CASE REPORT: TRICHOMONAS EMPYEMA WITH RESPIRATORY FAILURE

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Abstract. Pulmonary trichomoniasis is rare, and few cases of trichomonas empyema have been reported in the literature. We describe a rare case of a non-immunocompromised 55-year-old man with Trichomonas empyema presenting with bilateral pleural effusion leading to respiratory failure. Examination of the pleural effusion showed numerous motile organisms by fresh wet preparation that were identified as Trichomonas species by Liu stain. The patient was successfully treated with metronidazole, ampicillin/clavulanate, fibrinolytic therapy, and thoracotomy decortication.

INTRODUCTION

Humans are the host of three different Trichomonas species: the genitourinary Trichomonas vaginalis, the intestinal Trichomonas hominis, and the oral Trichomonas tenax.1 They can be distinguished by morphology, serology, epidemiology, and culture.2,3 Few case reports have appeared describing trichomonads in the respiratory tract. T. tenax may appear in the oral cavity associated with poor dentition and hygiene and is generally harmless to humans. Pulmonary trichomoniasis is rarely reported and usually is caused by aspirated T. tenax. Few very cases of trichomonas empyema have been reported. Herein we report a case of empyema co-infected with Trichomonas species and nutritionally variant Streptococcus.

CASE REPORT

A 55-year-old man with albinism was admitted to En-Chu-Kong Hospital, Taipei county, Taiwan, with a history of fever and productive cough for 10 days before admission. His history was significant for smoking one pack of cigarettes per day, consuming > 600 mL of alcohol per day for 30 years, and reported oral-vaginal sexual relations with a prostitute for several years. He denied any medical problems, past medical history, or history of choking or trauma in recent months.

Physical examination revealed the patient to be alert and oriented, although irritable. Vital signs were as follows: temperature = 39.4°C, blood pressure = 109/64 mm Hg, heart rate = 139 beats/min, and respirations = 30 breaths/min. Dullness on percussion and decreased breathing sounds were noted over his right chest. Abdominal examination was unremarkable. Laboratory studies were as follows: hemoglobin = 12.4 g/dL, hematocrit = 36.1%, platelets = 469,000/mm³, and white blood cell count (WBC) = 37,500/mm³ (neutrophils, 86.9%; lymphocytes, 2.6%; monocytes, 7.6%; bands, 0.6%). HIV test was negative. Initial chest x-ray showed a moderate amount of right pleural effusion with elevation of the right hemidiaphragm and blunting of right costophrenic angle (Figure 1). Pus-like fluid was removed from the right chest cavity by thoracentesis, and a chest tube was inserted for drainage. His condition, however, deteriorated, and endotracheal intubation and mechanical ventilation were applied because of impending respiratory failure. Examination of the pus-like pleural effusion revealed 580,000 red blood cells (RBC)/mm³ and 366,000 WBC/mm³ (5% mononuclear cells, 95% polymorphonuclear leukocytes). Numerous motile, flagellated protozoa were identified in a wet preparation of the fluid. The organisms were subsequently identified as Trichomonas species in a Liu-stained smear (Figure 2). Microbial culture of the fluid grew nutritionally variant Streptococcus that was susceptible to penicillin, erythromycin, ampicillin, clindamycin, gentamicin, cefazolin, minocycline, ceftriaxone, and vancomycin. Acid-fast stain and Mycobacterium culture were negative. The patient was treated with intravenous metronidazole, 500 mg, IV, every 8 hours, and ampicillin/clavulanate, 1.25 g, IV, every 8 hours.

Five days after admission, chest computed tomographic (CT) scan showed bilateral pulmonary consolidation with extensive, loculated pleural effusions (Figure 3). Fibrinolytic therapy with urokinase was administered through the right side chest tube, and the organized effusion resolved. The left side pleural effusion persisted, and thoracocentesis confirmed the existence of empyema. Chest tube thoracotomy failed to resolve the effusion, and video-assisted thoracoscopic decoration with chest tube drainage was performed, and fibrinolytic therapy with urokinase was instituted. No flagellates or bacteria were found in the left side pleural effusion.

