCTION

Human dirofilariasis is an emerging zoonotic infection transmitted by mosquitoes from definitive hosts like dogs [1,8,10]. While lymphatic filariasis remains a major public health issue in tropical regions [1], species such as *Dirofilaria repens* are increasingly reported as causes of subcutaneous and ocular lesions across Europe, the Mediterranean, and Asia [2,6,9].In humans, these parasites often present as subcutaneous nodules that can clinically mimic malignancies, particularly when located in the breast or other superficial tissues [3,5]. While some cases are identified incidentally during the evaluation of other pathologies [4,7], periocular involvement—such as infraorbital swelling—remains rare [9].The diagnosis of such parasitic granulomas frequently relies on a high index of clinical suspicion and is often confirmed through fine-needle aspiration cytology (FNAC) or histopathological examination [3,4]. This case report highlights a rare presentation of a periocular parasitic granuloma, emphasizing the importance of cytology–histopathology correlation in identifying dirofilariasis as a differential for localized facial swelling.

CASE REPORT

A 40-year-old male presented with a two-week history of swelling in the right infraorbital region, which began after a blood splash injury to the eye and progressively increased in size. Initial imaging revealed a well-defined cystic lesion measuring 2.5 × 2.8 cm with internal septation and surrounding edema; following antibiotic therapy, the lesion likely ruptured, resulting in diffuse swelling. The patient reported morning prominence and occasional itching without redness, discharge, or visual symptoms. He was a known hypertensive, with examination showing diffuse infraorbital swelling with ecchymosis and a firm, mobile, mildly tender 1.5 × 1.5 cm lesion near the medial canthus. Repeat ultrasonography demonstrated a smaller hypoechoic subcutaneous lesion (1.2 × 0.6 cm) with surrounding edema and resolution of the cystic component, suggestive of an inflamed or ruptured cyst. Fine-needle aspiration cytology revealed moderately cellular

smears with foreign body–type giant cells, fibroblast proliferation, and mixed inflammatory cells including eosinophils, consistent with chronic inflammation, while a parasitic etiology could not be excluded. The lesion was excised under general anesthesia, and postoperative recovery was uneventful. Grossly, the specimen was a grey-brown soft tissue fragment measuring 1 × 0.6 × 0.5 cm. Microscopy showed fibrocollagenous tissue with dense inflammatory infiltrates including lymphocytes, plasma cells, and eosinophils, along with granulomatous inflammation featuring foreign body giant cells enclosing remnants of a degenerated parasite with areas of suppuration, leading to a final diagnosis of parasitic granuloma, likely due to Dirofilaria, in the right infraorbital region.

