



Asymptomatic silicone induced granulomatous disease diagnosed by endobronchial ultrasound with real-time guided transbronchial needle aspiration (EBUS-TBNA)

Therese Maria Henriette Naur^{a,*}, Uffe Bodtger^{a,b,c}, Rafi Nessar^a, Goran Nadir Salih^a, Paul Frost Clementsen^{a,d,e}

^a Department of Internal Medicine, Zealand University Hospital, Roskilde, Denmark

^b Department of Respiratory Medicine, Naestved Hospital, Naestved, Denmark

^c Institute of Regional Health Research, University of Southern Denmark, Odense, Denmark

^d Copenhagen Academy for Medical Education and Simulation (CAMES), Rigshospitalet, Copenhagen, University of Copenhagen, Denmark

^e Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark

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ABSTRACT

Silicone from ruptured breast implants can cause lung symptoms mimicking cancer. The diagnosis may be established by transbronchial lung biopsy or surgery. We report a case of asymptomatic silicone induced granulomatous reaction in the lungs and mediastinal lymph nodes diagnosed with EBUS-TBNA. We conclude that this differential diagnosis should be kept in mind even in an asymptomatic patients and that EBUS-TBNA should be considered.

1. Introduction

Silicone implants are widely used in breast surgery of cosmetic reasons. The compound may lead to complications caused by rupture of the prosthesis, lung infiltrates and abnormal lymph nodes in the mediastinum [1]. In these cases positron emission tomography - computed tomography (PET-CT) may cause suspicion of malignant disease in the thorax such as lung cancer and may lead to diagnostic surgery.

2. Case report

A 43-year old previously healthy woman visited her doctor due to exercise-induced pain in her right knee, which showed up to be a spontaneously transient symptom. Otherwise, she was completely asymptomatic, had never had tuberculosis or had episodes of erythema nodosum, arthralgias, eye pain or fatigue. The lung function and all blood test were normal. She had been smoking corresponding to 15 pack years. Two years earlier (2016) bilateral breast implants placed of cosmetic reasons had been removed since leak was demonstrated by breast magnetic resonance imaging (MRI) and ultrasound, which also revealed enlarged silicone-containing right axillary lymph nodes. The patient was referred for a routine chest X ray (no symptoms but former

smoker) that lead to CT of the chest. This showed non-calcified asymmetrical lymphadenopathy of stations 2R, 7, 10R and 11R (short axis diameter: 10–15 mm), and multiple bilateral lung nodules (diameter 5–10 mm) with no pleural, subpleural or perivascular preference. Furthermore, a prosthesis residue was demonstrated laterally in the right breast. C-reactive protein, renal function tests and ionized calcium were all normal. The patient was referred to our unit for workup of suspected malignancy. PET-CT revealed increased metabolic activity in the lymph nodes and lung nodules mentioned (Figs. 1 and 2). We performed bronchoscopy (bronchial wash for cytology and culture) and endobronchial ultrasound with real-time guided transbronchial needle aspiration (EBUS-TBNA). The patient had difficulties cooperating during the first procedure performed under conscious sedation because she was coughing. To ensure sufficient biopsies from as many lymph nodes as possible, we performed a second procedure under general anesthesia.

At 12-month follow up, she was consistently asymptomatic, but the patient refused the planned chest CT due to fear of long-term consequences of irradiation.

3. Discussion

Rupture of silicone implants may lead to complications such as

* Corresponding author.

E-mail address: therese.naur@gmail.com (T.M.H. Naur).

