

## **Sensitivity and Specificity of Physical Examination in the Diagnosis of Pneumothorax and Hemothorax**

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Abstract:

**Introduction:** The aim of this study was to evaluate the sensitivity and specificity of history and physical examination in the diagnosis of pneumothorax and hemothorax in blunt chest trauma patients.

**Methods:** This was a descriptive-analytical study. Physical examination results were compared with findings of chest CT, X-ray, and ultrasound diagnostic methods using ROC curves in SPSS software.

**Findings:** Three (3.03) patients with pneumothorax and 7 (7.07) patients with hemothorax were found among 99 patients with mean age of  $33.4 \pm 19.43$ . The highest sensitivity was due to chest scraping for pneumothorax (66.67%) and hemothorax (100%). The highest specificity was for abnormal lung sounds (Crackle), with 96.88% specificity for pneumothorax and 98.89% specificity for hemothorax. In the study of pneumothorax, the highest PPV and NPV were related to pulmonary sound reduction (12.5% and 98.7%, respectively). In the hemothorax evaluation, the highest PPV was related to chest tenderness (37.5%) and the highest NPV to pulmonary sound reduction (96.3%). The highest accuracy for pneumothorax was for pulmonary sound reduction and abnormal pulmonary sounds for hemothorax. A heart rate above 98.5 was associated with pneumothorax with a sensitivity of 17.6% and a specificity of 66.7%. Diastolic blood pressure below 70.5 with 46.9% sensitivity and 85.7% specificity and respiratory rate below 6.5 with 92.6% sensitivity and 57.1% specificity were associated with hemothorax.

**Conclusion:** Proper physical examination and history taking can help to diagnose hemothorax and pneumothorax with high sensitivity and specificity complementarity to CT scan or X-ray results.

**Keywords:** [Physical Examination](#), [Pneumothorax](#), [Hemothorax](#)