Cavitary Coccidioidomycosis in Patients with Diabetes Mellitus

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Introduction

The clinical manifestations of coccidioidomycosis (CM) varies & pathogenicity of particular strain may depend on immune status of the host. Diabetes, particularly uncontrolled diabetes has demonstrable adverse effects on many aspects of immune response. Infections in diabetics may be caused by any number of immune alterations. People with diabetes mellitus (DM) are more likely to experience severe coccidioidomycosis and cavitary lung disease is common. Cavitation in these patients represents chronic disease and clinicians use size, location, wall thickness, and number to characterize

Objectives

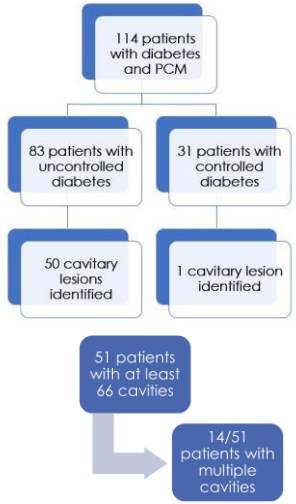
We used the American Diabetic Association definition to determine if a patient had controlled diabetes, defined by glycosylated hemoglobin A1c (HbA1c) <6.5%. In contrast, we defined individuals with an HbA1c >7% to have uncontrolled diabetes.

The purpose of this paper is to explore the frequency, severity, location, wall thickness in patients with CM with diabetes.

Methods

Approval was obtained from the Institutional Review Board, Kern Medical. Patients with diabetes mellitus and coccidioidomycosis in the last 10 years were identified with ICD-9 codes. A retrospective chart review was conducted on the records of patients with proven pulmonary CM and DM. History, physical exam, laboratory data and imaging were extracted. We evaluated the records for radiographic reports, chest x-rays (CXR), and computed tomography (CT) imaging for these patients and assessed their cavitary lesions. The location, number, and size of cavities were recorded.

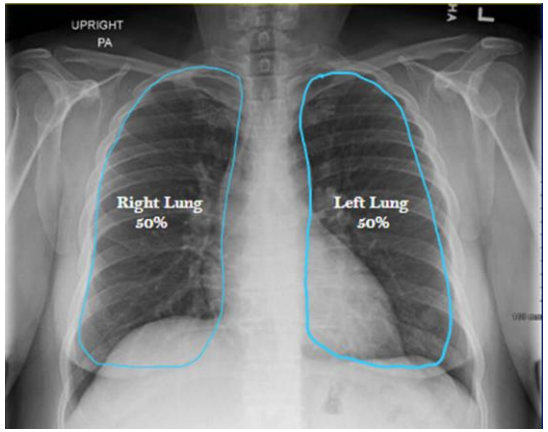
Results

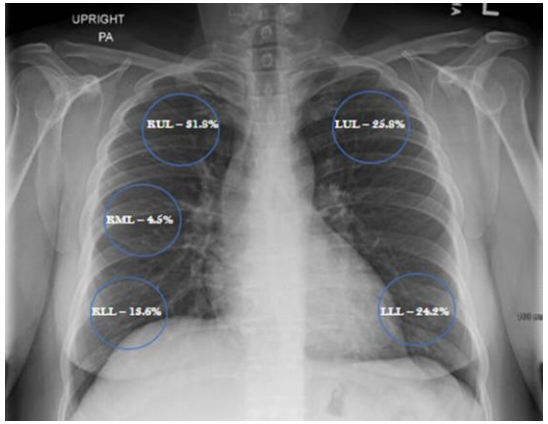


We identified 31/114 (27.2%) patients with controlled diabetes, which the American Diabetic Association defines an individual with a glycosylated hemoglobin A1c (HbA1c) <6.5%. The remaining 83/114 individuals were determined to have uncontrolled diabetes, which we defined as an individual with HbA1c >7%.

Of the 31 controlled diabetics, only 1/31 (3.2%) was found to have a cavitary lesion. In contrast, 50/83 (60.2%) uncontrolled diabetes to have cavitary lesions. Fifty of the 51 patients (98%) of the population with cavitary lesions were also found to have uncontrolled diabetes.

Characteristics (n = 66)	
Range	53mm
Mean	26mm
Median	25mm
Mode	21mm





58% or 38/66 of lesions were found in upper lobes,
38% or 25/66 of lesions were found in the lower lobes,
4% or 3/66 were localized to the right middle lobe lesion.

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Conclusions

Cavitary disease is common in uncontrolled diabetic patients with pulmonary coccidioidomycosis. Efforts to improve glycemic control in diabetic patients may be of value in preventing progression to cavitary pulmonary coccidioidomycosis.

Future Goals

A comparison of cavitary lesions amongst non-diabetic patients will aid in determining any statistical significance. Additionally, it may be of value to evaluate these patients to determine if poor glycemic control is a risk factor in dissemination of Coccidioidomycosis to other sites.

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