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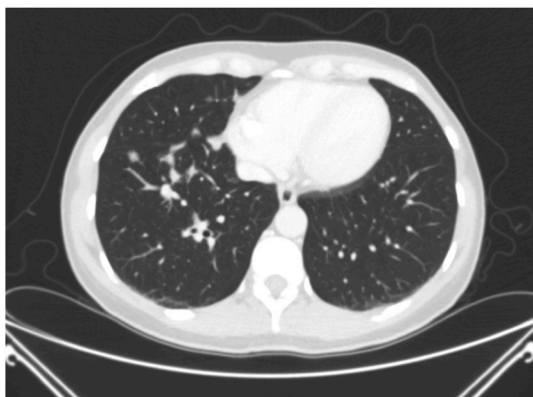


Fig. 1. CT (2018) showed bilateral pulmonary infiltrates and enlarged lymph nodes in all mediastinal stations.

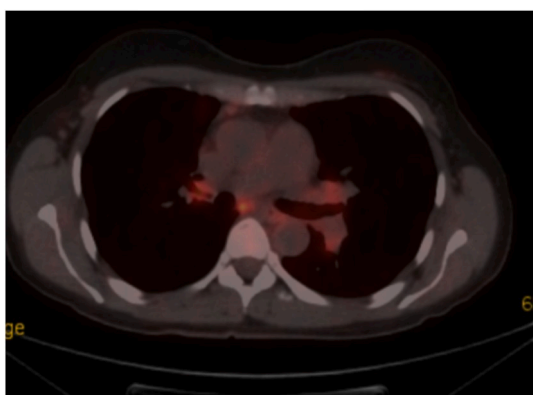


Fig. 2. PET-CT (2018) showed metabolic active lymph nodes in every mediastinal station. Both hilar regions and the pulmonary infiltrates showed metabolic activity.

pneumonitis with symptoms as cough, fever and dyspnea [1] or the so called silicone embolism syndrome [2]. A diagnosis can be established with the use of bronchoscopic transbronchial lung biopsy, open lung biopsy, or video assisted thoracoscopy [1]. Furthermore, in one case story a patient presented with cough, pain and fatigue and was found to have non-caseating granulomas in mediastinal lymph nodes due to silicone from ruptured breast implants [3]. In addition, silicone from ruptured breast implants may cause symptomatic cervical lymphadenopathy [4]. A retrospective review of cases of silicone-induced lymphadenopathy after breast implant encountered at Mayo Clinic Rochester between 1998 and 2008 revealed 18 cases of silicone-induced lymphadenopathy (axillary, supraclavicular, internal mammary, and mediastinal) [5]. Asymptomatic and random finding of lung infiltrates and chest lymphadenopathy caused by silicone has not been described earlier and the establishment of a diagnosis with the use endobronchial ultrasound guided fine needle aspiration (EBUS-TBNA) has only been reported in one single case story [3]. We report a case of silicone induced granulomatous reaction in the lungs and mediastinal lymph nodes diagnosed with EBUS-TBNA. We conclude that this differential diagnosis

should be kept in mind even in an asymptomatic patients and that EBUS-TBNA should be considered.

4. Established facts and novel insights

4.1. Established facts

1. Silicone from ruptured breast implants can cause lung symptoms caused by pneumonitis and mediastinal lymphadenopathy mimicking cancer
2. A diagnosis can be established with the use of bronchoscopic transbronchial lung biopsy, open lung biopsy, or video assisted thoracoscopy

4.2. Novel insights

1. Lung infiltrates and mediastinal lymphadenopathy caused by silicone from breast implants may be asymptomatic
2. A diagnosis can be established by endobronchial ultrasound with real-time guided transbronchial needle aspiration (EBUS-TBNA)

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Declaration of competing interest

None of the authors of this paper titled “Asymptomatic Silicone Induced Granulomatous Disease diagnosed by EBUS-TBNA” have any conflicts of interests to declare.

CRediT authorship contribution statement

Therese Maria Henriette Naur: Conceptualization, Writing - original draft, Writing - review & editing. **Uffe Bodtger:** Resources, Writing - review & editing. **Rafi Nessar:** Resources, Writing - review & editing. **Goran Nadir Salih:** Resources, Writing - review & editing. **Paul Frost Clementsen:** Conceptualization, Resources, Supervision, Writing - review & editing.

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