acquired during a short stay in a rural area, such as a farm or cottage, it is prudent to enquire about exposure to herbicides.

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Pneumomediastinum Causing Pneumoperitoneum*

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Pneumomediastinum is characterized by the presence of air in the mediastinum and has been recognized since 1827, when described by Laennec. To the best of our knowledge, pneumoperitoneum as a result of spontaneous pneumomediastinum has not yet been described in the English literature. We observed and treated a young patient in the intensive care unit who presented with spontaneous pneumomediastinum. Free intra-abdominal gas was observed on the chest x-ray film on the day after admission. Management was conservative. Intra-abdominal and mediastinal air disappeared within four days. This condition, when recognized, needs only observation; we report this as a medical curiosity. (Chest 1992; 101:1176)

Free intra-abdominal gas is usually present on roentgenographic examination when perforation of a hollow viscus occurs or after a recent laparotomy. We found intra-abdominal air on the chest roentgenogram of a patient who presented with spontaneous pneumomediastinum and subcutaneous emphysema. This condition does not require special medical attention when other intra-abdominal pathologic findings have been ruled out.

CASE REPORT

A 20-year-old soldier was admitted to the hospital with a severe attack of bronchial asthma. The clinical picture consisted of respiratory failure, and the patient required endotracheal intubation.

On the control chest roentgenogram, pneumomediastinum had been noticed. Extensive subcutaneous emphysema of the neck and chest wall developed, and bilateral chest tubes were inserted. On the following day a chest x-ray film revealed free intra-abdominal gas (Fig 1), but clinically, the findings from abdominal examination were unremarkable. Two days later, the patient was extubated; pneumoperitoneum and pneumomediastinum resolved within four days.

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FIGURE 1. Chest roentgenogram showing presence of free air under right and left hemidiaphragm. Note prominent subcutaneous emphysema and pneumopericardium.

DISCUSSION

Spontaneous pneumomediastinum is a rare, but well recognized pathologic condition.3,4 The pathogenesis seems to be related to a sudden elevation in pulmonary pressure as a result of chest trauma, excessive cough, assisted ventilation, or the Valsalva maneuver.

Chest roentgenographic signs that permit the diagnosis of pneumomediastinum include pneumopericardium, pneumothorax, and "thymic sail sign." Different roentgenologic patterns that depend on the routes of free air dissection, such as subcutaneous emphysema, periaortic air, pneumoretroperitoneum and the collection of the gas between the parietal pleura and the diaphragm, can be observed.

It is a well-established fact that a number of areas of the diaphragm may give way under pressure from the abdominal viscera. Most diaphragmatic hernias start in the small areas of weakness, such as posterolateral (Bochdalek) on parasternal (Morgagni) defects, and enlarge with age.

The defect may be as small as 1 cm in diameter, and a sac (parietal peritoneum) is absent in 85 percent of the cases in this pathologic condition. In such circumstances, communication between the mediastinum and the abdominal cavity may exist. The presence of this condition in our patient can explain the migration of air from the mediastinum to the abdominal cavity as a result of a sudden increase of the intramediastinal pressure.

Pneumoperitoneum by this mechanism undoubtedly does not require special care and is described by us as an incidental finding and medical curiosity.

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