CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.2564052

Available online at: http://www.iajps.com *A Case Report*

RE-EXPANSION PULMONARY EDEMA (REPE): A CASE REPORT

[1]Ali Mohammed Alyami, [2]Bander Ali Alamry, [3]Abdullah Ibraheem Qashgry, [4]Meteb Al-Foheidi

King Khalid National Guard Hospital, Jeddah, Saudi Arabia[1]

Abstract:

This is a report of a rare presentation known as Re-Expansion Pulmonary Edema (REPE) which arises as an iatrogenic complication of excessive drainage of thoracic volumes (i.e. pleural effusion). The patient of concern here is a 44-year-old female with metastatic breast cancer on the left side who presented to the emergency department with worsening of cough and shortness of breath. Abnormal findings were noted upon auscultation of the patient's chest. Radiographs showed opacity on the left side which was identified as pleural effusion. Most of the fluid (> 1000 ml) was drained with a pigtail insertion and the patient's condition improved. However, the patient's respiratory symptoms relapsed in the following few hours and drainage had to be done again but with a few less milliliters (< 1000 ml) in accordance with an American college recommendation. This resulted in improvement in the patient's status with no relapses of cough or shortness of breath and the patient was managed successfully and discharged home.

Corresponding author:

Ali Mohammed Alyami,

King Khalid National Guard Hospital, Jeddah, Saudi Arabia

QR code

Please cite this article in press Ali Mohammed Alyami et al., ***Re-expansion pulmonary edema (REPE): A case report.,*** *Indo Am. J. P. Sci, 2019; 06(02).*

INTRODUCTION:

This case involves a 44-year-old female patient with a known metastatic breast cancer who underwent several courses of chemotherapy before developing recurrent pleural effusion in her left lung further complicated by pigtail insertion causing re-expansion pulmonary edema (REPE). REPE is a rare iatrogenic complication with a low incidence of 0 to 1% reported in most studies [1]. Given the rarity of this condition, we believe that reporting this case along with its details of diagnosis and management will be of benefit to the medical literature and practice.

CASE REPORT:

This is a 44-year-old lady with known metastatic left breast cancer on chemotherapy. The complications arising from the patient's malignant condition (i.e. febrile neutropenia, mucositis, etc.) rendered her a frequent visitor of the emergency department. One day the patient presented to the ER and while obtaining her medical history, she reported having shortness of breath and worsening of cough. Upon physical examination, no abnormal findings noted except for absent air entry on the left side. Imaging with x-rays was done and showed moderate left side pleural effusion (Figure 1). The medical team decided to admit the patient and relieve the effusion with the insertion with a pigtail catheter. The procedure was carried out successfully(1100 ml of fluid was drained),the patient's condition improved, and the shortness of breath subsided. An X-ray was done afterwards and showed slight, residual volume of the effusion (Figure 2). However, in the following few hours, the patient's condition deteriorated: the shortness of breath relapsed, and she was tachycardic and tachypnic. Chest X-ray was done and showed opacification of the entire left hemithorax (Figure 3). The diagnosis of REPE was made and managed with pigtail insertion. However, due to the recurrent nature of REPE in this patient and due to the pain associated with pigtail insertion, colleagues at thoracic surgery were consulted for the possibility of performing pleurodesis which was advised against due to the malignant condition of the patient and her chemotherapeutic schedule. The medical team then decided to keep managing the patient's condition with pigtail insertion but with less amount of drainage (800 ml) which improved the patient's condition significantly and stopped the relapse of symptoms.

DISCUSSION:

REPE is an iatrogenic complication which could occur during the reinflation of a collapsed lung or deflation [2].It is a syndrome that could manifest as pulmonary edema clinically and radiographically following the drainage of large (more than 1.5 L) thoracic volumes of fluid [3].In our case here, 1100 ml of volume was drained initially.The incidence of this syndrome is not exactly known, and it demonstrates a lack of consensus in the medical literature. It is estimated to lie within the range of0.9% to 14% in patients with spontaneous pneumothorax [2]. However, two studies conducted on patients with spontaneous pneumothorax (400 and 375 cases respectively) reported no cases of REPE [5]. This scarcity of data is even more pronounced in the Saudi medical context due to the fact that no local/regional results were found upon our research of the literature. We believe that this strongly attests to the importance of reporting this case.

Moreover, the pathophysiology and risk factors of REPE are of a particular interest and, hence, our report. It has been postulated that REPE develops with increased vascular permeability caused by reperfusion damage by free radicals and by parenchymal changes at the histological levels [3].Patients with large pnemothraces, young patients, patients with lung collapse for over a week, and those requiring the drainage of over 3 L of pleural fluid are at risk of developing REPE [1]. Patients often show signs of rapidly-progressing dyspnea and tachypnea which was the case with our patient. Other symptoms include productive cough, hypotension, tachycardia, fever, cyanosis, chest pain, nausea, and vomiting. Initially, 1100 ml of fluid was drained from our patient before her condition relapsed several hours afterwards.