The patient’s temperature declined gradually, and the ventilator was successfully weaned after 3 weeks of treatment. Follow-up chest x-ray showed clearing of both pleural effusions. Work-up for a possible esophagopleural fistula (barium contrast esophagram) or subphrenic abscess (abdominal CT scan) was negative. The patient was discharged after 14 days of metronidazole and 28 days of amoxicillin/clavulanate treatment and remained in good health after discharge. HIV status remained negative at follow-up 6 months after discharge.

DISCUSSION

Trichomonas tenax is usually regarded as a harmless commensal of the human mouth, and infection is spread through saliva, kissing, or contaminated dishes. Additionally, T. tenax is typically found in the oral cavity in individuals with poor oral hygiene (existing in the crevices of caries) and opportunistically in disease processes near the oral cavity including sinusitis, tonsillitis, esophagitis, jaw abscesses, pneumonia, empyema, lymphadenitis, and cancer of the tongue. Pulmonary trichomoniasis is usually caused by aspirated T. tenax, and most of patients have underlying diseases such as AIDS, diabetes mellitus, asthma, systemic lupus erythematosus,
cancer,\textsuperscript{11,12} or chronic alcohol abuse.\textsuperscript{13,14} The protozoa feed on bacteria, and trichomonas infection usually includes oral or respiratory bacteria (eg, Streptococcus constellatus,\textsuperscript{1} Hemophilus parainfluenzae,\textsuperscript{7} Mycobacterium tuberculosis,\textsuperscript{8} Pneumocystis carinii).\textsuperscript{6} Our patient’s co-infection was with nutritionally variant streptococci, which are found as a normal flora of the upper respiratory, urogenital, and gastrointestinal tracts of humans.\textsuperscript{15}

A Russian study showed pulmonary trichomoniasis in 19 of 112 patients (17\%) with lung cancer, lung abscess, or bronchiectasis.\textsuperscript{16} Trichomonad infection of the pleural cavity is very rare, with only 14 cases of trichomonas empyema reported in the literature: 6 cases from the United States,\textsuperscript{1,5,11,14,17,18} 3 from France,\textsuperscript{7,19,20} 2 from Japan,\textsuperscript{12,21} and 1 each from Thailand,\textsuperscript{10} Russia,\textsuperscript{16} and Yugoslavia.\textsuperscript{13} T. tenax and co-infection with anaerobic bacteria were identified in most instances.\textsuperscript{11,12,14,17,21} Rarely, pulmonary trichomoniasis with T. hominis may be caused by an enteropleural fistula, subphrenic abscess, or empyema.\textsuperscript{8} T. vaginitis has been isolated from the respiratory tract of infants and the tracheal aspirate of newborn babies with neonatal pneumonia\textsuperscript{22} and has been implicated as a respiratory pathogen in a patient with the history of orogenital sexual practice.\textsuperscript{23}

The significance of trichomonads in the respiratory tract of humans remains unclear; however, despite the rarity of pulmonary trichomonas infection, it should be included in the differential diagnosis of respiratory tract infections, especially in light of the simplicity of fresh wet specimen microscopic examination. The presence of trichomonads in a diseased host does not imply the organism is a causative factor; however, numerous flagellates may aggravated a poor general condition and prolong the duration of the illness. Most reported cases of pulmonary trichomonas have been treated with metronidazole with good response. In instances where fatalities have been reported, infection with Mycobacterium tuberculosis\textsuperscript{8} and advanced systemic lupus erythematosus\textsuperscript{10} were considered to be the primary cause of death.
The etiologic aspects of trichomonas in humans remains uncertain, and until the pathogenic role of trichomonads in the human respiratory tract is resolved, metronidazole should be administered to individuals in whom trichomonads are identified.

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REFERENCES