



# Pneumothorax in Recovery of Patients Undergoing Facial Reconstruction with Latissimus Dorsi Flap: A Case Report

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## Abstract

The reported case was a 27-year-old male with upper maxilla squamous cancer that had undergone reconstruction with Latissimus dorsi flap. The surgery patient in lateral position experienced arterial oxygen saturation drop once, which was increased after a few minutes up to about 96% to 97%. At the end of surgery, the awake and alert patient was delivered to the recovery room. Ten minutes later, he was affected by SPO<sub>2</sub> drop up to 90% to 93% and tachycardia, PR = 122, without respiratory distress. In auscultation, respiratory noise reduction was clear in the right hemi-thorax. Chest X-ray was taken and pneumothorax conformation chest tube No 28 was embedded in the emergency room by surgery services.

**Keywords:** Pneumothorax, Latissimus Dorsi Flap, Recovery Room

## 1. Introduction

Latissimus dorsi muscle is used widely in surgeries conducted to reconstruct (1). Latissimus dorsi flap covering the lower half of the back is very safe per se and numerous studies regarding the use of this flap in upper limb injuries and reconstruction have been reported (2). Pneumothorax is a very rare complication, and it might occur in an accidental way (3).

## 2. Case Presentation

The patient was a 27-year-old male with SCC maxilla cancer, which was performed two weeks ago under total maxilla resection and reconstruction with flap and then radiotherapy and chemotherapy were taken from patients. Because of the change in color of the Free Flap, the patient became a candidate for latissimus dorsi muscle flap. The patient did not mention a history of pulmonary and heart disease before surgery and he had good physical bearing. During hospitalization, he experienced pulmonary emboli in the first surgery, and was treated with Rivaroxaban. Before surgery, filter IVC was embedded and heparin infusion was started. The awake patient under SPO<sub>2</sub>, Blood Pressure (BP), and PR monitoring was intubated by fiber optic with reinforced tracheal tube and received mechanical ventilation. During the surgery, in the lateral position,

when removing latissimus dorsi flap, the patient experienced SPO<sub>2</sub> drop once from 99% to 94%, and after examination and lung auscultation and taking required measures, it increased up to 96% to 97%, and during the surgery, it did not change.

After completion of the surgery, the patient was intubated and he was delivered to the recovery room while he was awake and alert. The patient was under standard monitoring and received oxygen through a sustainable green mask. After 10 minutes, the patient experienced SPO<sub>2</sub> drop to 93% to 90%, despite receiving supplemental oxygen and tachycardia up to PR = 122, without distress. In auscultation, he had clear respiratory noise reduction in the right hemi-thorax and subcutaneous emphysema was touched slightly. Chest X-ray was taken and after pneumothorax conformation, chest tube No 28 was embedded at the emergency room by surgery services. In chest X-ray, the patient's lung was opened and during the three days, the patient was discharged with partial recovery.

## 3. Discussion

Latissimus dorsi flap is one of the most known flaps in reconstruction of upper limb and face. Pneumothorax is one of the rare complications of maxillofacial surgery with flap (3, 4). Pneumothorax is characterized by presence of