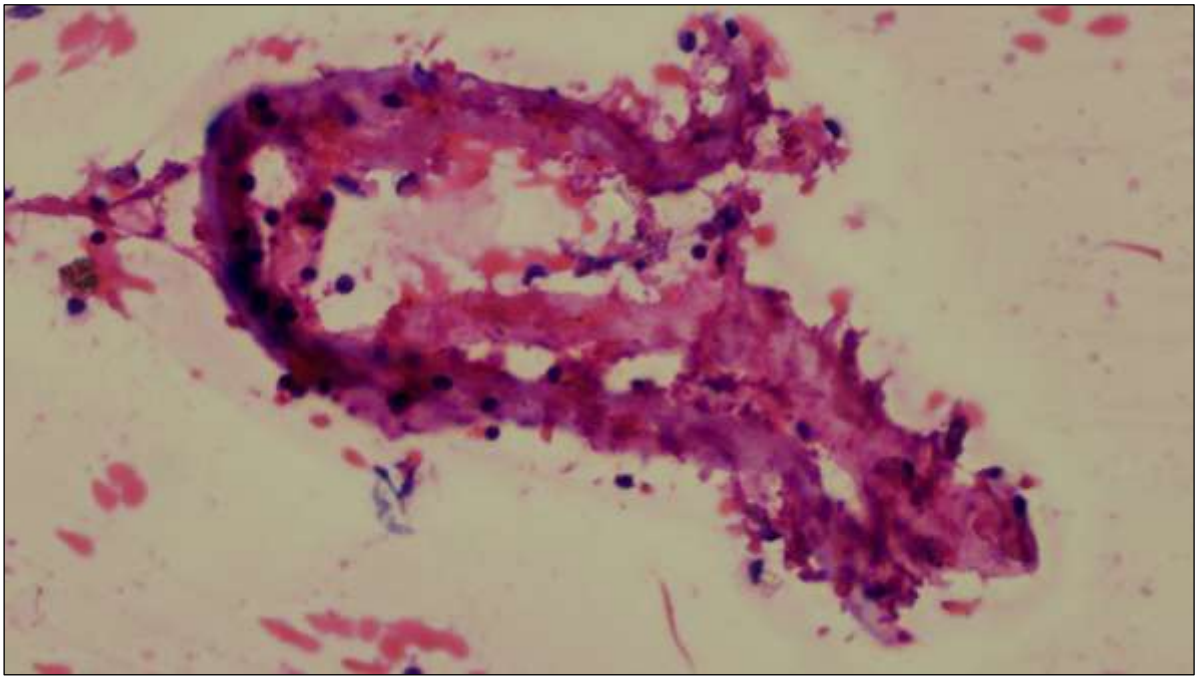

Fig.1 (H & E stain 10x)Tubular fragment consistent with a degenerated parasitic structure.

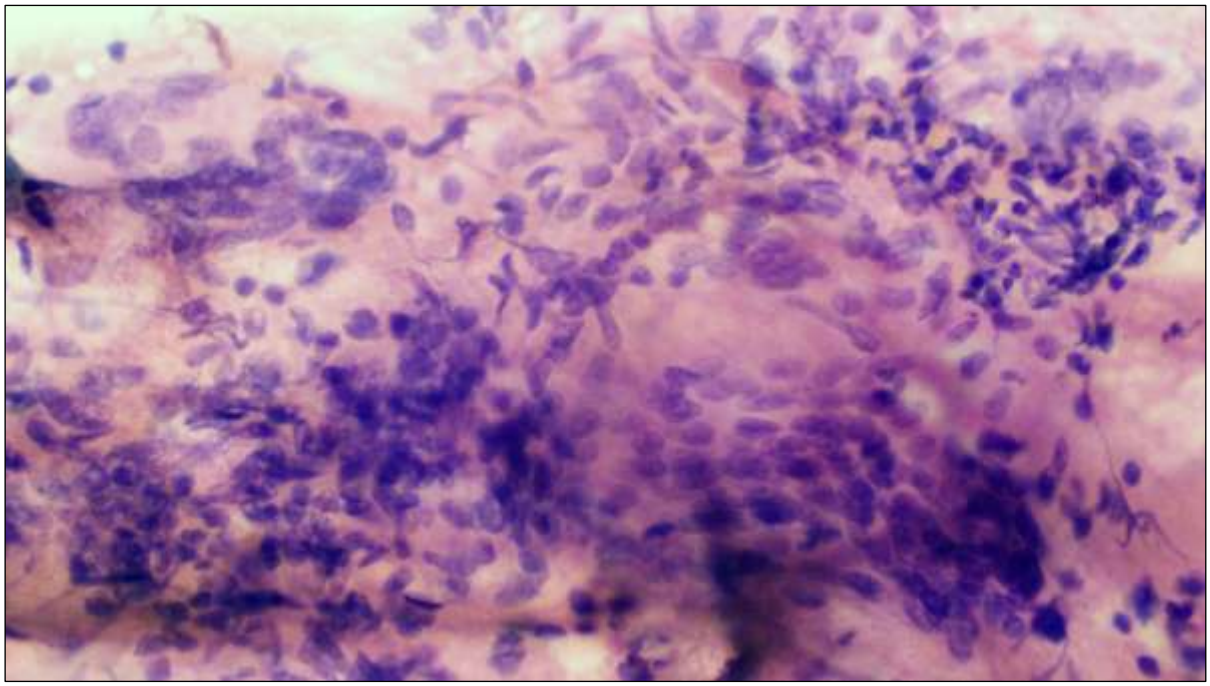

Fig.2 (H&E stain 20x) Dense inflammatory background.