REPE is diagnosed with X-ray radiographs. Several Studies of REPE have been reviewed; all of which employed X-rays for the diagnosis of REPE. The X-rays showed acute pulmonary edema in the affected lungs [2,3,5] which was the case with our patient as well. REPE is usually self-limiting and a lot of patients recover within a week. However, some cases require supportive management consisting of oxygen or CPAP support, diuretics, steroids, and ionotropics. Other cases require more invasive techniques (for example, pigtail drainage) such as the case in our patient. This type of medical intervention is not alien to the literature. The lack of consensus here is concerned with the question of "how much?"The British Thoracic Society guidelines suggest 1.5 L of pleural fluid be drained at a time [1,6] which proved less successful in comparison to the recommendation of an American College of Chest Physicians which advises to drain not more than 1 L of fluid at once [5]. Our management went more in line with the latter recommendation.

REFERENCES:

1.Echevarria C, Twomey D, Dunning J, Chanda B. Does re-expansion pulmonary oedema exist? Interact Cardiovasc Thorac Surg [Internet]. 2008;7(3):485–9. Available from: https://academic.oup.com/icvts/article-lookup/doi/10.1510/icvts.2008.178087

2.Kim HC, Suh KH, Lee YC. Severe Bilateral Re-Expansion Pulmonary Edema Successfully Managed With Extracorporeal Membrane Oxygenation After Robot-Assisted Mitral Valve Repair Surgery. J Cardiothorac Vasc Anesth [Internet]. 2016;30(4):1038–41. Available from: http://dx.doi.org/10.1053/j.jvca.2015.10.001

3.Rosat A, Díaz C. Reexpansion pulmonary edema after drainage of tension pneumothorax. Pan Afr Med J. 2015;22:8688.

4.Light RW, Lee YCG. Pneumothorax, Chylothorax, Hemothorax, and Fibrothorax [Internet]. Sixth Edit. Murray and Nadel's Textbook of Respiratory Medicine. Elsevier Inc.; 2016. 1439-1460.e10 p. Available from: http://linkinghub.elsevier.com/retrieve/pii/B9781455733835000816

5.Verhagen M, Van Buijtenen JM, Geeraedts LMG. Reexpansion pulmonary edema after chest drainage for pneumothorax: A case report and literature overview. Respir Med Case Reports [Internet]. 2014;14:10–2. Available from: http://dx.doi.org/10.1016/j.rmcr.2014.10.002

6.Roberts ME, Neville E, Berrisford RG, Antunes G, Ali NJ, BTS Pleural Disease Guideline Group. Management of a malignant pleural effusion: British Thoracic Society Pleural Disease Guideline 2010. Thorax [Internet]. 2010 Aug 1 [cited 2018 Aug 24];65 Suppl 2(Suppl 2):ii32-40. Available from: http://www.ncbi.nlm.nih.gov/pubmed/20696691

