A previous report\(^1\) dealt with three episodes over a three-year period out of a total of 54 pneumothoraces, an incidence of nearly 10 percent. It has been my experience that if one routinely obtains chest radiographs in patients within four hours of intubation, re-expansion edema will be seen in varying degrees of severity in about 10 percent of patients. There seems little doubt that this complication is more likely to occur in patients with large pneumothoraces where the collapse has been prolonged for periods of three days or more and where negative pressure has been applied to the pleural cavity. In two of the episodes in the above-mentioned report, the intercostal tube was connected to a Heimlich valve\(^2\) without the use of negative pressure.

With respect to pathogenesis, I would agree that increased alveolar surface tension is an unlikely factor, as it has been shown that pulmonary edema is not usually associated with abnormally high surface tension forces and that edema can develop in a degassed lobe without an air-liquid interface.\(^3\) The probable mechanism is not only a combination of increased permeability of pulmonary capillaries to hypoxic damage, as Mahajan and others\(^4,5\) suggest, but also the effect on these capillaries of a sudden and large increase in negative intrathoracic pressure which occurs with rapid pulmonary expansion especially with the aid of suction applied to the pleural cavity. It has been demonstrated in dogs that a large increase in negative intrathoracic pressure drew fluid from pulmonary capillaries into parenchyma and, under excessive conditions, not only plasma but red cells left the capillaries.\(^6\)

The condition is unlikely to affect the prognosis in otherwise healthy individuals. In the only two fatalities reported,\(^4,5\) both patients had other severe problems compromising their survival.

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REFERENCES

6. Warren MF, Peterson DK, Drinker CK. The effects of heightened negative pressure in the chest, together with further experiments upon anoxia in increasing the flow of lung lymph. Am J Physiol 1942; 137:641

To the Editor:

We greatly appreciate the interest of Dr. Bernstein in our report.\(^7\) Dr. Bernstein does not regard re-expansion pulmonary edema as a rare entity. According to his observations, radiologic edema occurs in almost 10 percent of patients with pneumothorax when the collapsed lung is re-expanded. This figure is based on his observation of 34 patients with pneumo-

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Re-Expansion Pulmonary Edema

To the Editor:

Mahajan et al in their report in the February, 1979 issue of Chest, may be over-stressing the rarity of re-expansion pulmonary edema.

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