

Case	(614) Extrapleural hematoma and diaphragmatic rupture after blunt chest wall trauma.
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## CASE PRESENTATION

80-year-old male who comes to Urgencies after an accidental fall with contusion in the left side. He presents a light dyspnea and thoracic pain, together with hypoxemia. Anemia is not detected.

The initial thoracic radiography (TR) shows left pleural effusion as well as several ipsilateral rib fractures. The thoracic puncture confirms the presence of hemothorax, so a thoracostomy tube is placed.

The patient evolves well after admission. However, a control TR shows an opacity along the inner margins of the left lateral ribs (figure 1A). Contrast-enhanced chest CT confirms the fracture of six left ribs and shows an adjacent biconvex fluid collection with inner displacement of a thin line of fat ("extrapleural fat sign", EFS), consistent with an extrapleural hematoma (EH, figures 1B-D). Besides, it shows a left diaphragmatic discontinuity, with peritoneal fat herniation towards the thorax (figures 1B and 1D). Omentum is reduced through the defect and the DR is repaired via thoracotomy.

## DISCUSSION

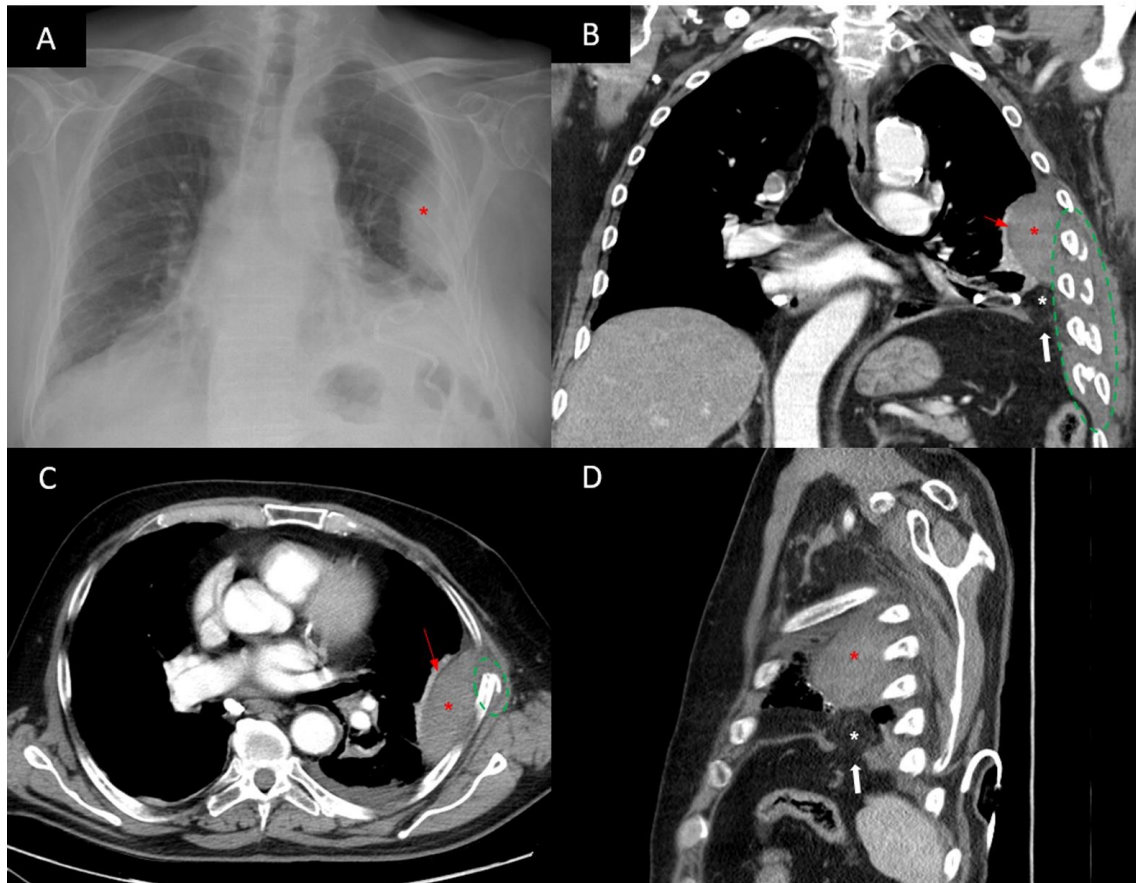
TR is a fast and accessible imaging method. However, it has a low sensitivity, being the CT the gold standard.

EFS can determine the extrapleural origin<sup>1</sup> of the underlying cause of the pathology. The size and the shape of the EH (biconvex or non convex) suggest an arterial or venous origin<sup>1</sup>, conditioning the need of intervention or, as in this case, only clinical observation.

With regard to diaphragmatic rupture (DR), about 19 radiological signs are described, which nomenclature is unclear. The latest revisions establish a sensitivity 61%–87%<sup>2</sup> for diagnosis of diaphragmatic rupture, although there is variability. A high degree of suspicion is required as well as meticulous analysis for a correct diagnosis.

## CONCLUSION

EH and hemothorax require different therapeutic management. The EFS is key to distinguishing such entities. The diagnosis of DR is complex. Multiplanar reconstructions with multidetector CT allow the detection with great sensitivity, even with small defects, as in this case.



**Figure 1.** Posteroanterior chest radiography (A) and CT coronal scan with intravenous contrast (B). Axial (C) and sagittal images (D).

Picture A shows peripheral opacity convex toward the lung (red asterisk) and left rib fractures, as well as pleural effusion and thoracostomy tube. Contrast-enhanced CT shows the biconvex extrapleural hematoma (red asterisks) with a displacement of hypodense line (sheet-like nature) corresponding to extrapleural fat (red arrow, "extrapleural fat sign"). Four rib fractures are shown (dashed green ellipse). Besides, we observe intrathoracic herniation of peritoneal fat (white asterisk) through the little defect of the left hemidiaphragm (with the arrows). Associated pleural effusion and compressive atelectasis of the lower left lung lobe could be seen.

## BIBLIOGRAPHY

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