Alqalam Journal of Medical and Applied Sciences. 2025;8(4):2430-2432
https://doi.org/10.54361/ajmas.258447

Case report

Pleural Paragonimiasis in an HIV-Positive Patient with Tuberculosis: An Incidental Finding of Paragonimus westermani on Histopathology

Ali Masoud[1], Marey Alhajji[2], Rema Saad[1], Tareq Lehmidi[1]*, Warda Said[1]

[1]*Department of Pathology, Faculty of Medicine, University of Benghazi, Benghazi, Libya.*
[2]*Department of Medicine, Qefaria Chest Hospital, Benghazi, Libya.*
***Corresponding email**. tareq.lehmidi@uob.edu.ly*

Abstract
HIV, TB, and pleuropulmonary paragonimiasis co-infection is extremely rare and presents a significant diagnostic challenge due to superimposed clinical and radiological findings. Immunological suppression induced by HIV predisposes individuals to tuberculosis (TB) and concurrently suppresses the typical parasitic immune response, such as eosinophilia. Paragonimus westermani is the sole causative agent of human paragonimiasis, a disease endemic in Asia and Africa, predominantly transmitted through the consumption of raw or inadequately cooked freshwater crustaceans. We present the case of a 29-year-old Libyan male patient with a known history of HIV infection and established pulmonary TB. The patient is presented with chronic cough, weight loss, pyrexia, and pleuritic chest pain. Imaging showed chronic pleural effusion and thickening. While the patient was confirmed to have TB via GeneXpert, a VATS-guided pleural biopsy unexpectedly detected parasitic ova that are consistent with P. westermani. Histopathological diagnosis, utilizing special stains (Giesma), was essential as peripheral eosinophilia was not evident. The patient clinically improved following anti-tuberculous therapy, even though anti-parasitic therapy was not administered due to early discharge. This case highlights the importance of including parasitic infection in the differential diagnosis for unresponsive effusions in an immunocompromised host, particularly in endemic locations. Early histopathology and biopsy are valuable in unusual instances to prevent misdiagnosis and delayed treatment.
Keywords. HIV, Tuberculosis, Paragonimus Westermani, Pleural Effusion, Co-Infection.

Introduction

Paragonimiasis is a zoonotic foodborne infection in humans caused by trematodes of the genus Paragonimus, most frequently P. westermani. The infection primarily results from ingesting raw or improperly cooked freshwater crabs or crayfish [1]. Following penetration of the intestine, the larvae typically migrate through the peritoneal cavity and diaphragm to the lungs and pleura. The resulting symptoms, which often include hemoptysis, pleural effusion, cough, and chest pain, frequently mimic those of pulmonary TB [2,3]. In endemic areas, both symptomatology and imaging alone cannot differentiate paragonimiasis from TB. This diagnostic overlap is further complicated in HIV-positive individuals, as immunosuppression can modify classical presentations [4]. Histopathology, where parasitic eggs or worms are identified within granulomatous tissue, is a standard diagnostic approach following pleural biopsy [5]. The current case report describes a novel pleural manifestation of P. westermani in a TB-HIV co-infected individual, emphasizing the role of biopsy in cases of persistent effusion.

Case Presentation

A 29-year-old Libyan male from Sabha presented with chronic dry cough, night sweats, pleuritic chest pain, mild dyspnea, anorexia, and weight loss. During the period of his admission, we performed HIV testing using a rapid antibody test, and it was positive. In addition, the results were positive for pulmonary tuberculosis (TB) by using sputum GeneXpert testing. On examination, the patient appeared pale, conscious, and oriented. Auscultation revealed diminished breath sounds bilaterally with crepitus at the mid-zones, and heart sounds (S1, S2) were muffled. No peripheral lymphadenopathy or hepatosplenomegaly was noted.
Laboratory analysis revealed significant anemia with a hemoglobin level of 7 g/dL, an elevated Erythrocyte Sedimentation Rate (ESR), but a normal peripheral eosinophil count. A chest X-ray demonstrated left pleural effusions and marked flask-shaped cardiomegaly (Figure 1). Subsequent CT and MRI confirmed persistent bilateral effusions with pleural thickening, and echocardiography revealed a moderate pericardial effusion. Analysis of the pleural fluid showed an exudative pattern, a low lymphocyte-to-neutrophil ratio, and an absence of eosinophils. Given the persistent nature of the effusion, a VATS-guided pleural biopsy was performed.
Plural biopsy stained with H&E showed parasitic infestation with chronic granulomatous inflammation. We used special stains (Giemsa stain) to confirm the presence of P. westermani ova. (Figure 2&3). This finding was further supported by a stool analysis, which was also positive for P. westermani ova.
The standard anti-tuberculosis therapy (HRZE regimen) was initiated. However, anti-parasitic therapy was not administered due to the patient's early discharge. Liver enzyme elevation was noted during the period of TB treatment. The patient subsequently left the hospital against medical advice (AMA). At a two-month follow-up, the patient showed clinical improvement, with resolved pleural effusion and a stable CD4 count, and no recurrent symptoms were noted. Parasitic serology at this time was negative.