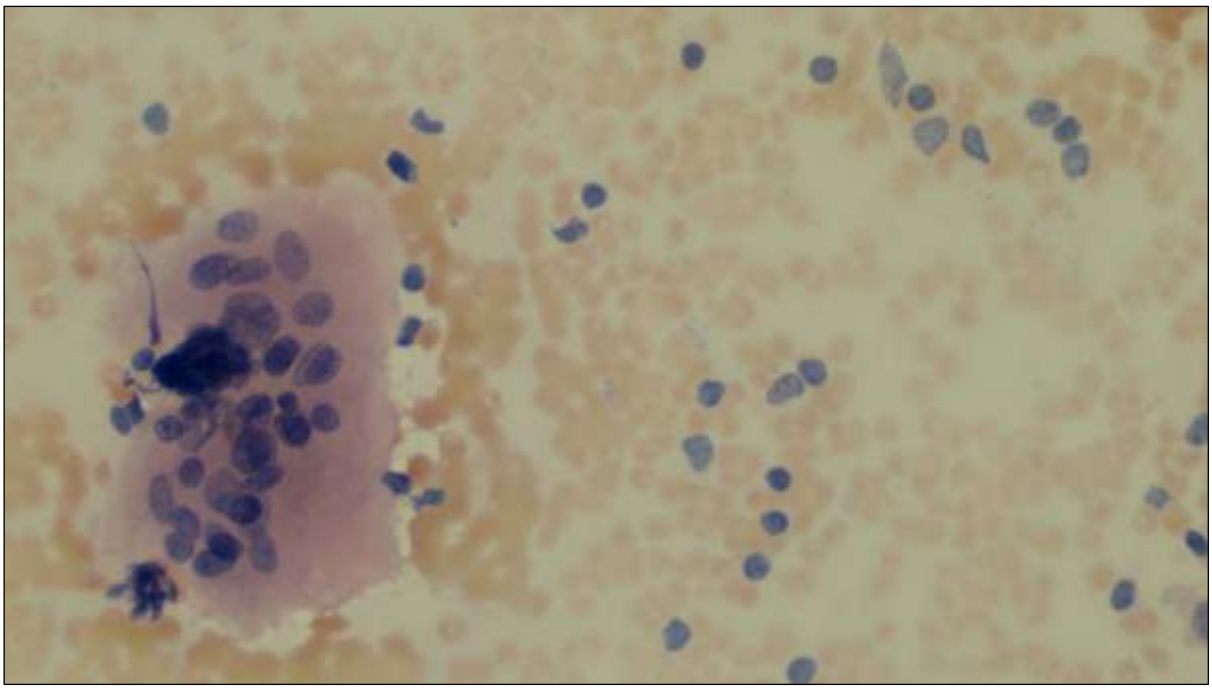

Fig.3 (H & E stain, 40x) A foreign-body type giant cell.

