Letters to Editor

Spontaneous pneumomediastinum complicated by pneumopericardium after a single use of inhaled methamphetamine

Sir,

Air leak syndrome (ALS) without underlying lung disease or trauma is known as spontaneous pneumomediastinum (SPM) or Hamman’s syndrome. Precipitating factors for nontraumatic SPM include coughing, sneezing, Valsalva maneuver, vomiting, or deep inhalation. There are unusual circumstances causing air leaks including anorexia nervosa,
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SPM has been reported after inhaled illicit drug use, with the proposed mechanism being forceful inhalation leading to high intra-alveolar pressure causing alveolar rupture and pneumomediastinum. This creates a Valsalva effect, triggering the rupture of alveoli and air leakage through the facial planes around the peribronchovascular space. Depending on the number of alveoli involved, the air leak can be significant and can dissect through the mediastinum to enter surrounding closed spaces such as the pericardium, retroperitoneum, and subcutaneous tissue in the neck [Figure 1]. It is rare to have a significant amount of ALS after inhalation of amphetamine for the first time, which is the scenario in our case. Air traversed through ruptured alveoli into the mediastinum, pericardium, and subcutaneous tissue around the neck, which is also known as the Macklin effect.

The Müller maneuver is a reverse Valsalva which creates subatmospheric pressure in the chest and lungs when the patient inspires through a device with airflow resistance, which may induce rupture of the alveoli.

Direct toxicity of drugs and adulterants can lead to hypoxia or impaired oxygenation by damage to the respiratory membrane. Diagnosis is based on history, symptoms, signs, and radiological evidence. In a majority of cases of pneumomediastinum, it may not be easily detected on physical examination unlike pneumothorax. Chest radiograph and CT scan can delineate pneumomediastinum, unless air leak is insignificant. It is imperative to evaluate the extent of air leak in patient with pneumomediastinum. Serial chest radiograms are encouraged to monitor the involvement of lung parenchyma by toxic effects of inhaled illicit drug. Management is conservative; however, the patient should be monitored closely for extension of air leak in tissue planes.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.
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Conflicts of interest
There are no conflicts of interest.

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