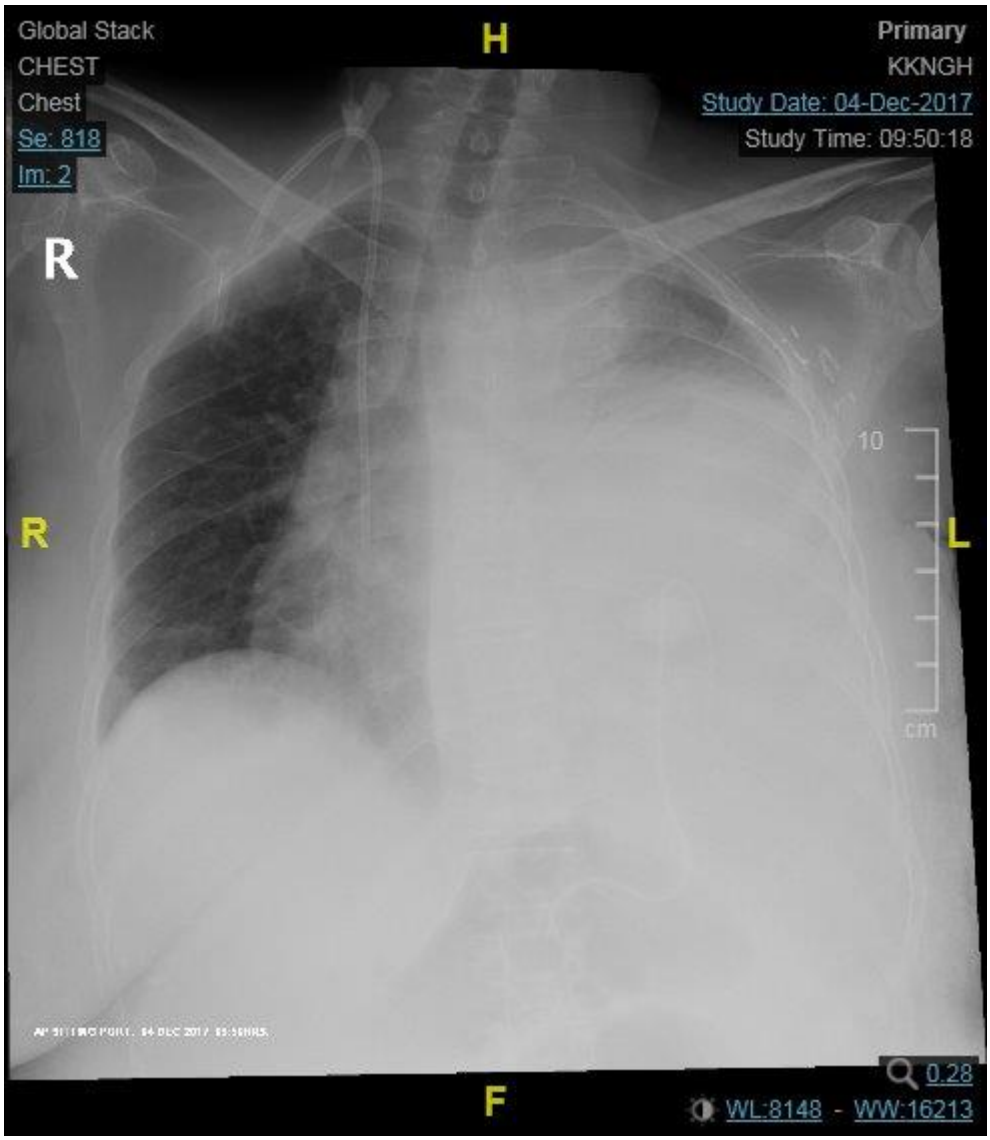

Figure 1: initial chest x-ray of the patient

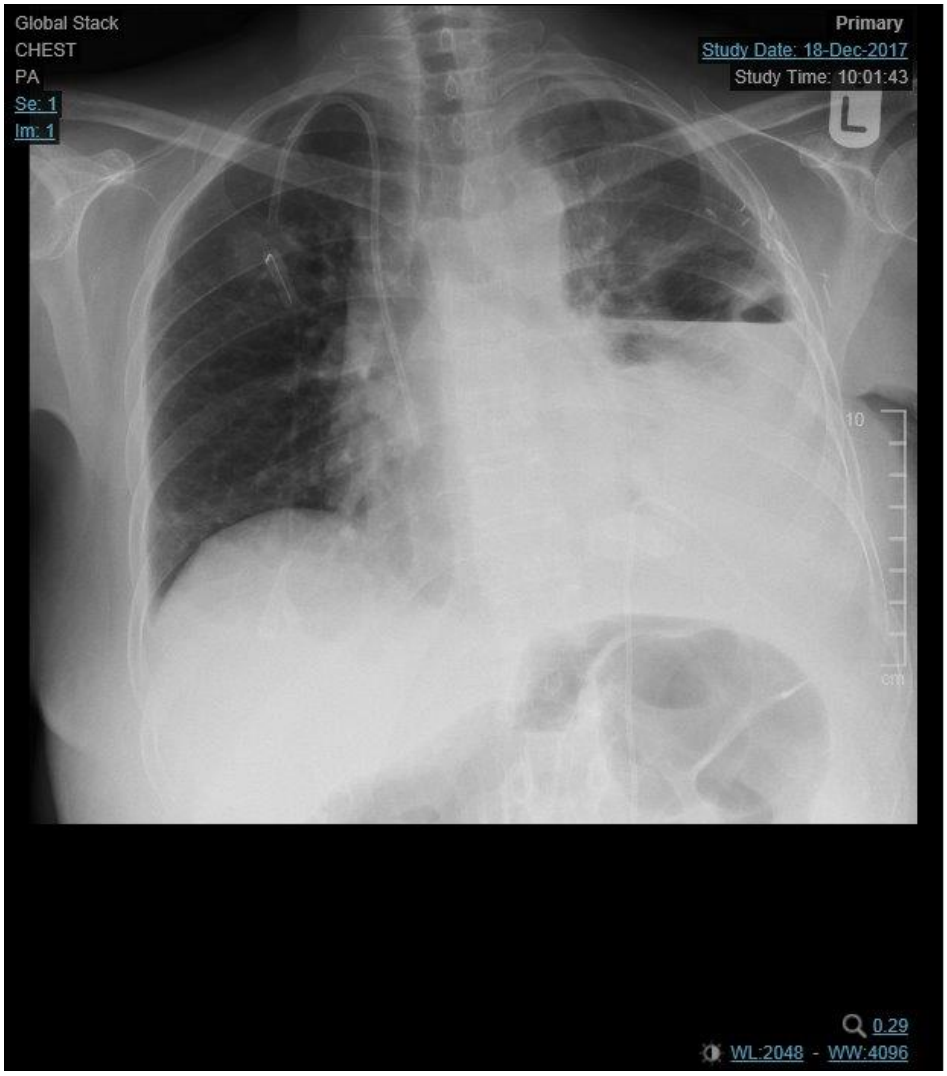

