A 29-year-old male presented with fevers, chills and induration of submental area. Cultures from the neck abscess grew Aspergillus fumigatus. Laboratory evaluation for possible immunosupression, including HIV, immunoglobulin and complement studies were within normal limits. Overall, he received four weeks of antifungal therapy until symptoms resolved. This case signifies physicians should always consider aspergillosis in patients with non-healing cutaneous infections even if they are immunocompetent.

Introduction

Aspergillus is the culprit for a variety of diseases processes, ranging from hypersensitivity diseases to invasive infections. It is primarily known to infect severely immunocompromised such as patients with chemotherapy-induced neutropenia and transplant patients (Vennewald and Wollina, 2005; Bernardeschi et al., 2015). There is a known correlation between immunocompromised patients and Aspergillus infections, however there is limited data regarding invasive aspergillosis infections in immunocompetent patients. We present a case of a primary cutaneous aspergillosis abscess in the sub-mental area in an immunocompetent patient (see Fig. 1).

Case

A 29-year-old male laboratory technician, without significant medical or family history presented with neck swelling, fevers and chills for one week. Four weeks prior to presentation he developed a skin rash in the same area which he attributed to contact with a new guinea pig. One week prior to the presentation he noted neck swelling. His primary care physician prescribed a course of doxycycline which did not improve his symptoms. Physical examination on presentation to the hospital was remarkable for diffuse swelling, erythema and indurated areas in the sub-mental area of the patient’s neck. Laboratory evaluation revealed leukocytosis of 18.2. CT of the neck revealed cellulitis without signs of abscess formation. The patient was treated for cellulitis with vancomycin and piperacillin-tazobactam with decrease in the fever curve. Erythema, induration and leukocytosis however persisted.

On day three of hospitalization, a small abscess formed for which incision and drainage was performed yielding a small amount of purulent serosanguinous fluid. Cultures from the abscess showed pure mold growth. Repeat cultures were collected. The patient was started on micafungin with de-escalation of antibiotic therapy to ceftriaxone and clindamycin. The patient displayed clinical improvement, with reduced erythema, edema and leukocytosis. After final cultures grew Aspergillus fumigatus, voriconazole was begun. Due to a severe skin allergic reaction to voriconazole, in the form of a maculopapular rash, the patient was subsequently started and discharged on isavuconazonium. Laboratory evaluation for possible immunosupression, including HIV, immunoglobulin and complement studies were all within normal limits.

At his two-week follow up visit the patient demonstrated significant improvement with nearly complete resolution of erythema and swelling. Areas of induration, however, persisted and the patient was prescribed two additional weeks of isavuconazonium therapy.

Discussion

Cutaneous invasive aspergillosis is a common finding in immunosuppressed patients, however there are few cases in immunocompetent patients. The presence of violaceous macules, papules, plaques, nodules, pustules, subcutaneous abscesses along with ulcerations with central necrosis are commonly seen in
patients with invasive aspergillosis. Common affected areas include the axilla, upper extremities, upper chest, external auditory canal, and skin lesions associated with paranasal sinusitis infection. To our knowledge, there are no reported cases of primary cutaneous aspergillosis with abscess formation in the submental area in an immunocompetent patient (Lakhanpal et al., 2000; Samal et al., 2016; Sharma et al., 2013; Chaturvedi et al., 2018; Liu et al., 2017; Cunningham et al., 1988; Khatri et al., 2000). Our case demonstrates the consequences of a breach in the skin barrier as a possible risk factor for aspergillus infection.

Treatment strategies for invasive cutaneous aspergillosis include the use of potent antifungal agents along with surgical excision. Pathogen identification at a species complex level is strongly recommended. Antifungal susceptibility testing is becoming more commonly used, especially in the geographic areas with high incidence of resistance and is useful in patients with suspected resistance. As cutaneous lesions may reflect disseminated infection, it is recommended to follow the treatment guidelines for invasive aspergillosis. Voriconazole is the preferred agent for first-line treatment of aspergillosis. Alternative treatments for invasive aspergillosis include isavuconazonium and liposomal amphotericin B. Echinocandins as a first line treatment are not recommended, but can be used in combinations with voriconazole or in the settings in which azole and amphotericin B are contraindicated (Latgé and Chamilos, 2019; Patterson et al., 2016; Ullmann et al., 2018).

Cutaneous invasive aspergillosis in an immunocompetent patient is a rare entity; this case signifies physicians should always consider aspergillosis in patients with non-healing cutaneous infections even if they are immunocompetent. More research is necessary to determine other causal relationships when infection occurs in an immunocompetent host.

Ethics approval
No applicable for case reports at our institution.

Consent to participate
Patient gave his informed consent for photography and for the publication.

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Declaration of Competing Interest
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