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Case Study

Fungal Mass in the Neck and Mediastinum

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ABSTRACT

This case study delineates the manifestation, diagnostic assessment, and treatment of an uncommon instance of a fungal mass affecting both the neck and mediastinum. Such occurrences in these anatomical sites are infrequent and present diagnostic complexities, requiring a collaborative effort across various medical specialties to ensure precise diagnosis and effective patient management. The document underscores the significance of contemplating fungal causes in patients with unusual clinical displays, stressing the imperative of conducting a thorough diagnostic appraisal and prompt intervention for optimal outcomes. By illuminating the challenges encountered and the strategies employed in managing this atypical case, the report serves as a valuable resource for healthcare professionals, advocating for a vigilant approach towards recognizing and addressing fungal etiologies in similar clinical scenarios.

Introduction

Fungal infections causing masses in the neck and mediastinum are rare occurrences in clinical practice, presenting diagnostic dilemmas and therapeutic complexities. Despite their infreque-ncy, these cases demand careful consideration due to the potential for delayed diagnosis and treatment. This report delves into a specific instance of a fungal mass situated in the neck and mediastinum, aiming to emphasize the critical need for including fungal etiologies in the differential diagnosis of such uncommon presentations[1-5].

The intricate nature of fungal masses in these anatomical regions necessitates a multidisciplinary approach involving various medical specialties to ensure accurate diagnosis and optimal patient care. While fungal infections may not be the pri-mary consideration in routine clinical assessments of neck and mediastinal masses, overlooking their potential presence can result in significant delays in appropriate management. Thus, this case serves as a poignant reminder of the importance of maintaining a high index of suspicion for fungal involvement, particularly in cases where the clinical presentation deviates from the typical patterns observed with more common etiologies[6-10].

Throughout this report, we will elucidate the presentation, diagnostic workup, and management of the aforementioned case, shedding light on the challenges encountered and the strategies employed in navigati-ng this complex clinical scenario. By providing a comprehensive ove-rview of the diagnostic process and therapeutic interventions utilized, we aim to offer insights that can inform clinical practice and improve patient outcomes in similar cases. The case in question underscores the

diagnostic hurdles posed by fungal masses in the neck and mediastinum, highlighting the imperative of a thorough and systematic evaluation to ascertain the underlying cause accurately. Given the rarity of such occurrences, clinical suspicion may initially gravitate towards more prevalent pathologies, potentially delaying the initiation of appropriate treatment. Therefore, this report serves as a call to action for healthcare professionals to maintain vigilance and consider fungal infections as a differential diagnosis, particularly when faced with atypical presentations or refractory cases. Furthermore, the management of fungal masses in the neck and mediastinum requires a tailored approach that accounts for both the infectious nature of the condition and its anatomical intricacies. Collaboration among specialists, including otolaryngologists, pulmonologists, infectious disease experts, and radiologists, is paramount in devising an effective treatment strategy that addresses both the fungal infection and any associated complications or sequelae. Through a detailed exploration of the therapeutic interventions employed in this case, we aim to provide valuable insights into the management of fungal masses in these challenging anatomical locations.

