animals [9,10], and has been related to the toxic effects of therapy (glucantime) in rats or to Leishmania itself in dogs. To our knowledge no relationship has been established between leishmaniasis and thyroid function in humans, with or without HIV disease. In this report we suggest a possible linkage between thyroid and visceral leishmaniasis in a patient affected by advanced AIDS.

The patient showed subclinical hypothyroidism (TSH levels increased and FT4 levels in the normal range) related to acute visceral leishmaniasis. Thyroid involvement was confirmed by thyroid needle biopsy (showing amastigotes outside and inside macrophages) and by ultrasound scan.

At the time of the diagnosis of visceral leishmaniasis, the patient was not taking HAART and was not administered glucantime, thus his hypothyroidism was not referable either to antiretroviral therapy or to the toxic effect of glucantime. Moreover, we were able to exclude autoimmune diseases or further infections as cause of thyroiditis. Thyroid function recovered when visceral leishmaniasis was cured.

In this case subclinical hypothyroidism might have been caused by a direct thyroid infiltration of Leishmania donovani amastigotes inducing follicular atrophy. This bioptic finding is in agreement with that shown by other authors in dogs [10]. The role of HIV may be associated with an additive immunosuppressive effect on cell-mediated immunity already compromised by leishmaniasis or by suppressing thyroid function [1,2].

References


Pseudomembranous tracheobronchitis caused by Aspergillus in immunocompromized patients

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Abstract

We report 2 cases of Aspergillus pseudomembranous tracheobronchitis in patients with diabetes. The first patient succumbed to progressive obstructive respiratory failure despite mechanical ventilation and antifungal therapy. However,
the second patient survived. Aspergillus tracheobronchitis should be considered in immunocompromized patients presenting with cough, chest pain, fever, dyspnea and upper airway obstruction. Early bronchoscopy and histologic examination should be performed. Early, appropriate treatment may be life saving.

Introduction
In the human respiratory tract, Aspergillus can behave as a saprophyte, an allergen, or an infectious agent, depending on the host immune status [1–3]. The spectrum of aspergillosis includes saprophytic colonization, allergic bronchopulmonary aspergillosis, bronchocentric aspergillosis, mucoid impaction, obstructing bronchial aspergillosis, and tracheobronchitis [1,2]. Pseudomembranous tracheobronchitis caused by Aspergillus is a rare and lethal variant of invasive aspergillosis. It has been reported in a few series of patients with lymphoma, AIDS, bone marrow transplant, or treatment with broad-spectrum antibiotics or steroids [4–6]. We report 2 patients with Aspergillus pseudomembranous tracheobronchitis. To our knowledge, this is the first report in patients with diabetes.

Case reports
Patient 1
A 45-y-old female was admitted complaining of retrosternal chest pain for 1 week and cough and shortness of breath for 4 days. She was a non-smoker and had had diabetes mellitus for 3 years without regular treatment. She had had 2 previous hospitalizations for liver abscess, treated with segmentectomy and CT-guided aspiration, 10 months and 8 months previously. One week prior to admission, she suffered from intermittent cramping retrosternal pain. Three days later, she developed a productive cough with tenacious sputum. Sometimes she coughed so hard that she felt short of breath.

On admission, she looked ill and slightly tachypneic with a respiratory rate of 22 breaths per min, pulse 153 beats per min, blood pressure 176/101 mmHg, and temperature 36.7°C. She had no evidence of sinusitis, oral thrush, or ulcers. She had a few crackles in both lungs. Chest X-ray was normal. The arterial blood gases (ABG) on nasal oxygen at 2 l/min were pH 7.338, PaCO₂ 14.9 mmHg, PaO₂ 134.1 mmHg, and HCO₃ 7.8 meq/l. The white blood cell (WBC) count was 21,700/µl with 4% bands, 73% neutrophils, 6% lymphocytes, 3% eosinophils, 10% metamyelocytes, and 4% myelocytes. Serum glucose was 825 mg/dl and acetone 2 plus. Her calculated serum osmolality was 317.83 mosm/kg. The anion gap was 22.2 meq/l. The admitting diagnoses were diabetic ketoacidosis and possible sepsis, and she was managed with rehydration, human regular insulin and empirical antibacterial therapy for a possible respiratory tract infection.

On the next day, she became febrile and developed intermittent wheezing. Bronchodilators and mucolytics were given by inhalation and intravenous corticosteroids were prescribed. However, the wheezing and tenacious sputum persisted. Occasionally, there was stridor.

Chest CT showed multi-focal, irregularly shaped opacities in both lung bases (predominantly in the left lower lobe), a relatively thickened tracheal wall with an irregular inner surface in the lower 1/3 of the trachea and narrowing of the proximal portion of both mainstem bronchi, associated with pericarinal infiltration of the soft tissue. Bronchoscopic examination, performed on day 5, disclosed a hyperemic, edematous trachea with a creamy white, exophytic lesion on the anterior wall of the middle third of the trachea about 8 cm from the vocal cords. The lesion partially occluded the trachea. A pseudomembrane adhered to the distal trachea down to the carina. There was diffuse tracheobronchitis (Figure 1A).

