Annals of Medicine and Surgery 7 (2016) 20–23

Contents lists available at ScienceDirect

Annals of Medicine and Surgery

journal homepage: www.annalsjournal.com

Case report

Reexpansion pulmonary edema after surgery for spontaneous pneumothorax in a patient with anorexia nervosa

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HIGHLIGHTS

- Ligation of bullae for spontaneous pneumothorax in a patient with AN has never been reported.
- Anorexia nervosa results in critical complications such as RPE.
- Malnutrition due to AN changes the architectural changes in the lung.

ARTICLE INFO

Article history:
Received 25 November 2015
Received in revised form
5 January 2016
Accepted 13 February 2016

Keywords:
Surgery
Complications
Pneumothorax
Anorexia nervosa
Reexpansion pulmonary edema

ABSTRACT

Introduction: Several adverse effects on the pulmonary system in patients with anorexia nervosa (AN) have been reported. We present a case of AN who presented with a complicated reexpansion pulmonary edema (RPE) after video-assisted thoracic surgery (VATS) for spontaneous pneumothorax.

Presentation of case: A 23-year-old woman with severe anorexia nervosa (weight: 25 kg, body mass index: 8.96 kg/m^2) underwent VATS for spontaneous pneumothorax. Five hours after the surgery, she immediately presented acute cardiorespiratory insufficiency. Chest radiography showed an infiltrating shadow in the entire right lung. She was diagnosed with reexpansion pulmonary edema that was treated with methylprednisolone pulse therapy and mechanical ventilation. She recovered and was extubated on postoperative day 4. The chest drain tube was removed on postoperative day 5.

Discussion: Bullectomy or ligation of bullae for spontaneous pneumothorax in a patient with AN has never been reported. In our case, bullae were identified in preoperative CT and we chose ligation of the bullae instead of the bullectomy using automatic suture device because of poor wound healing concerned.

Conclusion: We present a case of RPE after VATS for spontaneous pneumothorax in a patient with AN. Malnutrition owing to AN results in critical complications such as RPE.

1. Introduction

Malnutrition resulting from anorexia nervosa (AN) causes various medical complications. Several studies have reported adverse effects of the pulmonary system such as spontaneous pneumothorax due to AN; however, there are no reports in the English literature on reexpansion pulmonary edema (RPE) in such patients. RPE is a rare and lethal complication that occurs after the treatment of pneumothorax. We present a case of RPE after video-assisted thoracoscopic surgery (VATS) for spontaneous pneumothorax in a patient with AN.

2. Presentation of case

A 23-year-old woman, diagnosed with AN three years previously, was admitted to a psychiatric ward of a hospital for psychotherapy and nutritional rehabilitation. Although she was asymptomatic, chest radiography on admission showed pneumothorax in the right lung. A 20-French tube thoracostomy catheter attached to a water-seal was inserted. After two weeks, the patient experienced persistent air leakage that appeared as inadequate expansion of the lung on radiography (Fig. 1A). Subsequently, she was transferred to our hospital for the surgical treatment of the

Abbreviations: AN, anorexia nervosa; RPE, reexpansion pulmonary edema; VATS, video-assisted thoracoscopic surgery.

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http://dx.doi.org/10.1016/j.amsu.2016.02.019

pneumothorax. On admission, she weighed 25 kg, and her body mass index was 8.96 kg/m^2. Her neck muscles were too weak to maintain an erect posture while simultaneously opening her mouth. Chest radiography showed a moderate degree of right pneumothorax. A chest computed tomography scan demonstrated several bullae in the upper lobe of the right lung (Fig. 2A). Therefore, video-assisted ligation of the bullae (Fig. 2B) was performed, with which the persistent air leakage resolved. A chest drain tube (−8 cm H_2O suction) was placed in the right pleural cavity, and the right lung was fully expanded perioperatively. Although chest radiography before extubation of the tracheal tube showed an infiltrating shadow at the hilum of the right lung (Fig. 1B) and bronchoscopy revealed frothy secretions, her respiratory condition was stable. Later, extubation of the tracheal tube was performed immediately after the operation. Five hours after the surgery, she developed hypotension, hypoxemia, and anuria. Chest radiography showed that the infiltrating shadow had spread over the entire right lung (Fig. 1C). Arterial blood gas revealed a pH of 7.33, PCO_2 of 35 mm Hg, and PO_2 of 70 mm Hg on FiO_2 of 0.6. She was diagnosed with acute heart failure on the basis of these findings. Re-endotracheal intubation and mechanical ventilation were initiated. The patient was administered albumin, and frozen fresh