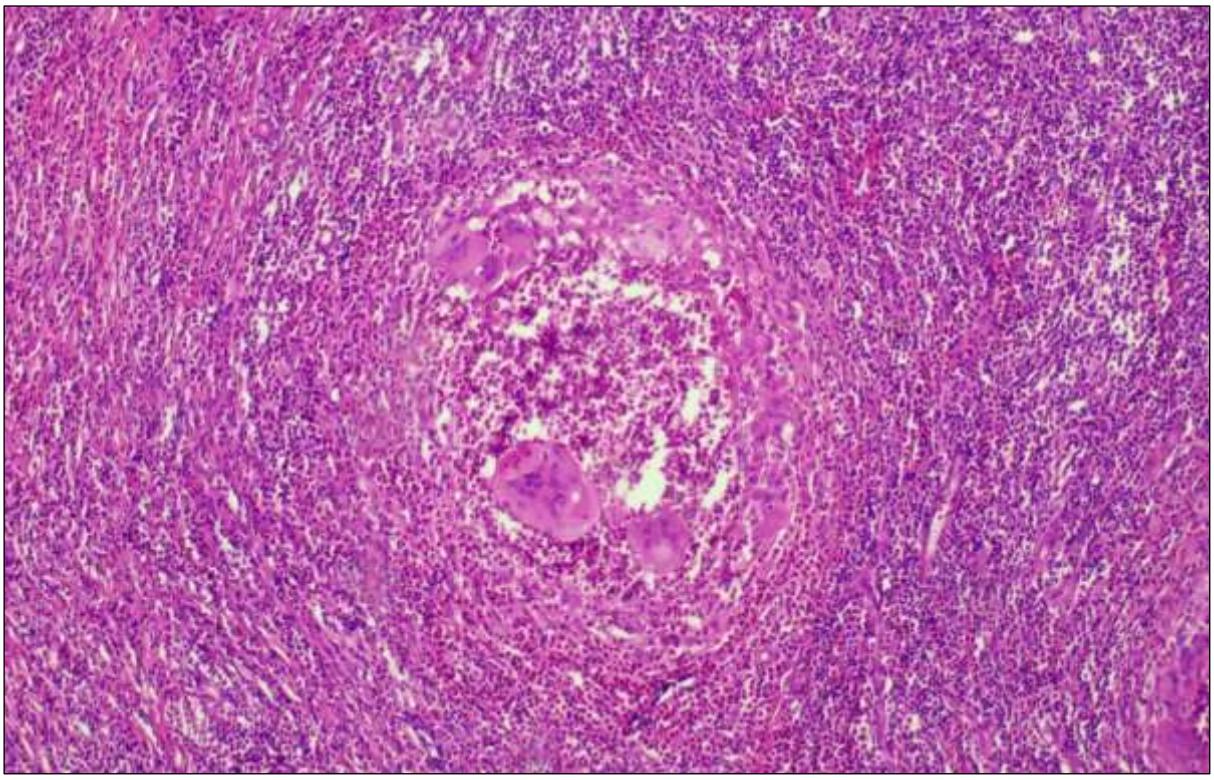

Fig. 4 (H & E stain 10x) A well-formed granuloma

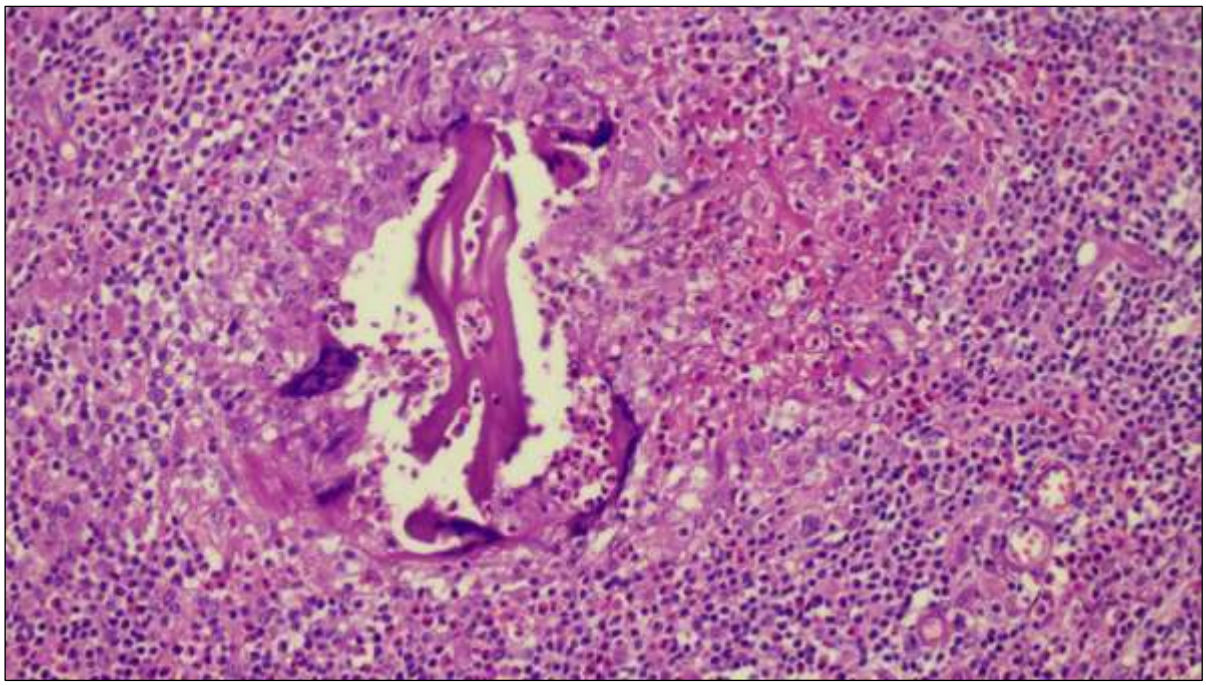

Fig. 5(H & E stain 20x) Degenerating parasitic fragments, with thick eosinophilic refractile cuticular wall.