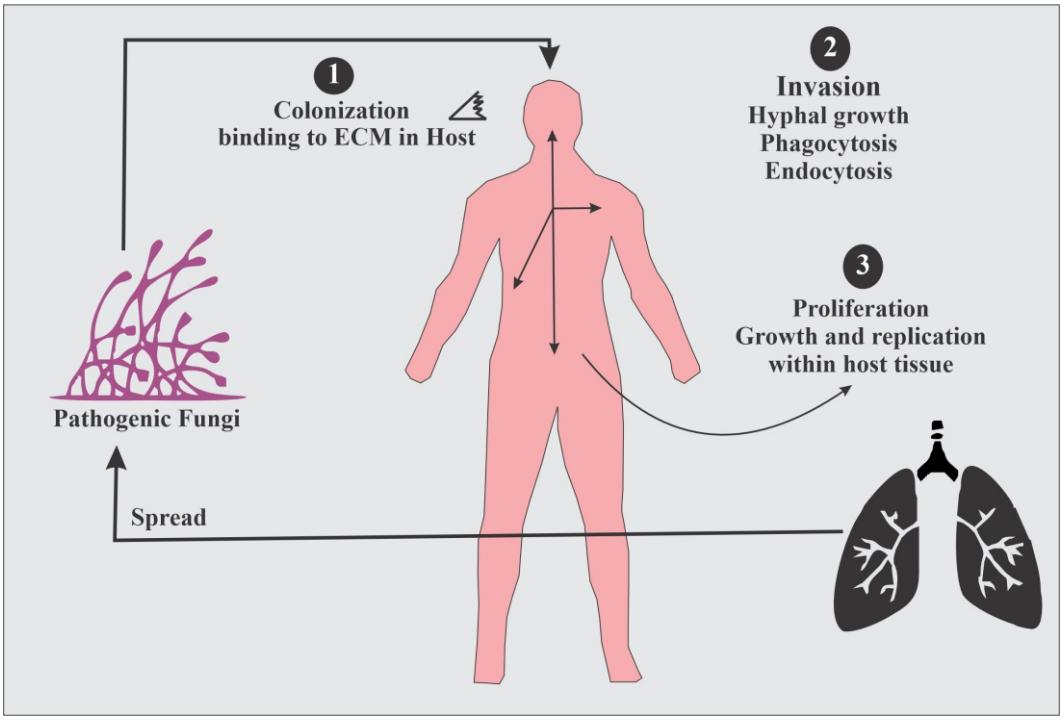

Figure 1: An overarching process of fungal infection and the development of disease in humans [11]

CASE PRESENTATION

A 58-year-old male visited the surgical outpatient department reporting symptoms of fever and cough persisting for a duration of 10 days. His fever was described as low-grade and intermittent, accompanied by a non-productive cough. Upon consulting a local physician, he was referred due to the identification of a swelling on the right side of his neck. Additionally, the patient reported experiencing hoarseness of voice. His medical history revealed that he had been diagnosed with Type II Diabetes Mellitus approximately 1.5 years ago and systemic hyperten--sion for the past 6 months. Clinical examination of the neck revealed a sizable, ill-defined firm lump measuring 7 x 6 cm on the right side. Notably, the thyroid gland was not palpable, and there were no other discernible neck swellings.

In order to further evaluate the patient's condition, laboratory investigations were conducted, including a complete blood count, assessment of inflammatory markers, and fungal serology. Additionally, imaging studies such as contrast-enh--anced computed tomography (CECT) of the head and neck were performed. The imaging results revealed a heterogeneous, mildly enhancing soft tissue lesion in the lower right neck measuring 50 x 48 mm. This lesion was observed to encase the right common carotid artery without causing occlusion or thrombus formation. Furthermore, it was found to encase and narrow the right internal jugular vein, extending into the right side of the mediastinum, where it encased the right brachiocephalic vein and abutted the proximal superior vena cava (SVC). The lesion was noted to measure 190 mm craniocaudally. Serological tests for HIV, hepatitis B surface antigen (HbSAg), and hepatitis C virus (Anti-HCV) were negative.

Subsequent ultrasonography (USG)-guided fine needle aspiration cytology (FNAC) revealed the presence of multin-

-ucleated giant cells along with fungal hyphae, indicative of deep mycoses. Due to the complexity of the clinical presentation, an incision biopsy was planned under general anesthesia. Histopathological examination of the tissue samples obtained from the biopsy revealed granulomatous inflammation with extensive fungal hyphae, morphologicall--y consistent with dematiaceous fungal organisms.

As the histopathological examination indicated the presence of dematiaceous fungi, a fungal culture was sent for further analysis. The fungal culture ultimately identified the presence of fusarium species. Following consultation with a medical specialist, the patient was initiated on Tab. Itraconazole 200 mg twice a day as antifungal therapy. Additionally, a sputum culture was obtained, which yielded growth of normal respiratory flora.

