Ascaris lumbricoides Emerging from a PleurX Draining Catheter: An Unexpected Diagnosis

Clinical Medicine Insights: Case Reports
Volume 18: 1–3
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DOI: 10.1177/11795476251315619

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ABSTRACT

INTRODUCTION: *Ascaris lumbricoides* is a common helminthic infection characterized by fecal-oral route of transmission. Commonly, it affects the gastrointestinal tract. However, in significantly rare cases, it can affect unexpected body regions, such as biliary tree, pancreas, and the lung.

CASE PRESENTATION: A 68-year-old female patient underwent PleurX tube insertion due to malignant pleural effusion. On the third week of insertion, she complained of itching and pain at the site of insertion, a grayish-white worm was visualized at the insertion site. Ascaris lumbricoides was identified by microbiological examination. She received 400 mg of albendazole.

CONCLUSION: Our case describes a rare clinical situation of pleural ascariasis, emphasizing the importance of remaining aware of this rare complication of ascariasis.

KEYWORDS: Ascariasis, PleurX, lung cancer, albendazole, case report

RECEIVED: June 19, 2024. **ACCEPTED:** January 8, 2025.

TYPE: Case Report

FUNDING: The author(s) received no financial support for the research, authorship, and/or publication of this article.

DECLARATION OF CONFLICTING INTERESTS: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Introduction

Ascaris lumbricoides, a large intestinal roundworm, is one of the most common helminthic infections worldwide, especially prevalent in regions with poor sanitation.[1] Female patients are more prone to ascariasis, due to progesterone-related effect including relaxation of sphincter of Oddi, which may allow the nematode to enter the biliary tree.[2] Ascarciasis infection can result in significant morbidity and is estimated to cause approximately 20 000 deaths yearly. Its lifecycle typically begins with the ingestion of eggs, following by migration through the lungs, and eventual residence in the intestines.

As the mode of transmission is fecal-oral route, adult worms can infect any site throughout the gastrointestinal tract, leading to variety of conditions such as biliary and intestinal obstruction, pancreatitis, and gangrene.[1] However, atypical presentations of *Ascaris lumbricoides* can occur, especially in immunocompromised individuals or those with concurrent medical conditions.[3]

In this case report, we present an exceedingly rare instance of *Ascaris lumbricoides* emerging from a PleurX draining catheter in a 68-year-old female patient with small cell neuroendocrine carcinoma. This unexpected finding underscores the complexity and potential complications associated with parasitic infections in patients with serious underlying health conditions. By reporting this case, we aim to contribute to the growing body of literature on atypical parasitic presentations and highlight the importance of considering parasitic infections in differential diagnoses.

Case Report

A 68-years-old female patient, recently diagnosed with small cell neuroendocrine carcinoma, presented to our emergency department with a history of gradually worsening shortness of breath associated with swelling in her face and both arms. Her shortness of breath was exacerbated by physical exertion and relieved with rest. The patient's medical history was remarkable for hypertension and chronic obstructive pulmonary disease.

On examination, her vitals signs were within normal ranges. General inspection showed plethoric face with a positive Pemberton sign. For further assessment, a computed tomography (CT) scan of the chest was performed, revealing severe stenosis along the entire course of the superior vena cava, accompanied by distal thrombosis with a left-sided pleural effusion (Figure 1).

As a result, a PleurX draining catheter was inserted to manage the pleural effusion, and the patient was urgently referred for radiotherapy of the superior vena cava. Three weeks post-catheter insertion, while receiving radiotherapy, the patient reported to complain of itching around the catheter insertion site. Examination of insertion site revealed an old dressing covering the site, with erythema of the underlying skin but no discharge or fluid collection. The area was cleaned with normal saline and a new dressing was applied.

Despite this management, the patient's symptoms did not improve, and her pain at the insertion site increased in severity. Upon inspection, the connection tube was opened, revealing a long, grayish-white worm emerging from the chest wall in a

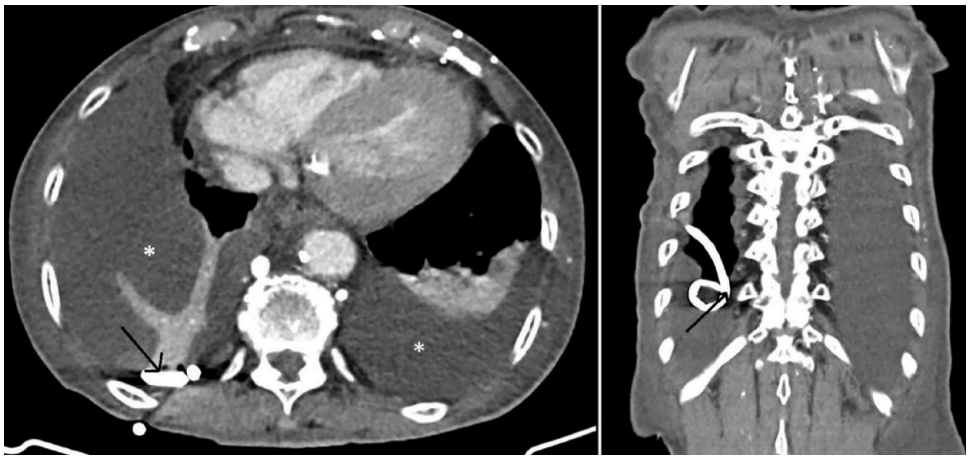

Figure 1. Selected axial (left) and coronal (right) cuts of contrast enhanced chest CT scan done for the patient demonstrating bilateral pleural effusions (asterisks) and the tip of a right sided PleurX tube (arrow).