***Received**: 19-08-2025 - **Accepted**: 20-10-2025 - **Published**: 28-10-2025*

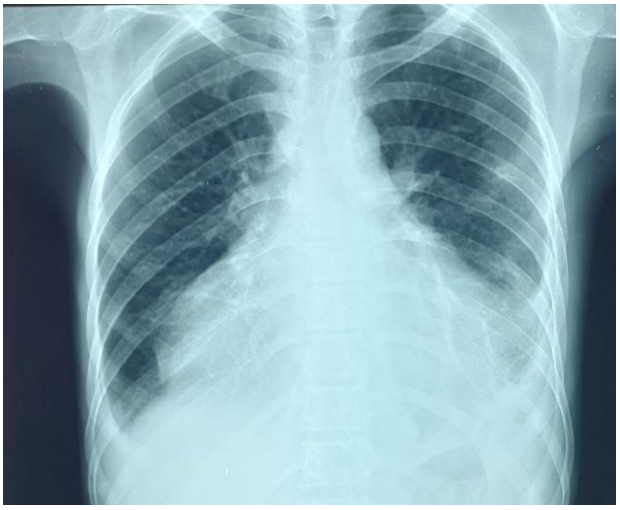

Figure 1. Chest X-ray PA view. Left Plural effusion with marked flask-shaped cardiomegaly

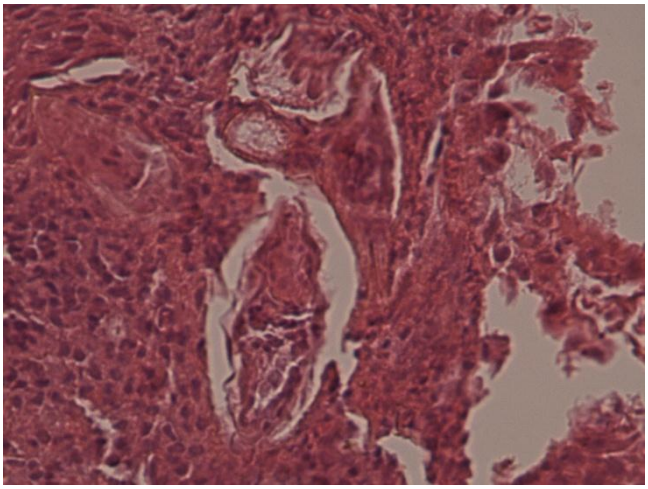

Figure 2. Pleural biopsy reveals p. westermani lung fluke within pleural tissue, x40 H&E stain

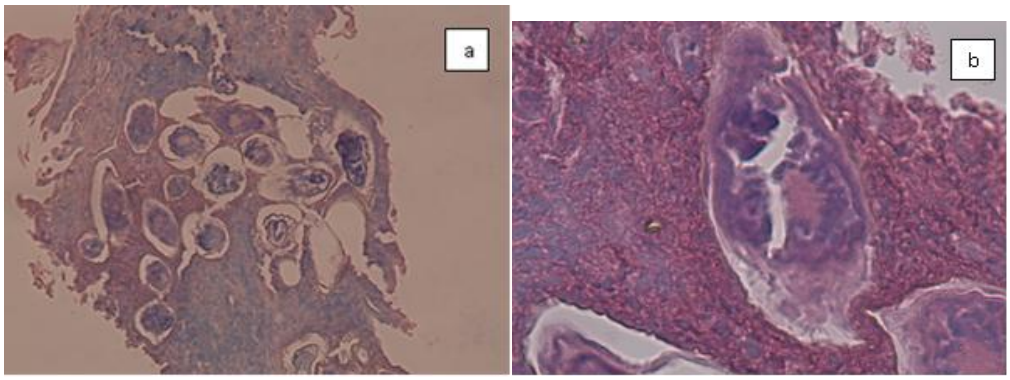

Figure 3. Pleural biopsy (a) multiple lung fluke infested within pleural tissue x20 Giemsa stain. (b) Central excretory bladder surrounded by vitellaria of lung fluke within a granulomatous inflammatory reaction, mainly eosinophil, x100 Giemsa stain

Discussion

Pleural paragonimiasis is often misdiagnosed as TB or malignancy due to the similarity of symptoms and the nonspecific nature of imaging findings such as nodules, effusion, or consolidation [3]. This diagnostic challenge is amplified in immunocompromised hosts, such as HIV-positive patients, where the classical eosinophilic response can be suppressed, delaying the diagnosis of parasitic infections [4]. The detection of P. westermani ova from histopathological sections with GMS staining remains the diagnostic gold standard [5]. In this case, the initial absence of pleural fluid eosinophilia and the normal peripheral eosinophil count prompted clinicians to initially attribute all the findings to TB.