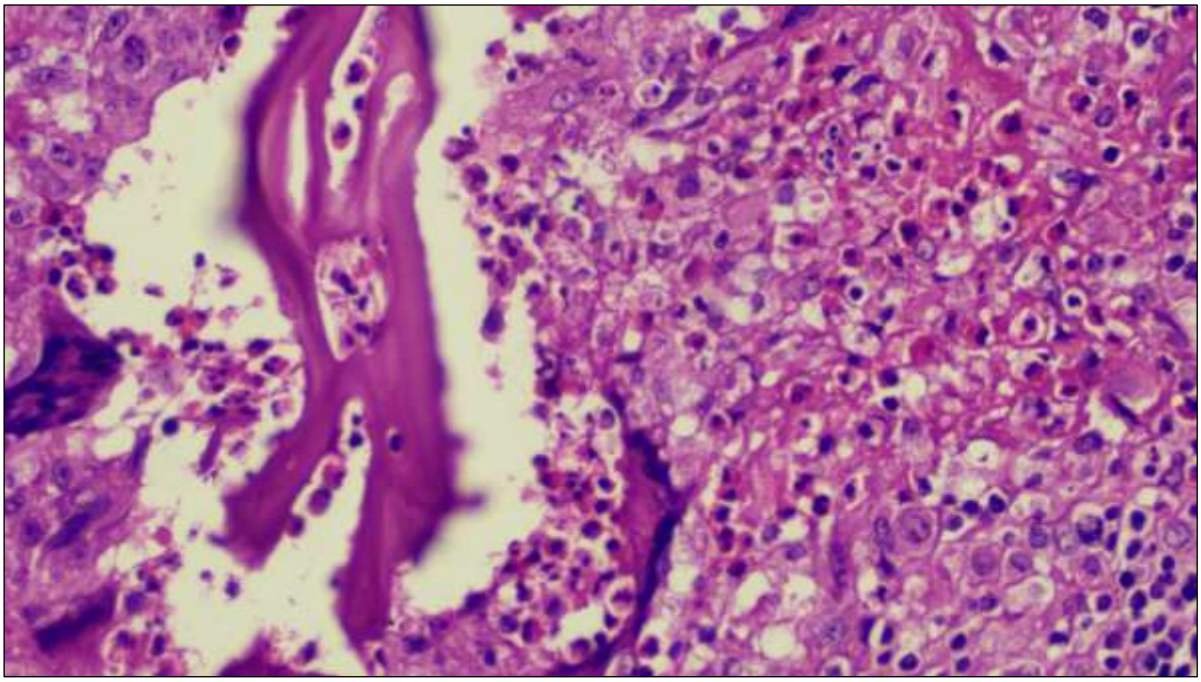

Fig. 6(H & E stain 40x) Degenerating parasitic fragments, with thick eosinophilic refractile cuticular wall.

DISCUSSION

Human dirofilariasis is a zoonotic infection caused mainly by *Dirofilaria repens*, transmitted by mosquitoes, with humans acting as accidental dead-end hosts (1,6). The disease is increasingly reported from endemic regions such as Kerala, likely due to favorable climatic conditions and a high prevalence of canine reservoirs (10).

Clinically, it commonly presents as subcutaneous nodules, often mimicking benign or malignant lesions. Unusual presentations involving sites such as the breast, orbit, and subconjunctival tissue have been described, posing diagnostic challenges (3,5,9). Such nonspecific presentations highlight the importance of considering parasitic infections in the differential diagnosis of nodular lesions in endemic areas.

Cytological examination can aid in diagnosis, with incidental detection of microfilariae in FNAC smears reported, although microfilaremia is uncommon in humans due to incomplete parasite maturation (2,4,7). Histopathology remains the gold

standard, demonstrating characteristic features such as a thick multilayered cuticle with longitudinal ridges and well-developed musculature, which are essential for species identification (2,8).

Recent reports indicate a widening geographic distribution of dirofilariasis, attributed to changing vector dynamics, climate factors, and increased animal movement (6,8). Management is primarily surgical, with complete excision being both diagnostic and curative, and antifilarial therapy is generally not required (3,5).

CONCLUSION

Dirofilariasis should be considered in the differential diagnosis of infraorbital or eyelid swellings, especially in endemic areas. FNAC can suggest granulomatous inflammation, but definitive diagnosis requires histopathology. Complete excision results in cure.

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