Using forceps, parts of the exophytic lesion and pseudomembrane were removed and bronchial brushing was performed. Pathologic examination of the biopsy material disclosed Aspergillus organisms with septate hyphae branching at 45° (Figure 2A). Fungal culture yielded no growth in 6 weeks. Blood cultures and sputum smears for acid-fast bacilli were negative. Cytologic examination of the bronchial brushings was negative for malignant cells. Sinus X-ray revealed no significant abnormality.

When the biopsy results became available on hospital day 9, parenteral amphotericin B was started at a dose of 1mg/kg/d. Four days later, oral itraconazole was added at a dose of 5 mg/kg twice a day. Her fever, cough and chest pain gradually improved, but the wheezing continued periodically.

On day 15, a repeat bronchoscopic examination revealed multiple protrusions on the anterior wall of the distal trachea, and the pseudomembrane was thicker than previously, extending into both the right and left mainstem bronchi. The right mainstem and left upper lobe bronchi were completely occluded by granulation tissue (Figure 1B). Parts of the pseudomembrane were removed with forceps, after which the patient gradually improved.

However, 5 days later, she developed a sudden attack of severe bronchospasm and acute obstructive respiratory failure. ABG results on bag ventilation.
revealed hypoxic respiratory acidosis. The patient was intubated and ventilated mechanically. A chest X-ray showed increased patchy opacification in the right lung and left hilar region. Despite increasing the peak inspiratory pressure and positive end-expiratory pressure, the patient had increased airway pressure and low tidal volume and minute ventilation. Emergency bronchoscopy was performed 5 h after intubation, revealing complete occlusion of the right mainstem bronchus and partial occlusion of the left. We tried positioning the endotracheal tube in the left lower lobe bronchus but failed. The patient developed a fever to 40.5°C and was hemodynamically unstable. The WBC count was 23,520/µl with 8% bands and 87% neutrophils. Despite mechanical ventilation, 13 days of amphotericin B, piperacillin/tazobactam, and amikacin, her clinical course continued downhill. On the 22nd hospital day, she died of ventilatory failure and septic shock.

**Patient 2**

A 50-years-old female presented with a non-productive cough, right-sided chest pain, and fever intermittently for 1 month. She was a non-smoker. She had no known history of diabetes but was diagnosed with it on this admission. On initial examination, she appeared ill and was febrile (38.2°C). Crackles were heard in the right middle lung field. The WBC count...
was 7000/µl with 73% neutrophils and 17% lymphocytes. Chest X-ray showed a mass with a cavity in the middle lung zone. Chest CT revealed right middle lobe consolidation with a cavity and a nodule in the right upper lobe (Figure 1D). The sputum was negative for acid-fast bacilli. She was initially treated with anti-tuberculosis agents but did not improve. Bronchoscopy revealed total occlusion of the right middle lobe orifice by submucosal inflammation. Several white plaques adhered to the bronchus intermedius medially (Figure 1C). An echo-guided percutaneous biopsy of the lung mass was also performed. Pathologic examination of specimens both from this procedure and the bronchoscopy disclosed Aspergillus hyphae (Figure 2B). Cytologic examination was negative for malignant cells. Parenteral amphotericin B was started at a dose of 1 mg/kg/d on hospital day 10 when the results of the biopsy were available. Ten days later, the patient had improved clinically and was discharged with oral itraconazole 200 mg twice daily.

Discussion

Aspergillus has emerged as the leading cause of death from infectious fungal organisms in the immunocompromized host [7]. Invasive disease of the airways due to infection with Aspergillus is uncommon, occurring in only 15 (6.9%) of 217 reported cases of intrathoracic aspergillosis. It has been reported in both transplant and non-transplant immunocompromized patients [8]. Our patients’ uncontrolled diabetes mellitus suggests that they were immunocompromized and thus at risk of invasive aspergillosis (IA).

About 90% of IA involves the upper and lower respiratory tracts [9], with the lung parenchyma most commonly affected. Pseudomembranous tracheobronchitis is a rare form of the infection. In 1 series, at least 13 (26%) of 50 cases of tracheobronchitis were described as “pseudomembranous”. However, the degree of membrane formation on histopathologic examination has varied from focal areas of fibrin formation to a thick, obstructing carpet of necrotic debris throughout the bronchial tree [8]. Airway obstruction may progress rapidly because of enlarging aspergillomas, a situation similar to multiple foreign bodies in the airway [8,9]. Death occurs as a result of direct intrathoracic invasion and subsequent dissemination or, less commonly, from airway obstruction by pseudomembranes or mucoid impaction [8]. Our first patient had airway compromise that appeared to be due to both pseudomembranous and granulomatous obstruction, with subsequent acute obstructive respiratory failure and death. However, patient 2 had

Figure 2. (A): Photomicrograph of the tracheobronchial pseudomembrane of patient 1 showing Aspergillus organisms with branching at 45° and septate hyphae (PAS stain, original manifestation ×100). (B): Photomicrograph of the tracheobronchial pseudomembrane of patient 2 showing Aspergillus organisms with branching at 45° (PAS stain, original manifestation ×200).
obstruction in only the right middle lobe orifice and to a much lesser degree than patient 1. Her respiratory function was adequate to allow time for the infection to be resolved by antifungal agents.

