

## Eventration of Diaphragm or Pseudo Pleural Effusion?

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### ABSTRACT

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**Background:** Physicians frequently encounter chest-x ray reports of pleural effusion in patients. Thoracocentesis is the second step to diagnosis, but if there isn't any effusion actually, thoracocentesis may lead to complication.

**Case Report:** A 47-year-old man with a history of dyspnea and dry cough and posteroanterior (PA) chest x-ray (and right lateral decubitus) report of pleural effusion referred for thoracocentesis, but vesicular sounds at over the lungs were normal. Spiral lung CT scan revealed localized eventration of diaphragm.

**Conclusion:** Localized eventration of right diaphragm may cause the appearance of pleural effusion in PA and also right lateral decubitus chest x-ray.

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► *Implication for health policy/practice/research/medical education:* Localized eventration of right diaphragm may cause the appearance of pleural effusion

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### 1. Introduction:

Pleural effusion is defined as an accumulation of fluid in the pleural space in excess of 15 to 20 mls (1).

About 5% to 12% of patients referred for emergency medical treatment are diagnosed with a pleural effusion (2). Routine chest radiography and Lateral decubitus views are often useful for determining whether pleural abnormalities represent freely flowing fluid (3). A

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radiological sign is often highly suggestive of a group of similar pathologies (4).

This case report shows, existence of diaphragm hump that is apparent on P.A Chest X-Ray may cause appearance of free flowing fluid level like pleural effusion in the lateral decubitus graphy and may result to do thoracocentesis as a fault.

### 2. Case Report:

A 47-years-old man reffered to pulmonology ward for thoracocentesis. He had dyspnea and dry cough from 2 months ago. He had a history of exposure of mustard gas in Iran-Iraq war about 18 years ago. On physical exam normal vesicular sounds were heard all over both lungs.

spirometryreveals: FEV1=57% pred,  
FEV1\FVC=68%

The chest x-ray PA report showed probability of right-sided pleural effusion. The right lateral decubitus chest x-ray report revealed increased thickness of haziness in right chest wall during decubitus position in comparison of PA chest x-ray, and existence of right side pleural effusion. Since the pulmonologist had a doubt of existence of effusion, a spiral lung CT scan was done but the CT scan didn't confirm existence of any fluid or abnormality in pleura, a diaphragm hump in right side was noted. So treatment of obstructive lung disease was started and the patient recovered of cough and dyspnea within about 2 weeks.

### 3. Discussion:

Eventration of diaphragm consists of thinned diaphragmatic muscle producing elevation of entire or part of the hemidiaphragm. The first case of diaphragmatic eventration was reported by Petit in 1774 (5). Congenital diaphragmatic eventration may go unrecognized even in adults. The exact incidence is not known owing to its rarity and as majority of cases are asymptomatic (6); however, some have reported the incidence in adults as 1 in 10,000 (5). Acquired diaphragmatic eventration may occur due to phrenic nerve injury, neurological disorders, myopathies, or lesions of the adjacent organs. Diaphragmatic eventration can be associated with bronchopulmonary, cardiac, and gastrointestinal malformations (7). The symptoms of diaphragmatic eventration are usually mild, but sometimes the patients may have orthopnea, dyspnea, hypoxia, and reduction in lung volumes. Repeated chest infections, gastrointestinal disorders, and palpitation may exist due to the mass effect of the diaphragmatic Eventration (8).

Local eventration may occur anywhere in the diaphragm, but it is seen most commonly in the anteromedial quadrant on the right. This finding possess no known significance (9).



**Fig. 1.** Lat. c-x ray.



**Fig. 2.** Right lat. decubitus.



**Fig. 3.** Lung CT scan.

It is a common problem in internal ward that we face to chest x-rays with report of pleural effusion, but the chest CT scan only reveals eventration of diaphragm; if medical students of teaching hospitals only rely on chest x-ray report, it may lead to do unnecessary thoracocentesis. Eventration of diaphragm may causes pleural effusion appearance in PA and lateral decubitus chest x-ray (Tehrani sign). Rull out the eventration of diaphragm in the suspicious cases that don't have clinical signs of effusion in physical exam before thoracocentesis is essential.

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