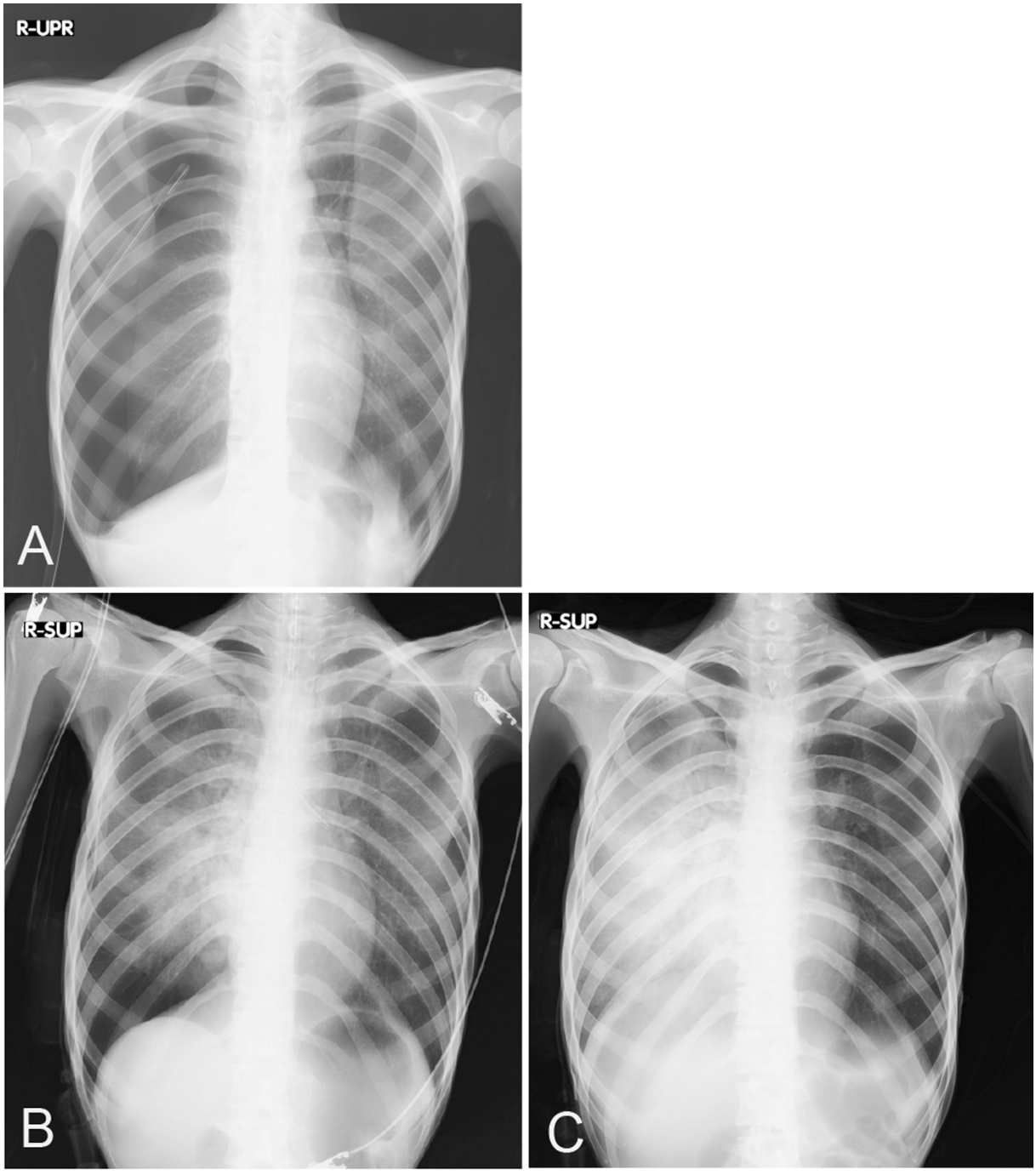

Fig. 1. (A) Chest radiograph obtained on admission showing pneumothorax in the right lung, and placement of the chest drain in the right pleural cavity. (B) Chest radiograph before extubation showing early infiltration in the mid zone of the right lung. (C) Chest radiograph 5 hours after extubation showing full-blown right-sided reexpansion pulmonary edema.