A 54-Year-Old restrained driver was involved in a rollover motor vehicle crash and came to the emergency department complaining of shortness of breath, left pleuritic chest pain, and back pain. Her vital signs included the following: heart rate, 73 beats/min; blood pressure, 172/102 mm Hg; and respirations, 18/min. Although the patient’s breath sounds were decreased on the left side, her oxygen saturation was 95% using a 100% oxygen non–rebreather face mask. The patient’s chest x-ray film is shown in the Figure.

What Is the Diagnosis?

A. Hemopneumothorax  
B. Hiatal hernia  
C. Diaphragmatic rupture  
D. Pulmonary contusion.

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Answer

Diaphragmatic Rupture

Chest radiograph after placement of the nasogastric tube, demonstrating coiling of the tube in the chest.

Traumatic diaphragmatic rupture from a blunt mechanism is a relatively uncommon injury that occurs when there is a sudden increase in the pleuroperitoneal pressure gradient against a contracted diaphragm. Although left-sided ruptures are more common, the patient’s signs and symptoms may vary from relatively asymptomatic to hemodynamically unstable with severe associated injuries. Our patient’s symptoms of left-sided thoracoabdominal pain associated with ipsilateral decreased breath sounds and associated shortness of breath were consistent with the diagnosis.

The findings on the chest x-ray film may be confused with other pulmonary injuries but coiling of the nasogastric tube in the thoracic cavity is diagnostic (Figure). Once the diagnosis is made, no further tests are needed and surgical exploration is mandatory. If the findings on chest x-ray film are nondiagnostic, further evaluation by computed tomography, ultrasound, or other studies may be helpful in the hemodynamically normal patient.

After assessment of her great vessels by a spiral computed tomography scan, the patient underwent an exploratory celiotomy and repair of the left hemidiaphragm, with preservation of the phrenic nerve. Her postoperative course was unremarkable and she was discharged on the seventh postoperative day.

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