The diagnosis of paragonimiasis in a Libyan patient with P. westermani adds an important epidemiological factor to this case. Paragonimiasis in Africa is primarily caused by Paragonimus africanus and Paragonimus uterobilateralis. The endemic foci are restricted to West and Central Africa (Nigeria and Cameroon). Detection of P. westermani, a species otherwise more commonly associated with Asia, suggests a potential

Received: *19-08-2025* - ***Accepted***: *20-10-2025* - ***Published***: *28-10-2025*

history of travel or points to a unique local transmission cycle of the species that is still not detected. While a direct report of the identical HIV/TB co-infection from an adjacent country is not readily available, a historical perspective on African paragonimiasis confirms the presence of the disease in the region by specifically referencing two earlier reports of paragonimiasis in Libya [6].

Most patients undergo unnecessary anti-tuberculosis treatment before the correct parasitic etiology is established, mostly surgically by lobectomy or biopsy, as in this case, performed by VATS-guided biopsy [6]. This parallel underscores the important role of tissue sampling in the event of atypical clinical response to standard TB treatment, or in the presence of repeated unexplained effusions, regardless of patient immune status. It was only through the use of a biopsy that the accurate dual diagnosis was established. While the treatment of paragonimiasis is typically praziquantel with a high cure rate, potential drug interactions with TB medications, particularly rifampicin, must be closely monitored [7,8]. In this specific instance, praziquantel was not administered due to the patient's premature discharge; fortunately, no recurrence was observed. Current literature stresses the role of tissue diagnosis in atypical or persistent effusions, particularly in HIV-endemic areas where there may be exposure to raw crustaceans [3,8].

Conclusion

This case effectively demonstrates the diagnostic challenge of pleural paragonimiasis co-existing with tuberculosis in an HIV-positive patient. It emphasizes the necessity of suspecting parasitic infections like P. westermani in patients from endemic regions who present with chronic pleural effusions that do not respond as expected to TB therapy. Histopathology continues to play a crucial role in establishing a definitive diagnosis, particularly in individuals with compromised immune systems.

Ethical Consent

Written informed consent was obtained from the patient for publication of the case report and accompanying clinical data. All efforts were made to anonymize the information and maintain confidentiality.

Conflict of interest. Nil

References

1. Centers for Disease Control and Prevention. Paragonimiasis - DPDx: Laboratory Identification of Parasites of Public Health Concern [Internet]. Atlanta: CDC; 2024 Jun 6 [cited 2025 Oct 05]. Available from: https://www.cdc.gov/dpdx/paragonimiasis/index.html
2. Weerakkody Y, Bell D, Deng F. Pulmonary paragonimiasis. Radiopaedia.org [Internet]. 2020 Jan 14 [cited 2025 Oct 05]. Available from: https://doi.org/10.53347/rID-19324
3. Luo J, Wang MY, Liu D, Zhu H, Yang S, Liang BM, et al. Pulmonary Paragonimiasis Mimicking Tuberculous Pleuritis: A Case Report. Medicine (Baltimore). 2016;95(15):e3436.
4. Sivaram M, White A, Radcliffe KW. Eosinophilia: clinical significance in HIV-infected individuals. Int J STD AIDS. 2012;23(9):635-8.
5. Rani SSS, Vamshidhar IS, John NA, John J. Diagnosis of Pleural Fluid Effusions by Cell Block and Pleural Biopsy - A Comparative Study. J Cytol. 2022;39(4):169-73.
6. Aka NA, Adoubryn K, Rondelaud D, Dreyfuss G. Human paragonimiasis in Africa. Ann Afr Med. 2008;7(4):153-62.
7. World Health Organization. Control of Foodborne Trematode Infections [Internet]. Geneva: WHO; 2021 May 21 [cited 2025 Oct 05]. Available from: https://www.who.int/news-room/fact-sheets/detail/foodborne-trematode-infections
8. Boonroumkaew P, Sadaow L, Janwan P, Rodpai R, Sanpool O, Thanchomnang T, et al. An immunochromatographic test using whole blood for rapid diagnosis of human paragonimiasis and its diagnostic usefulness. Food Waterborne Parasitol. 2024;37:e00246

Received: *19-08-2025* - ***Accepted***: *20-10-2025* - ***Published***: *28-10-2025*