IDbyDNA Explify®

Explify Respiratory Case Report

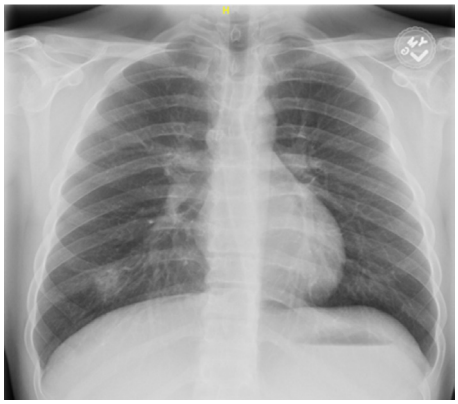
Pulmonary Coccidioidomycosis Diagnosed by Next-Generation Sequencing (Explify®) in an Adolescent with Type 1 Diabetes

In Brief

An adolescent male admitted to a Texas hospital for ketoacidosis co-presented with productive cough with hemoptysis and lung opacities. Tests for TB, invasive fungi, and next-generation sequencing of plasma cell-free DNA were negative. Explify® Respiratory identified Coccidioides immitis in sputum. The patient improved with directed fluconazole treatment.

Case Vignette

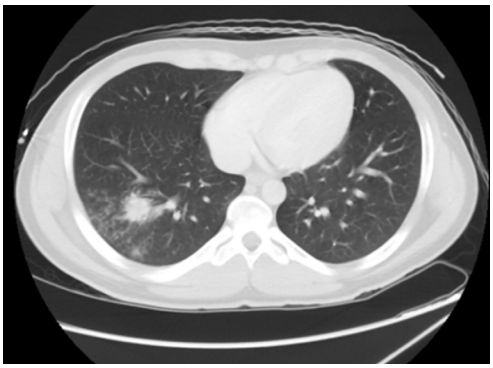
A 17-year-old male with poorly controlled diabetes was admitted to a pediatric intensive care unit in southeastern Texas for diabetic ketoacidosis. During admission, he was noted to have a productive cough with blood streaks. He reported a persistent cough for approximately the last year with periodic hemoptysis.



Chest X-ray at admission

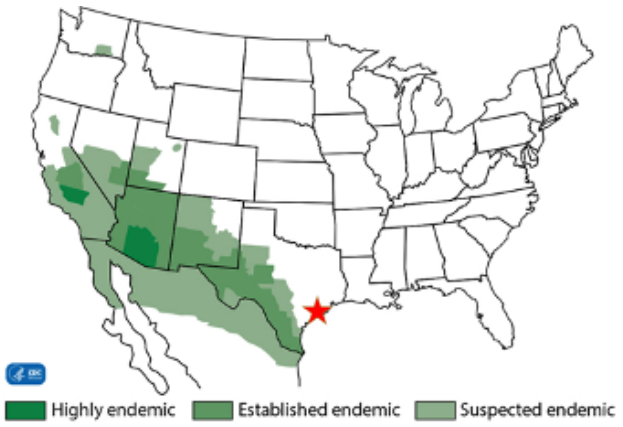
A chest X-ray at admission revealed a right basilar opacity, and review of the patient's imaging studies showed a similar right basilar opacity at 6 and 9 months before admission but not on a film three years prior. A CT scan showed multiple nodular opacities in the right lower lobe with a ground-glass background.

There was suspicion of tuberculosis or invasive fungi but results from a tuberculin skin test (0 mm), Quantiferon Gold, Fungitell, and aspergillus galactomannan tests were all negative. Metagenomic analysis of plasma cell-free microbial DNA was also negative.



CT scan at admission

Ultimately, a sputum sample was sent to IDbyDNA for Explify® Respiratory pathogen detection, which gave a positive result for Coccidioides immitis, a pathogen with a known endemic area not inclusive of the patient's residence (see map with star representing place of residence). Of note, the patient did not report any travel to endemic areas, and directed testing for Coccidioides was not sent prior to receiving Explify® Respiratory results. The patient was treated with fluconazole, and symptoms subsequently improved. A follow-up chest X-ray showed resolution of the opacity.



Areas Endemic for Coccidioidomycosis

The names IDbyDNA, Explify, and associated logos are registered or unregistered trademarks of IDbyDNA, Inc. All third-party marks are the property of their respective owners. ©2020 IDbyDNA, Inc. All rights reserved www.idbydna.com 20.ER.S16.01