Upon a single follow-up visit, the patient reported an improv--ement in his hoarseness of voice following the initiation of antifungal therapy. This case highlights the challenges encoencountered in diagnosing and managing fungal masses in the neck and mediastinum, underscoring the importance of a comprehensive diagnostic approach and multidisciplinary management in such cases.

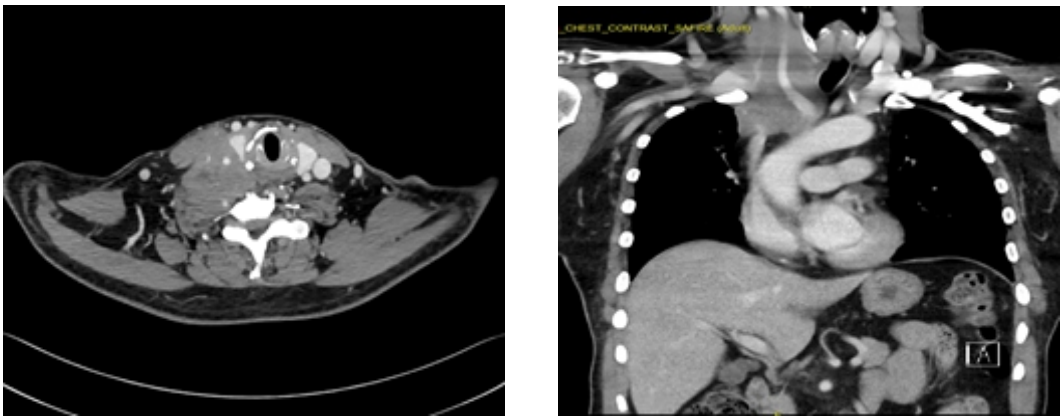

Figure 2: CT scan image of neck and chest

DISCUSSION

This case underscores the critical importance of considering fungal infections as a potential cause in the diagnostic evaluation of neck and mediastinal masses, particularly in sc--enarios involving immunocompromised patients or atypical clinical presentations. The ability to promptly and accurately diagnose fungal masses is paramount in initiating timely and targeted antifungal therapy, thus averting potential complica--tions and improving patient outcomes. While previous liter--ature has documented cases of head and neck histoplasmosi--s, these instances have typically presented as ulcer prolifera--tive growths within the oropharyngeal airway. Notably, our case stands out as a unique manifestation, being the only reported instance of a mass-forming lesion in the head and neck region associated with fungal infection. This highlights the variability in the presentation of fungal masses and underscores the necessity for clinicians to maintain a broad differential diagnosis to avoid overlooking less common etiologies[1, 12-15].

This case serves as an example of the diagnostic challenges posed by fungal infections, as the clinical presentation mimicked malignant disease, necessitating a thorough diagnostic workup to uncover the underlying fungal etiology. Such cases exemplify the importance of clinical vigilance and the need for comprehensive evaluation in differentiating fungal masses from other pathologies. Furthermore, a series of cases documented fungal infections predominantly presenting as oral and nasal ulcers, with histoplasma being the predominant species identified, along with instances of chromoblastomycosis and blastomyces infections. However, our case stands apart from this pattern as it represents the first reported instance of a fungal mass involving fusarium species. This highlights the diversity of fungal pathogens that can contribute to mass-forming lesions in the head and neck region, emphasizing the importance of considering a wide range of fungal etiologies in the diagnostic approach[16-21].

The unique presentation of fungal masses in our case underscores the need for clinicians to maintain a high index of suspicion for fungal infections, even in scenarios where the clinical presentation deviates from previously documented cases. Given the rarity of fungal masses in the neck and mediastinum, these cases may pose significant diagnostic challenges, potentially leading to delays in appropriate management if fungal etiologies are not promptly considered and investigated. Moreover, the implications of delayed diagnosis and treatment of fungal masses can be profound, as these infections have the potential to spread locally and systemically, leading to severe complications and poor outcomes, particularly in immunocompromised individuals. Therefore, clinicians must remain vigilant and adopt a multidisciplinary approach involving specialists from various fields, including otolaryn-

-gology, pulmonology, infectious diseases, and radiology, to ensure comprehensive evaluation and effective management of fungal masses[22-26].

