

Spontaneous Pneumomediastinum Following to a Generalized Tonic – Clonic Seizure

Tonik-klonik Nöbeti Takiben Spontan Pnömomediastinum

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Abstract

Pneumomediastinum refers to the presence of air in the mediastinum. It is commonly occurs secondary to a perforation of respiratory or gastrointestinal system organs. Primary spontaneous pneumomediastinum is a rare and benign condition that can result from a peripheral pulmonary alveolar rupture. We present here a case of spontaneous pneumomediastinum that occurred following to a generalized tonic-clonic epileptic seizure.

Key words: Mediastinum, epilepsy, pneumomediastinum.

Özet

Pnömomediastinum; mediastende serbest hava bulunmasıdır. Genellikle solunum veya sindirim sistemi organ perforasyonuna bağlıdır. Primer spontan pnömomediastinum periferik pulmoner alveol rüptürünün sebep olduğu nadir izlenen benign bir hastalıktır. Generalize tonik-klonik epileptik nöbet sonrası saptanan spontan pnömediastinum olgusunu sunacağız.

Anahtar Sözcükler: Mediasten, epilepsi, pnömomediastinum.

Pneumomediastinum are classified into two subtypes: spontaneous and secondary. Spontaneous pneumomediastinum (SPM) was described by Louis Hamman who presented a small group of cases in 1939 (1). SPM is a rarely seen, benign and self-

limiting disease. Secondary pneumomediastinum is associated with secondary organ injury.

We present here a case report of a patient who developed SPM following a generalized tonic-clonic epileptic seizure.

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CASE

A 19-year-old female patient was brought to the Emergency Department with a complaint of cervical emphysema after a generalized tonic-clonic seizure. She had been diagnosed with epilepsy 13 years previously and had been treated with Carbamazepine. Upon physical examination, a cervical subcutaneous emphysema was detected. SPO₂: 87%, blood pressure: 110/80 mm-Hg and heart rate: 70 bpm. Free air was detected in the upper mediastinum in a chest X-ray (Figure 1a) and a thorax computed tomography (CT) scan (Figure 1b).

The decision was made to treat the patient conservatively with continuous oxygen inhalation. The patient was discharged after 5 days without complication. There was no recurrence in a 6-month follow-up.

DISCUSSION

SPM is a rare disease that is characterized by free air in the mediastinum in the absence of a history of thoracic trauma, surgery or any other medical procedure (2). The pathophysiology of SPM was first described in 1944 by Macklin (3) as being a result of a rapid increase in intra-alveolar pressure and/or low perivascular pressure, from where free air may leak to the cervical area, pericardium and peritoneum. This mechanism referred to as the Macklin Effect (3). Such increases in intrapleural pressure have been linked to asthma, infection, interstitial lung disease, cough, emesis and vigorous exercise due to smoking.

SPM is also associated with drug usage (marijuana, cocaine and ecstasy), which can affect the alveolar mem-

brane and cause strong pulmonary vasoconstriction, non-invasive mechanical ventilation (4) and dental problems (5). A crunching synchronous sound with a heartbeat (Hamman's sign) can be heard. In the diagnosis of SPM, chest X-rays can be useful.

The most common symptoms are dyspnea, dysphagia, pain in the substernal area and subcutaneous emphysema. In the present case, the patient experienced only emphysema in the neck.

The incidence of SPM is between 1/7,000 and 1/45,000 (1), and it is most commonly seen in young male adults (6). Such conservative treatments as resting, continuous oxygen inhalation and analgesia have a good prognosis, and the recurrence rate is low. The true incidence is not clear due to poor recognition and the nonspecific symptoms of SPM.

This uncommon condition has been described in rare case reports, although its classification and treatment guidelines are not certain. Kaneki et al. (6) suggested a detailed classification based on the emphysema level on a chest X-ray and CT scan.

Seizure complications mostly take the form of direct injuries, such as head injuries and bone fractures, while pulmonary complications include aspiration pneumonia and neurogenic pulmonary edema. The association between pneumomediastinum and seizures is unusual. Only three case reports have been published about pneumomediastinum and pneumothorax as a complication of a tonic-clonic seizure (7–9). A rapid increase in intra-alveolar pressure can be considered suspicious in the etiology.

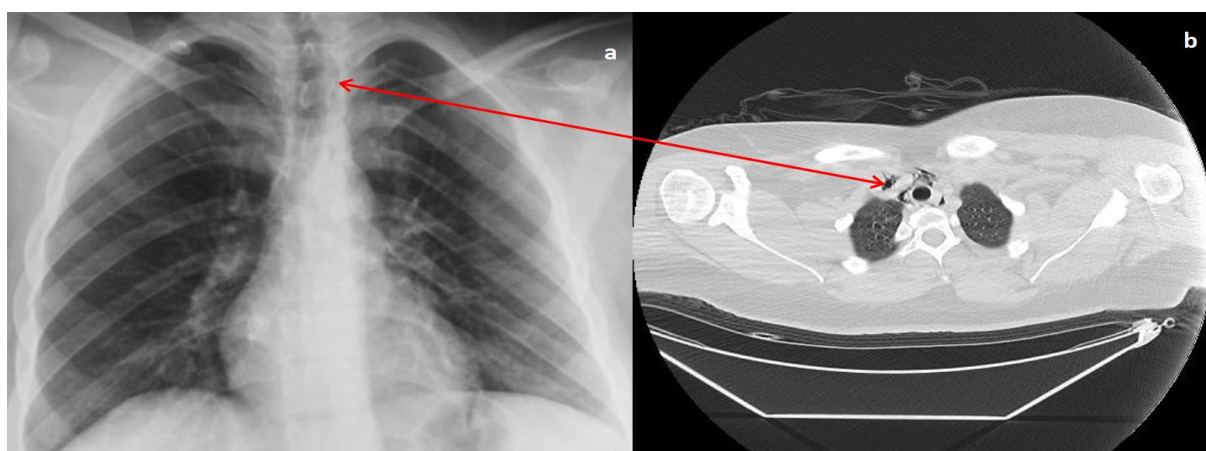


Figure 1: Free air in mediastinum in Chest X-ray (a), Thorax CT scan (b)

Continuous oxygen inhalation is recommended for the treatment of SPM. Oxygen increases the diffusion pressure of interstitial nitrogen, and promotes the absorption of free air in the mediastinum. We applied continuous oxygen therapy in the present case, and the patient was discharged on the 5th day of hospitalization.

In conclusion, SPM is a rare and benign condition that is treated with conservative management. The degree of severity of SPM is not classified clearly, and most cases are not diagnosed at all. Further studies are needed to determine appropriate treatments and for the classification of the degrees of SPM.

CONFLICTS OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

Concept - C.B.; Planning and Design - C.B.; Supervision - C.B.; Funding - C.B.; Materials - C.B.; Data Collection and/or Processing - C.B.; Analysis and/or Interpretation - C.B.; Literature Review - C.B.; Writing - C.B.; Critical Review - C.B.

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