CLINICAL INFORMATION

A 24-YEAR-OLD WHITE MAN WAS ADMITTED IN AN UNCONSCIOUS STATE FOLLOWING AN AUTOMOBILE ACCIDENT. CHEST FILMS REVEALED RIGHT PLEURAL EFFUSION; CLOSED THORACOTOMY WAS PERFORMED. AFTER REGAINING CONSCIOUSNESS, HE REMAINED CONFUSED AND PULLED OUT THE THORACOTOMY TUBE FIVE DAYS AFTER ITS INSERTION. FIGURES 1 AND 2 WERE MADE AT THIS TIME. A DECBITUS FILM SHOWED PRACTICALLY NO FREE FLUID.

Figure 1

Figure 2

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Diagnosis: Traumatic Rupture of Right Hemidiaphragm

Diagnostic pneumoperitoneum was performed. The chest roentgenogram revealed a small right pneumothorax (Fig. 3), and diagnosis of ruptured diaphragm was made. At operation, laceration of the diaphragm was found, extending from the region of the costochondral junction to the vicinity of the hiatus for the inferior vena cava, in effect, bivalving the right leaf of the diaphragm. Most of the liver lay within the pleural cavity and the right lower lobe was atelectatic. The liver was firmly adherent to the lateral edge of the torn diaphragm. The medial edge of the laceration was not adherent to the liver and therefore permitted the entry of air into the pleural cavity.

In the event of complete adherence of the liver to the rent in the diaphragm, pneumoperitoneum will not establish the diagnosis. In this situation, the suspicion of traumatic hernia of the liver through the right leaf of the diaphragm should lead to the performance of a barium enema, which may reveal displacement of the hepatic flexure of the colon upwards, since the hepatocolic ligament will elevate this flexure along with the liver. Elevation of the lower border of the liver is also a helpful roentgen sign, especially when pleural fluid obscures the base of the right thorax.

Bowditch (quoted by MacLean) was first in this country to make the antemortem diagnosis of traumatic rupture of the right diaphragm, although Paré had recognized the entity at necropsy some three centuries earlier. According to MacLean, only ten cases were recorded in the American literature up to 1953. Sporadic cases have been reported since then. Several authors have stated that traumatic diaphragmatic hernia on the right is approximately one-twentieth as frequent as on the left.

Traumatic diaphragmatic hernia is almost always the result of a high impact injury. The incidence is unquestionably higher than the literature suggests, since many of these patients suffer instantaneous death or soon succumb to the effects of the severe injuries before the diagnosis of traumatic diaphragmatic hernia can be made.

Carlson et al have made the point that, in a patient who has a fractured lumbar spine or pelvis as the result of an impact injury, rupture of the diaphragm should be suspected. The patient reported here did suffer a fractured pelvis at the time of the accident.

References
5 Benjamin Felson, M.D., Editor
6 Harold Spitz, M.D., Co-Editor
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