The Power of the Compound Effect: Consistent Choices, Dramatic Results. A case of Intercostal Lung Herniation.

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Introduction :

- **Lung herniation:** Protrusion of the lung parenchyma through a weak thoracic wall.
- Prevalence and incidence of lung herniations is unknown, approximately **300 cases reported** in the literature (1,2,3)
- **Presentation:** Dyspnea, pain, a visible or palpable bulge in the thoracic wall or found incidentally in asymptomatic patients (2).
- **Classification:** Congenital or acquired, it is the result of inadequate closure of the chest wall. (1,3)
- Post-traumatic herniation occurs immediately after a precipitating event or years later.
- **Location:** Intercostal (70%), cervical (30%), and diaphragmatic location is extremely rare. (1,2,3)
- **Treatment and prognosis:** Depending on the presentation, asymptomatic patients require close observation.
- **Complications:** Incarceration, strangulation, hemoptysis.

Case Description:

A 60-year-old morbidly obese male, evaluated for worsening dyspnea, wheezing, non-productive cough for 4-months, chronic fatigue, and excessive daytime sleepiness. He denied constitutional symptoms, recent travel, and sick contacts. Pertinent medical history includes asthma and COPD on home oxygen. A year ago, due to his asbestos exposure from working as a plumber and its increased risk of malignancy, the patient underwent CT-guided lung biopsy, video-assisted thoracoscopic surgery (VATS) wedge right-lower lobe resection for a solitary lung nodule, which was ruled out. He is admitted for asthma exacerbation. Initial chest x-ray was unremarkable. Due to severe pain located at the biopsy site, a chest CT scan (**Figure 1**) was done revealing a lung herniation, located between the posterolateral aspects of the sixth and seventh ribs. A portion of the right lower lobe extending laterally and inferiorly for almost 5 cm. After remission of asthma, the pain improved. Repeat CT (**Figure 2**) showed that the hernia decreased in size. On discharge he was advised to follow up with his cardiothoracic surgeon.

He had subsequent admissions due to COPD exacerbation, hernia remained asymptomatic with no complications over the course of two years.

SCAN ME

Figures:

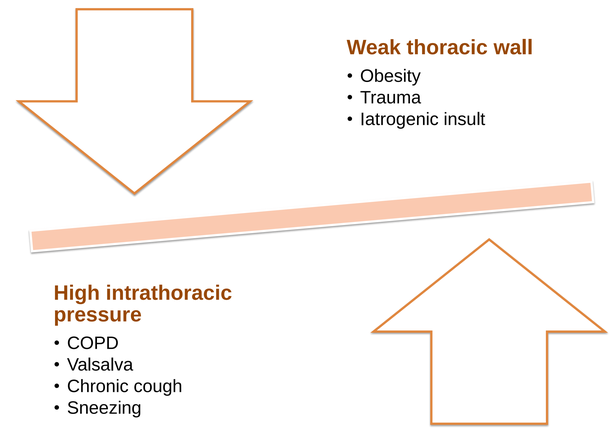
Figure 1: Computed tomographic scan of the chest (coronal view) demonstrating lung herniation through a chest wall defect located between the posterolateral aspects of the sixth and seventh ribs (yellow arrow).

Figure 2: Repeated computed tomographic scan of the chest (coronal view) showing the reduced lung herniation after asthma treatment.

Discussion:

In this case of intercostal lung herniation, we identify the following predisposing conditions: history of instrumentation and morbid obesity, both contributing to weakness of the chest wall, and COPD that builds intrathoracic pressure. Asthma exacerbation led incidentally to the finding of a structural defect, after treatment of the comorbidities. Some degree of reduction was achieved. Persistently symptomatic patients require immediate reduction and closure of the defect to prevent recurrent infections, incarceration, and strangulation. The risk factors identified in our patient could have been prevented by different lifestyle choices earlier in life. Once a structural defect takes place conservative measures such as weight loss and control of comorbidities prevent further damage to the chest wall and worsening of hernia but won't repair the injury.

Predisposing Factors Lung Herniation



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