



# Spontaneous pneumothorax in adulthood varicella

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## SUMMARY

Varicella is a generalized viral infection that is generally benign if it occurs in childhood, but it has a severe outcome in adulthood. Pneumonia is the main complication of adulthood varicella and may lead to respiratory failure. Spontaneous pneumothorax is a rarely reported complication during varicella in adult patients. Only one case of spontaneous pneumothorax associated with varicella pneumonia (VP) was published in 1990. We report a new case of pneumothorax in VP.

## Case report

A 46-year-old male patient, a 20 pack-year smoker, was hospitalized in our pulmonology department because of a 3-day history of bilateral thoracic pain, dry cough, dyspnea, fever, and chills. A few hours after the onset of the respiratory symptoms, a generalized pruritic cutaneous rash appeared.

The patient's history revealed that the patient's nephew had varicella two weeks earlier. On examination, the patient's temperature was 38.2 °C and he presented a diffuse papulo-vesicular, crusty skin rash, with lesions of various duration consistent with the diagnosis of varicella.

The respiratory rate was 28 cycles/minute, a reduction in breathing was observed, and the percussion was hyperresonant. Chest X-rays revealed a complete right pneumothorax and interstitial lesions on the left lung.

Blood gas analysis revealed pH: 7.48, PaO<sub>2</sub> 58 mm Hg, Sa O<sub>2</sub> 87%, and PaCO<sub>2</sub> 35 mm Hg. Further biological investigations, including blood cell count, blood coagulation, and renal and hepatic functions, were within normal ranges.

Bacteriological examination of the sputum showed no microorganisms and, notably, no acid-fast bacilli.

A diagnosis of varicella pneumonia (VP) associated

with pneumothorax was made. A chest tube was inserted and intravenous acyclovir (10 mg/kg/day) was administered for 7 days.

The pneumothorax disappeared as soon as the tube was inserted and the chest X-ray therefore showed bilateral interstitial lesions.

Respiratory signs and cutaneous lesions improved rapidly, and chest radiography was normal from the fourth day of the beginning of the antiviral treatment.

The patient was discharged from the hospital on the seventh day of treatment. At the time of the 2-year follow-up the patient was asymptomatic and no recurrence of the pneumothorax was observed.

## Discussion

Pneumothorax is a rare complication in adulthood varicella. In VP, pneumothorax may be the initial clinical feature, or may appear later during the course of the disease. As with our patient, this condition is most frequently reported in smokers (1, 3).

The reported cases of pneumothorax in VP are most frequently due to a superinfection caused by necrotizing bacteria, such as staphylococcus aureus, or to a barotrauma

## KEY WORDS

varicella,  
pneumonia,  
pneumothorax,  
adult





**Fig.1: vesicular, umbilicated cutaneous rash**

caused by mechanical ventilation in severe VP with respiratory distress syndrome (2, 4).

Only a case of spontaneous pneumothorax during VP was reported (1). In our patient we made the diagnosis of pneumothorax secondary to varicella pneumonia because it is associated with typical skin lesions of varicella and with interstitial syndrome on chest radiography.

In our case, no clinical, radiological, or biological sign of bacterial superinfection were observed.

Some mechanisms could explain the occurrence of pneumothorax during VP (in the absence of any bacterial infection or trauma):

- The sub-pleural location of the pulmonary necrotic nodules in the VP (5).
- The inflammation of some preexisting blebs (especially in smokers) that makes their rupture on the pleu-



**Fig.2: bilateral interstitial pattern (after chest tube insertion)**

ral cavity more likely (1).

A case of pneumothorax during a herpes-zoster infection (another condition caused by the Varicella Zoster Virus) was reported (6). The authors explain the occurrence of the pneumothorax as resulting from inflammation of the nerves located in the parietal, itself resulting from the Varicella Zoster Virus. This, in turn, leads to adhesion of the pleural membranes, followed by the exposure of lung parenchyma to the virus, finally resulting in pneumothorax.

The occurrence of a pneumothorax during a VP worsens the respiratory status (1). Chest drainage must be performed. Surgical excision of the pleural blebs and pleurodesis could be necessary in some patients. Intravenous antiviral therapy (acyclovir: 10 mg/kg/day) is indicated in such patients.

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