

A CASE OF ACUTE LUNG INJURY DUE TO E-CIGARETTE

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Introduction:

Although considered to be by some as a safer alternative to smoking, electronic cigarettes (e-cigarette) are associated with significant even life-threatening complications, for example, electronic cigarette or vaping product use-associated lung injury (EVALI) (1,2) especially in older patients with pre-existing respiratory and cardiovascular comorbidities (3). We present an interesting case of a patient who was admitted with confusion, fever, cough, and breathlessness with raised inflammatory markers and bilateral radiologic abnormalities on chest imaging.

Materials and Methods:

A woman in her forties presented with 1 week history of fever, cough, shortness of breath and confusion. She was normally fit and well with past medical history of asthma, anxiety and Lown–Ganong–Levine syndrome. Her usual medications included salbutamol MDI and sertraline. There was no history of recent travel, flu like illness, use of recreational drugs or trauma. In the last few months, she had started to vape e-cigarette, and she drank alcohol in moderation. On examination she was alert but confused with no focal neurology and no signs of meningism. Chest auscultation revealed bilateral crackles. Rest of the examination was normal.

Patient was started on broad spectrum antibiotic and high dose oral prednisolone with rapid clinical improvement. Repeat chest imaging done after 2 weeks of onset of symptoms showed the lungs were clear with preserved volume and satisfactory mediastinal and hilar shadows.

Results:

Although, EVALI is a diagnosis of exclusion, rapid resolution of symptoms and radiological findings with high dose corticosteroids and ruling out alternative diagnoses confirmed the diagnosis of EVALI.

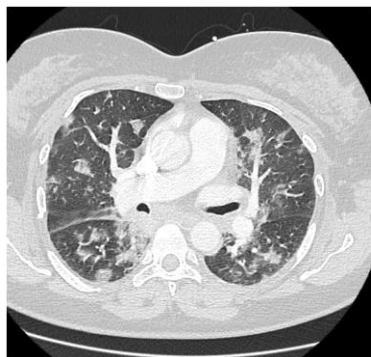
Investigations	Results
WCC	11.3×10 ⁹ /L
Neutrophil	9.3×10 ⁹ /L
CRP	161 mg/L
Chest Xray	widespread, bilateral pulmonary infiltrates, consisting of a mixture of ill- defined and nodular opacities
CT chest	patchy bilateral consolidation involving all the lobes along with enlarged bilateral hilar and mediastinal nodes
CT head, MRI head and CT abdomen pelvis	nil acute
Blood culture, urine culture	no growth
Viral respiratory panel, Chlamydia, Mycoplasma serology, anti-HIV ab, Pneumococcal & Legionella urinary antigen	negative
Vasculitic and connective tissue disease screen	negative
ECG and 2D echocardiography	within normal limits

Conclusion:

Due to variable presentation of EVALI (4,5) there is no consensus regarding its diagnostic criteria. Case definition (6) stipulates that to diagnose EVALI, there should be a history of use of an e-cigarette in the previous 90 days along with lung opacities on chest imaging, exclusion of lung infection based on negative influenza PCR, viral respiratory panel, and urine antigen tests for Legionella and Streptococcus pneumoniae, blood cultures, sputum culture, bronchoalveolar lavage, and testing for HIV-related opportunistic infections and absence of a likely alternative diagnosis (e.g., cardiac, neoplastic, rheumatologic). Even though underlying pathogenesis of EVALI remains elusive (7), multiple potential toxins have been highlighted including E acetate, THC, nicotine, and others (8). Risk factor for more severe disease includes obesity, increasing age, history of asthma and cardiac disease (3). Due to widespread usage of e-cigarettes (9), clinicians should be vigilant regarding this serious respiratory illness which can be life-threatening (10).

References:

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CT chest axial view



Xray chest PA view



Repeat chest Xray PA view