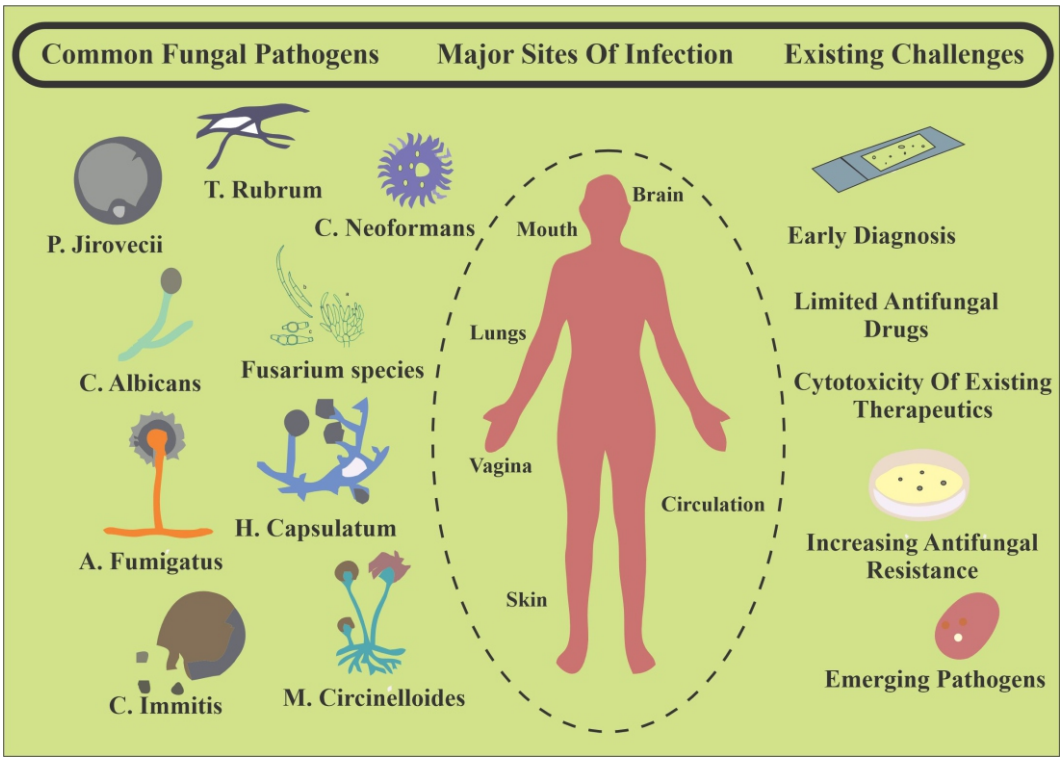

Figure 3: Therapeutic strategies, fungal pathogens and common site of fungal infection

This case highlights the importance of considering fungal infections in the differential diagnosis of neck and mediastinal masses, particularly in cases with immunocomp--romised status or atypical clinical presentations. The diverse range of fungal pathogens capable of causing mass-forming lesions in the head and neck region underscores the need for clinicians to maintain a broad differential diagnosis and conduct a thorough diagnostic evaluation to identify the und--erlying fungal etiology accurately. By recognizing the diagnostic challenges posed by fungal masses and implementing timely and targeted antifungal therapy, clinicians can mitigate complications and improve outcomes for patients presenting with these uncommon manifestations [27-32].

CONCLUSION

Fungal masses in the neck and mediastinum represent a diagnostic and therapeutic challenge due to their rarity and potential for atypical presentations. A multidisciplinary approach involving infectious disease specialists, radiologists, and surgeons is essential for navigating these complexities and ensuring optimal patient care. This case report contributes valuable insights to the existing literature, underscoring the importance of considering fungal etiologies in the differential diagnosis of neck and mediastinal masses and advocating for continued research in this field.

ETHICS APPROVAL

All necessary approval including ethical approval has been taken before conducting this study.

AVAILABILITY OF DATA AND MATERIAL

Not Applicable.

CONFLICT OF INTERESTS

Authors declared that there is no conflict of interest.

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