Official Case Reports Journal of the Asian Pacific Society of Respirology
Respirology Case Reports
OPEN ACCESS

Acute pneumonitis following breast silicone liquid injection

Noni Novisari Soeroso, Ella Rhinsilva & Luhur Soeroso

Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, University of Sumatera Utara, University of Sumatera Utara Hospital, Sumatera Utara, Indonesia.

Keywords
Breast, injection, pneumonitis, silicone.

Correspondence
Noni Novisari Soeroso, Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, University of Sumatera Utara, University of Sumatera Utara Hospital, Jl. Dr. Mansyur no. 5 Medan 20155, Sumatera Utara, Indonesia. E-mail: noni@usu.ac.id

Received: 5 April 2018; Revised: 13 May 2018; Accepted: 20 May 2018; Associate Editor: Garun Hamilton.

***Respirology Case Reports*, 6 (6), 2018, e00335**

doi: 10.1002/rcr2.335

Abstract

Silicone injections, although well known for their adverse effect, are still widely used around the world. Pneumonitis after an injection of silicone liquid has been reported in several patients. Silicone liquid injection is frequently administered to transgender individuals into the buttocks area but is rarely used for the breasts. We report a case of presumed pneumonitis following breast silicone liquid injection. A 36-year-old woman was admitted due to shortness of breath three days after silicone liquid injection. Chest X-rays (CXR) showed bilateral alveolar patchy infiltrates. Chest computed tomography scan revealed diffuse infiltrates involving mostly peripheral lung fields (suggestive for silicone liquid injection) and multiple isodense soft-tissue nodules in both breasts. The treatment included antibiotic and steroid administration. After being treated for a week, clinical results and the latest CXR revealed improvement compared with the previous CXR, and the patient was discharged in good condition.

Introduction

Pneumonitis has been reported in several patients after silicone liquid injection, with the first case described in 1975. Local and systemic complications have been reported after silicone injection, especially when injection was administered by illegal practitioners. Silicone liquid injection is frequently administered to transgender individuals into the buttocks area but is rarely used for the breasts [1,2].

In our patient, an acute pneumonitis was marked by a sudden shortness of breath, tachycardia, tachypnoea, fever, chest pain, and haemoptysis that appeared within 24 h after the silicone injection [1,2].

Case Report

A 36-year-old Chinese Indonesian woman presented with shortness of breath, cough, fever, and chest pain for three days. Further history demonstrated that she had received 100 mL of silicone liquid injection in her breasts, performed by an unlicensed aesthetician five days before admission. The vital signs of the patient were as follows: blood pressure: 120/80 mmHg, pulse rate of 102 beats/min, respiratory rate of 28 breaths/min, temperature of 37.4°C, and SpO_2 by pulse oxymetry was 87% on room air. Chest examination demonstrated rales in both lower lung fields. A complete blood count and arterial blood gas analysis showed leucocytosis (15,300/mm^3) with mild hypoxaemia and respiratory alkalosis (pH: 7.48; pCO_2: 38.9 mmHg; pO_2: 70 mmHg; HCO_3: 26.9 mmol/L; Base Excess: 2.7 mmol/L; SaO_2: 80%). Chest X-rays (CXR) showed bilateral alveolar patchy infiltrates (Fig. 1A). Chest computed tomography (CT) scan demonstrated diffuse infiltrates involving mostly peripheral lung fields (suggestive for silicone liquid injection) and multiple isodense soft-tissue nodules in both breasts (Fig. 1B, C). These findings were typical for Acute Respiratory Distress Syndrome (ARDS) due to pneumonitis with possible pulmonary embolism (PE) co-assistance. High-flow O_2 was administered along with levofloxacin, intravenous corticosteroid, and 0.2 mg/day subcutaneous enoxaparin. After being treated for one week, the subsequent CXR showed decreased density of alveolar patchy infiltrate on left lower lung (Fig. 2). Eventually, the patient was discharged from the hospital in good condition.