Patients with pseudomembranous tracheobronchitis present with fever, dyspnea, cough, and wheezing. Death reportedly ensues between 1 and 6 weeks after presentation [10]. Our first patient presentation was typical, and she died of respiratory failure within 4 weeks of presentation. The second patient had cough, chest pain and fever for 1 month, but had less severe dyspnea and less severe obstruction on bronchoscopy. Our experience with these two patients suggests that airway obstruction may be the cause of death in this infection.

Bronchoscopic examination may reveal varying degrees of mucosal erythema and edema, with 1 to multiple ulcerative lesions and occasionally exophytic nodules or plaque-like lesions [8]. Rarely, there is a pseudomembrane and bronchocentric granuloma formation. A less common form of infection is local plaque formation with elements of peribronchial invasion and microabscesses [11]. Our patients had the rare concurrence of pseudomembranous tracheobronchitis and bronchial obstruction by granulation tissue. These findings should have alerted us to the possibility of IA.

IA remains an under-diagnosed disease that often has an insidious onset but a fatal outcome [12]. Excluding patients with hematoletic malignancies or cancer, the incidence of proven or probable IA is 3.7% [13]. The mortality exceeded 90% and was much higher than predicted by the SAPS II score [13]. In both of our cases, other diagnoses were considered initially and it was only after biopsy results were available that we correctly identified the infection and instituted appropriate treatment. This proved adequate in the second case, but the first patient succumbed.

Optimal treatment of Aspergillus tracheobronchitis remains problematic. Early diagnosis and appropriate treatment are crucial to reduce mortality [14]. Only conventional amphotericin B and voriconazole are licensed for primary treatment of IA [14]. Antifungal agents may be helpful in treating the patient with normal immune systems, but their value in treating immunocompromized patients is uncertain [15].

Amphotericin B is still considered the first-line agent for this infection [7–9], although itraconazole is well described in the primary and adjunctive treatment of fungal infection [16]. However, in critically ill patients, the gastrointestinal absorption of this agent is uncertain. Enteral feeding and the common use of stress ulcer prophylaxis may also interfere with the bioavailability ofazole-based antifungal therapy [16]. For our second patient, we used parenteral amphotericin B initially, switching to oral itraconazole only when her condition improved. Despite administering both agents to the first patient, her infection did not respond. This poor result might have been due to antagonism between amphotericin B and itraconazole [17], the unpredictable bioavailability of itraconazole and/or resistance of the organism to amphotericin B [14]. Voriconazole is better than amphotericin B and may be the best alternative for IA [18].

Glucocorticoids not only cause immune dysfunction that may contribute to IA but they can also induce alteration in the biology of Aspergillus species, enhancing the fungus’ fitness to cause disease [19]. Our use of steroids before the diagnosis was made in the first case may thus have contributed to the progression of the infection.

In conclusion, the diagnosis of pseudomembranous tracheobronchitis caused by Aspergillus remains a major problem. We should have a high index of suspicion for this rapidly evolving entity when an immunocompromized patient presents with fever, cough, wheezes and progressive respiratory failure. Early bronchoscopic examination should be performed and appropriate treatment instituted immediately.

References

Eristalis tenax as a cause of urinary myiasis

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Abstract

Eristalis tenax, belonging to order Diptera, family Syrphidae seldomly causes intestinal myiasis. Urinary myiasis caused by Eristalis tenax larvae is a rare manifestation found in both humans and other vertebrated animals. We report a 58-y-old woman presented with painful mixing and bilateral costo-lumbal pain. The larva in her urine sample was identified as Eristalis tenax related to its typical morphology.

Introduction

Myiasis is the infestation of diptera larvae in humans and other vertebrated animals. Diptera flies cause obligatory, facultative and accidental myiasis due to the degree of their parasitism. Eristalis tenax (order Diptera, family Syrphidae) has a worldwide distribution and is classified as accidental myiasis agent. Contamination occurs with water, raw or undercooked food or when flies lay their eggs directly on body parts [1,2].

Third stage larva of E. tenax (23–25 mm) has eight pairs of pseudolegs (prolegs) on its ventral side. The posterior stigma is at the end of a retractile respiratory tube which is 15 mm long [3].

In this case report, we present a patient who was admitted to the urology outpatient clinic of Ankara Numune Training and Research Hospital and was diagnosed as myiasis caused by E. tenax at Ankara University School of Medicine, Department of Parasitology.

Case report

A 58-y-old woman was admitted to our hospital in June 2004, with painful and urgent mixing and bilateral costo-lumbal pain upon emitting a larva in her urine. The patient noted that she had seen other larvae in her urine 10 days prior to her admission to the hospital. She told that she had felt the movements of larvae before emitting, and she added that the larvae were alive when first emitted. Her past history revealed that she had received antibiotics for recurrent urinary tract infections during the last four years. We learned that her...