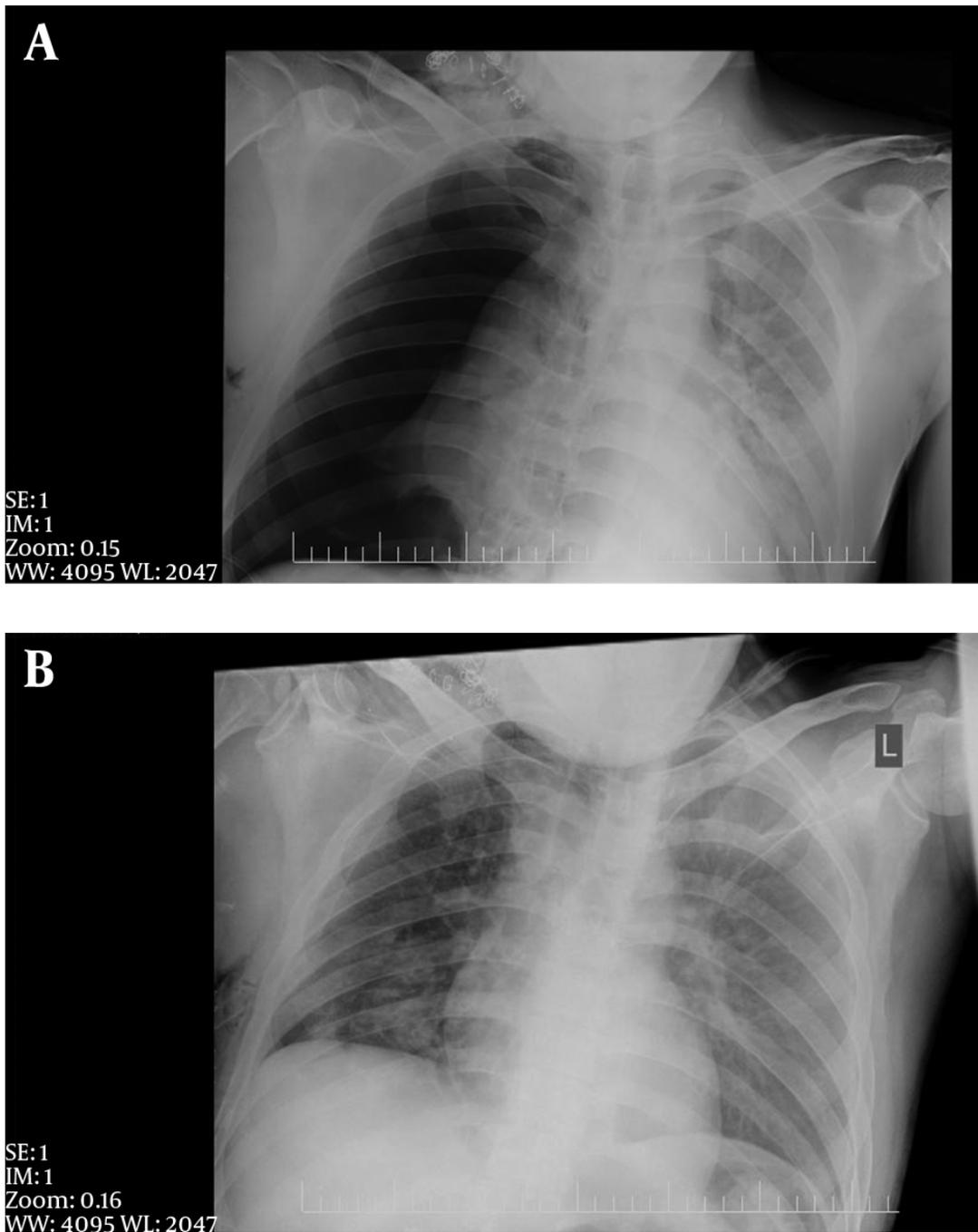


Figure 1. Chest X - ray Radiographs

air in the pleural space and it can turn to tension pneumothorax even with a slight amount under ventilation with positive pressure of lungs (5). In a study conducted by Reekie et al., they reported that correct and timely diagnosis of pneumothorax is still a challenge for all physi-

cians involved in the care of patients during surgery (4). Bacon et al. found that there are difficulties in diagnosing pneumothorax, and by using certain algorithms, they achieved early diagnosis and proper treatment (5). Due to problems of the anesthesia team in access to the chest

during surgery, Latissimus dorsi muscle is better to be included in the list of potential serious side effects, while, despite taking necessary measures, in recent studies, the rate of incidence of pneumothorax following Latissimus dorsi flap has been reported as low (3).

Iatrogenic causes dependent on the general anesthesia and can also cause pneumothorax. In patients with respiratory disease, the bowel might be broken by ventilation. Lateral position that patients have during surgery causes a mismatch between ventilation and pneumothorax expansion. It seems that to reduce the pneumothorax, in addition to the cases mentioned, enough care and attention should be paid to patients in removing the flap and during the sewing of the transplanted location and after the surgery and in the patient recovery. Alertness with aim of early diagnosis of this complication has made successful and timely treatment possible to reduce the mortality and

complications in case of incidence.

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