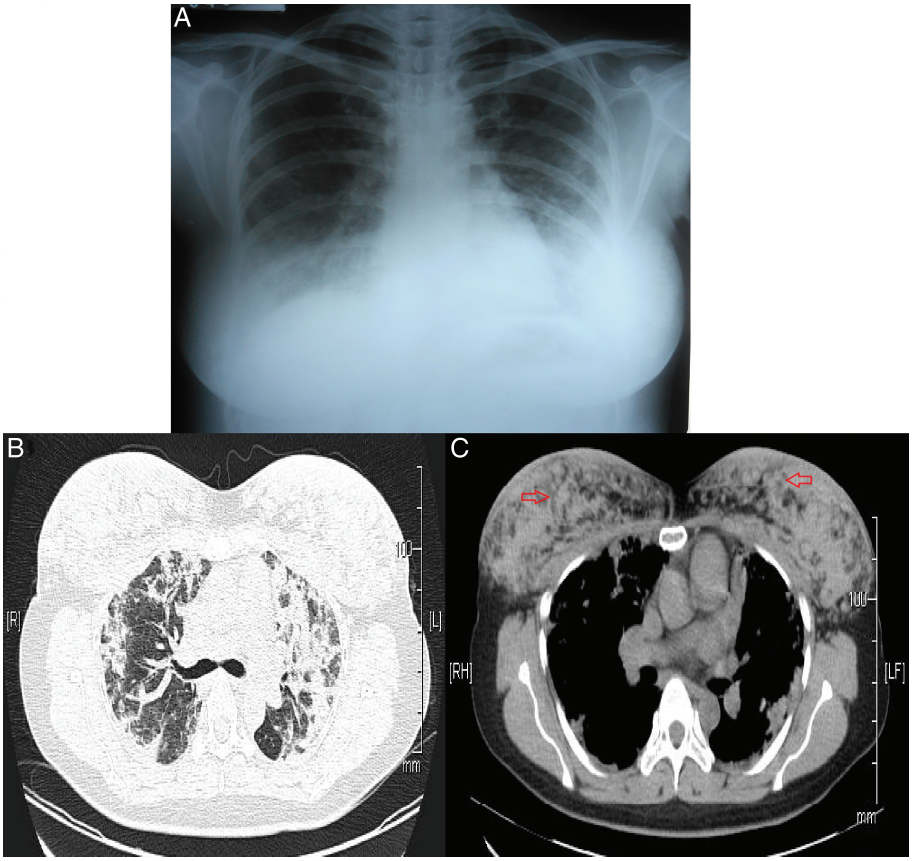

Figure 1. (A) Chest X-ray showed bilateral alveolar patchy infiltrates. (B) and (C) Chest computed tomography scan revealed diffuse infiltrates involving mostly peripheral lung fields and multiple isodense soft-tissue nodules in both breasts.

Discussion

Silicones are synthetic polymers made by combining oxygen and silicone, which at high temperatures and pressures can produce a polydimethylsiloxane fluid, for example, injectable silicone [2]. The first case of silicone pneumonitis was described in 1975. Since then, it has been reported many times, with the most reported cases being a result of injections of subcutaneous liquid silicone. The pathogenesis of the disease is still uncertain. It is assumed to be due to spreading via haematogen and lymphogen. Distribution in the lymphatic system is shown by the presence of silicone granuloma in the lymph node, while distribution in the blood vessel is shown by silicone emboli within the blood from the subcutaneous injection of liquid silicone. There have been reports describing intravascular injuries because the silicone arrives in the pulmonary circulation and causes pulmonary emboli [3,4].

