

ORGANIC DUST TOXIC SYNDROME: CLINICAL AND LABORATORY EVALUATION OF A CLUSTER OF CASES



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Eleven male workers, aged 15-60 years, moved 800 bushels of oats from a poorly ventilated storage bin in Alabama. The oats were reported to contain pockets of white, powdery dust. Work conditions were described as extremely dusty, and all workers wore single-strap, disposable masks while inside the bin. The workers shoveled the oats for 8 hours in groups of two or three for shifts of 20 to 30 minutes. Two workers remained outside the storage bin and developed no symptoms. Within 4 to 12 hours, all nine who worked inside the bin became ill with fever/chills, chest discomfort, and weakness/fatigue. Eight reported shortness of breath, six had non-productive cough, five complained of myalgias, and four developed headache. Six sought physician attention within the first 2 days of symptoms. Reported abnormal physical signs included: temperature greater than 38.0°C in two, crackles in two, and wheeze in one. Chest radiographs were normal by B-reader review in all six. Symptoms resolved in all affected workers in 2 to 12 days (median 4). Samples of bulk oats and sera from 10 workers were collected. Airborne dust generated in the laboratory from the bulk oats contained 39.5 mg/m³ of respirable dust and the following concentrations of viable organisms (cfu/m³): 1.4x10⁵ total bacteria, 1.5x10³ gram negative bacteria, 1.8x10⁵ thermophilic actinomycetes and 8.3x10⁴ fungi (12 species). Endotoxin content in the airborne dust was 325.7 endotoxin units/mg. Serologic testing for antibodies to an aqueous extract of the bulk oats, to nine standard hypersensitivity pneumonitis antigens, and to aqueous extracts of the fungal isolates failed to separate ill from asymptomatic workers. Despite the initial clinical diagnosis of farmer's lung disease, the clustering of illness experienced by these workers is typical of organic dust toxic syndrome related to inhalation of high concentrations of organic dust contaminated with microbial organisms and their products.

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