Figure 2. (A) *Ascaris lumbricoides* worm emerging from the chest tube and (B) another view of the same worm in a tube.

zigzag and coiling movement. Based on its appearance, size (approximately 17 cm), and tapered ends, the worm was identified as a female *Ascaris lumbricoides* (Figure 2). The patient was treated with 400 mg albendazole orally.

Following her radiotherapy course, the patient has no further complications and was discharged home with the PleurX catheter in place, as her pleural effusion, secondary to the underlying malignancy, was expected to persist long-term.

Discussion

This case report presents an unusual presentation of *Ascaris lumbricoides* in a patient with significant comorbidities, including small cell neuroendocrine carcinoma, hypertension, and chronic obstructive pulmonary disease. The patient presented with progressively worsening shortness of breath, facial swelling, and bilateral arm swelling. Initial evaluation revealed severe stenosis of the superior vena cava and a left-sided pleural effusion, leading to the insertion of a PleurX draining catheter. Three weeks post-insertion, the emergence of *Ascaris lumbricoides* from the catheter was an unexpected and rare finding. Our case underscores the importance for healthcare providers to maintain a wide differential diagnosis when evaluating patients with unusual symptoms, particularly those with inserted medical devices. The patient's persistent itching and pain at the catheter insertion site, despite routine wound care, necessitating further investigation that led to the identification of the worm.

The emergence of *Ascaris lumbricoides* from the catheter could be attributed to several factors, including the patient's immunocompromised state due to malignancy, the presence of the catheter as a potential route for the parasite, and poor wound care by the patient's caregiver. Immunocompromised patients are at increased risk for atypical infections, and their presentations can often deviate from the norm.[4] Moreover, the patient's underlying small cell neuroendocrine carcinoma and its treatment may have predisposed her to this unusual presentation. The immunosuppressive effects of cancer and its therapies can facilitate the migration and survival of parasites outside their typical environment. This case highlights the importance of considering parasitic infections in patients with cancer, particularly when they present with unusual or persistent symptoms.[4]

Radiological imaging has an important role in the initial assessment of such patients. Imaging is essential in the management of such complex cases, providing critical information for diagnosis and treatment planning. Management of the patient included the administration of albendazole, as a gold standard treatment. Albendazole is an anthelmintic drug effective against *Ascaris lumbricoides* by inhibiting the glucose uptake by the parasite, leading to energy depletion and eventual death of the worm.[5] The treatment resolved the patient's symptoms and prevented further complications.

Previous reports have documented the migration of *Ascaris lumbricoides* to unusual sites such as the biliary tract, gallbladder, and pancreas, which causing complications like biliary colic, cholecystitis, and pancreatitis.[6-8] However,

pulmonary ascariasis is extremely rare. In 2010, Lone et al. reported a case of *Ascaris lumbricoides* worm emerging through a chest tube in a pediatric patient with a history liver abscess ruptured in pleural space.[9] As our case, the patient was also presented with unusual presentation and treated with albindazole. Other case reported by Elhadidy et al. revealed an *Ascaris lumbricoides* worm emerging from a pleural needle biopsy.[10] In our case, it was not really clear how the worm reached the patient lungs, however, determining the source of the AL infection was not our primary goal, as we focused on the treatment.

In conclusion, this case of *Ascaris lumbricoides* emerging from a PleurX catheter in a patient with small cell neuroendocrine carcinoma highlights the importance of considering parasitic infections in differential diagnoses, particularly in immunocompromised patients. It also underscores the necessity for thorough investigation and appropriate management to prevent complications. This report adds to the growing body of literature on atypical parasitic presentations and aims to raise awareness among healthcare providers about the potential for unusual manifestations of common infections.

Conclusion

Our case illustrates a rare case of pleural cavity Ascariasis causing local symptoms and unexplained pain, which was treated with oral albendazole. This highlights the importance of worm mobility in causing infection at unusual sites.

Author Contributions

A. Sabateen conceived the idea, A. Sabateen collected data, H. Arafat analyzed the data, H. Arafat and H. Abdul-Hafez wrote the original manuscript, all authors approved the final manuscript.

Informed Consent

Written informed consent was obtained from the patient.

Consent for Publication

Written informed consent was obtained from the patient's legal guardian for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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