Figure 2: post-drainage chest x-ray

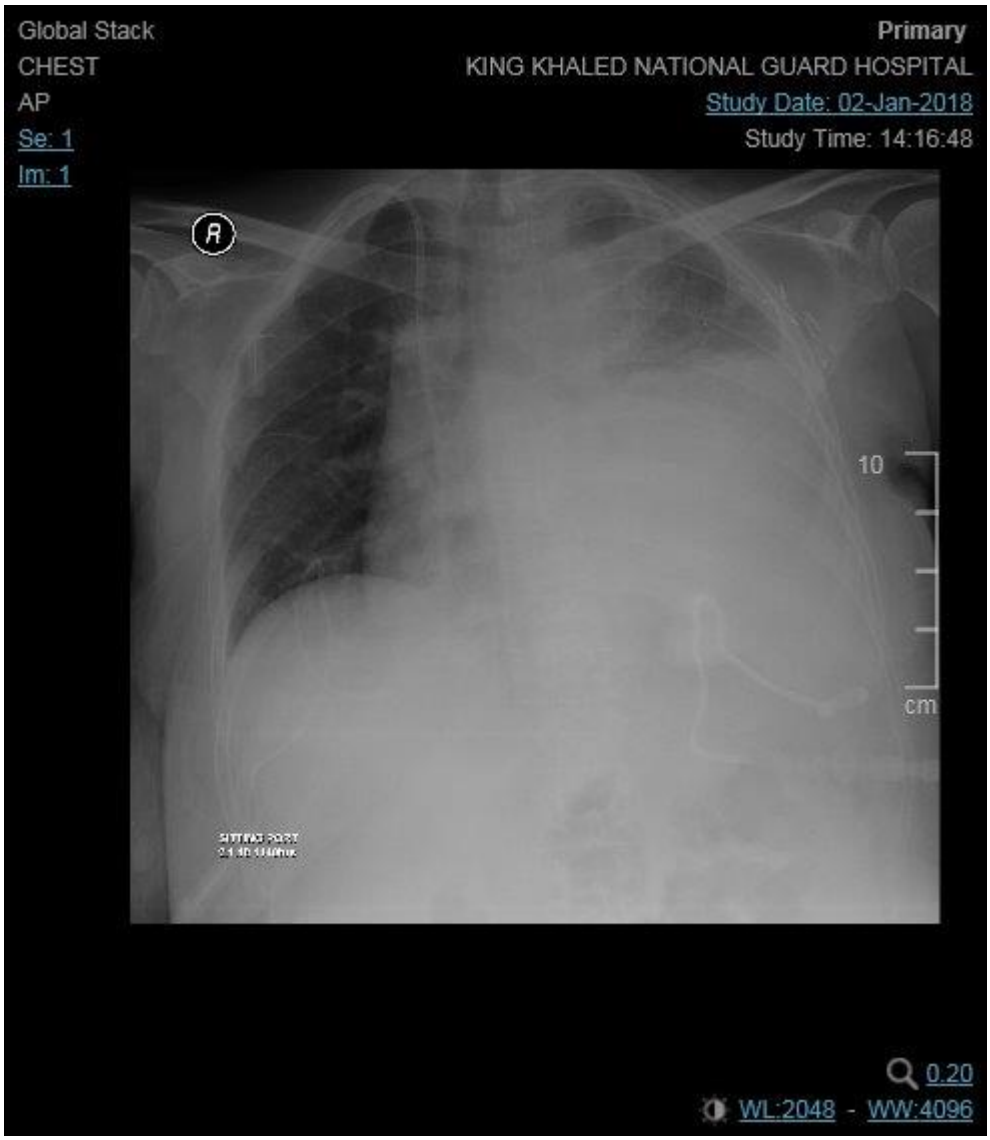

Figure 3: redemonstration of REPE