A Case of Acute Respiratory Distress Syndrome Associated with Butane-Hash Oil Marijuana Usage

J. Choi, E. Ho, D. W. Lee; 1Western University of Health Sciences, Pomona, CA, United States, 2Pulmonary and Critical Care Medicine, Fresno, CA, United States, 3Pulmonary and Critical Care Medicine, Freno, CA, United States.

Corresponding author's email: jennifer.choi@westernu.edu

Introduction: Marijuana is one of the most widely used recreational drugs in the United States. Recently, inhalation of concentrated forms of tetrahydrocannabinol (THC) in the form of butane hash oil, otherwise known colloquially as “dabbing”, has gained popularity. There is sparse literature regarding the medical ramifications of this method of marijuana use. We present a unique and rare case of Acute Respiratory Distress Syndrome (ARDS) associated with “dabbing”. Case: A 27-year-old male transferred from an outside hospital for cardiothoracic evaluation of pneumomediastinum. He reported a three-day history of subjective fever and malaise. Review of systems was significant for sore throat, shortness of breath, nausea, vomiting, and new-onset back pain. Exam was pertinent for tachypnea and tachycardia. Outside computed-tomography (CT) scan showed pneumomediastinum with extensive patchy ground glass opacities. Subsequent barium swallow was negative for esophageal perforation. On further questioning, patient reported a 15-year history of smoking marijuana and started “dabbing” earlier this year. On day two, his work of breathing and oxygen requirements worsened. By day three, he was intubated and placed on lung protective ventilation for ARDS. Initial mechanical ventilator settings included FiO2 of 0.7 and PEEP of 20 cmH2O with peak pressure of 34 cmH2O and plateau pressure of 28 cmH2O. Bronchoscopy revealed diffuse edematous bronchial mucosa. Once infectious work up was unremarkable, he was started on solumedrol 250mg twice daily. Within a few days of steroid administration, his mechanical ventilator settings markedly improved to FiO2 of 0.3 and PEEP of 14 cmH2O with peak pressure of 29 cmH2O and plateau pressure of 26 cmH2O. After six days of mechanical ventilation, patient was extubated to nasal cannula. High resolution CT performed on day eleven showed significantly improved bilateral interstitial infiltrates. Patient was discharged with outpatient pulmonology follow up. Discussion: The method of “dabbing” involves a potent cannabis concentrate “dab” that is exposed to high heat, usually with a blow torch, on a hotplate whereby the resulting vapor is inhaled through a water-pipe device. However, depending on the method of manufacturing, impurities may often remain in the final THC concentrate and degradation of terpenes into methacrolein, a possible pulmonary irritant. This case serves to contribute to the growing literature on cases of “dabbing” and demonstrates its potential severe adverse effects.