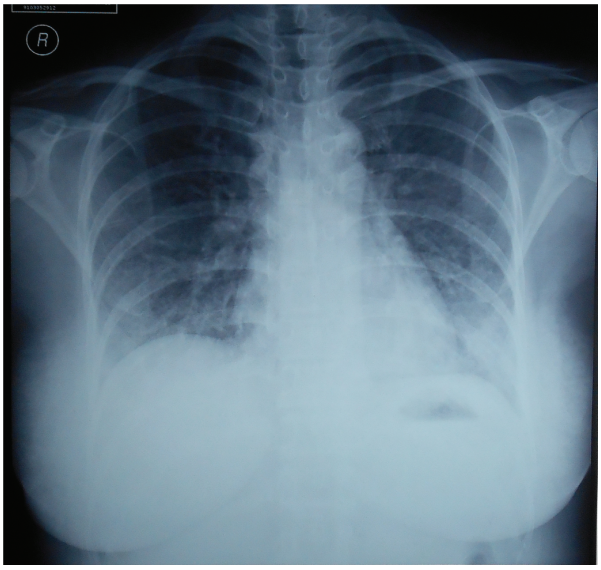

Figure 2. After being treated for one week, chest X-ray showed alveolar patchy infiltrate on left lower lung field.

Clinical findings of silicone pneumonitis include sudden onset of shortness of breath, chest pain, and fever. However, these symptoms may occur within days to weeks of exposure/injection (such as in this case) or potentially be delayed by up to six months. One study reported five cases of acute pneumonitis due to silicone injection that occurred two weeks later [2].

The radiological manifestation of pneumonitis due to silicone liquid includes bilateral air-bronchogram in CXR. Thoracic CT scan may reveal ground-glass opacity predominantly in the peripheral area. However, this appearance

could also be found in several other diseases, such as interstitial lung disease (ILD).

Diagnosis of pneumonitis due to silicone liquid injection can be challenging due to a lack of an available specific algorithm. Lung biopsy may be mandatory to confirm the diagnosis of pneumonitis. The presence of silicone globules embolized within the pulmonary capillary is pathognomonic for pneumonitis due to silicone liquid injection [5]. Bronchoalveolar lavage (BAL) cytology, presenting large quantities of pleomorphic cytoplasmic particle, which are actually silicone particles, is another diagnostic procedure. Most patients improved after the administration of corticosteroid and oxygen therapy. Empiric antibiotics may be given prudently, particularly in case of suspicion of bacterial co-infection besides the pneumonitis itself. In some cases, implant removal may be necessary, particularly if the implant has ruptured [3].

Our case is quite complicated because neither biopsy nor BAL was performed. Nevertheless, suspicion of pneumonitis due to silicone liquid injection was raised by detailed history demonstrating that the acute symptoms occurred three days after silicone liquid injection and by the typical radiographic findings. Chest X-ray showed bilateral air bronchogram on both lungs, and thoracic CT scan showed ground-glass opacity on the middle and lower part of the peripheral and many soft-tissue nodules in the both mammae, suggestive of silicone globules.

We appreciate that more diagnostic procedures are needed to confirm the diagnosis; however, the typical radiological findings supported the presumptive diagnosis. Moreover, the patient demonstrated a satisfying response after corticosteroid administration, supporting the diagnosis of pneumonitis.

Disclosure Statement

Appropriate written informed consent was obtained for publication of this case report and accompanying images.

References

1. Gopie P, Sakhamuri S, Sharma A, et al. 2011. Acute pneumonitis secondary to subcutaneous silicone injection. Int. J. Gen. Med. 4:477–479. https://doi.org/10.2147/IJGM.S20071.
2. Zamora AC, Collard HR, Barrera L, et al. 2009. Silicone injection causing acute pneumonitis; a case series. Lung 187(4):241–244. https://doi.org/10.1007/s00408-009-9150-x.
3. Parikh R, Karim K, Parikh N, et al. 2008. Case report and literature review: acute pneumonitis and alveolar hemorrhage after subcutaneous injection of liquid silicone. Ann. Clin. Lab. Sci. 38(4):380–385.
4. Parades Vila S, Gonzalez Barcala FJ, Suarez Antelo J, et al. 2010. Pneumonitis caused by silicone gel following breast implant rupture. Ir. J. Med. Sci. 179(1):141–145. https://doi.org/10.1007/s11845-009-0369-6.
5. Essenmacher AC, and Astani SA. 2013. Respiratory disease following illicit injection of silicone: a case report. Case Rep. Med. 2013(4):1–3. https://doi.org/10.1155/2013/743842.