TITLE:
Bilateral Pneumothoraces complicating reduction mammoplasty.

CASE REPORT

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ABSTRACT:

**Background:** Bilateral Pneumothoraces after cosmetic breast surgery are rare and sporadically reported in literature.

**Case presentation:** We report a case of a 65-year-old female with bilateral pneumothoraces after bilateral breast reduction surgery. Emergent chest tube thoracostomy was performed on both sides. Chest drains were removed on the fourth day (on the left side) and sixth day (on the ride side) and the patient was discharged after 7 days of hospital stay without any further complications.

**Conclusion:** To our knowledge, the literature in English does not contain any other reports associated with bilateral pneumothoraces after reduction mammoplasty.

*Keywords:* Pneumothorax, bilateral, mammoplasty

*Word count:* 1428
Background:

Vincenz Czerny was the first to perform cosmetic breast surgery in 1895. Since then, aesthetic mammoplasty is a widespread procedure in plastic surgery.

Hematoma, seroma, extrusion or pneumothorax are usual early complications, whereas only a few cases of bilateral pneumothoraces, isolated subcutaneous emphysema or pericardial effusion are reported [1,2,3,4].

Osborn and Stevenson in 2005 demonstrated that the occurrence of pneumothorax after mammoplasty is underestimated. The etiology is, in most of the cases, iatrogenic due to local anesthetic needle injection or intraoperative laceration of the intercostals fascia or pleura [3]. Other related potential causes are barotrauma after high pressure ventilation or intubation maneuvers, increased air pressure in the surgical cavity resulted from the advancing implant, or preexisting lung blebs and bullae [2,3,5].

Searching the English literature we were able to find previous reports of bilateral pneumothoraces after augmentation mammoplasty but none case involving bilateral pneumothoraces complicating breast reduction plastic. Consequently we assume that is the first case until now been described.

Case presentation:

A 65-year-old female was electively scheduled for a bilateral breast reduction surgery due to chronic back pain and hypertrophic and ptotic breasts in a private Clinic for aesthetic surgery in our city. She had a past medical history of smoking, hypertension, hypercholesterolemia, cervical disk protrusions at C2/C3, C5/C6 and C6/C7, intervertebral thoracic disc herniation at T7/T8 and protrusions from T8 to T12, mild lumbar protrusions at L3/L4 and L4/L5 and disc herniation at L5/S1 restraining the patient to move the past two years with the wheelchair, left sided de Quervain tendinitis and gastric ulcer.

Surgery was performed under general anesthesia. 150ml of local anesthetic combined with adrenaline were injected at each side and the bilateral procedure was continued using the inverted T-Pattern. The total amount of reduced breast tissue, including liposuction, consisted of 320 g on the right side (47% fat) and 392 g on the left side (38,3% fat). At the end, a 12 Ch Redon drain was placed on each side. She was uneventfully extubated and moved into the recovery room.
Postoperative, she experienced acute shortness of breath at rest with drop of the oxygen saturation. Pneumothorax was suspected and therefore, she was immediately transferred by paramedic service to the emergency room of our institution. At time of admission, patient suffered from severe dyspnea, clinical examination revealed cyanosis, abnormal ventilation of both sides with normal and rapid heart sounds and percussion was bilateral hypersonor. Blood pressure was 100/70 mmHg, heart rate was rhythmic 120/min, body temperature was normal 36.6°C and showed an oxygen saturation of 65% on room air. Chest radiograph revealed bilateral pneumothoraces with collapsed lungs, without mediastinal shift or diaphragm depression (Figure 1).

Emergent chest tube thoracostomy with 24 Ch thoracic drains was performed on both sides starting from the right one. After local anesthetic injection, the chest tubes were inserted bilaterally in the 7th intercostal space at mid axillary line and attached to underwater seal. The chest X-Ray taken afterwards confirmed the re-expansion of both lungs although a rest apical pneumothorax of 2 cm was still noticeable on the right side (Figure 2). On the third day, moderate right sided subcutaneous emphysema was observed so consequently the right drain was placed on suction.

Chest drains were removed on the fourth day (on the left side) and sixth day (on the ride side), after two days without air leak and a control chest radiogram with clamped drain. Patient’s course was uneventful, and she was discharged after 7 days of hospital stay without any further complications.

Conclusions:

In the plastic surgery society, pneumothorax complicating breast aesthetic surgery and more specific augmentation mammoplasty was thought to be rare.

In year 2005 attributable to a survey of the California Society of Plastic Surgeons conducted by Osborn and Stevenson was shown that one-third of participating plastic surgeons confronted at least one pneumothorax after breast augmentation. The precise etiology was not easy to determine. In most of the cases the cause was iatrogenic from the side of the surgeons: lung penetration during local anesthetic injection, unintentional laceration of the pleura, injury of the intercostals fascia or from the side of anesthetists: ventilation with high-pressures or intubation maneuvers [3].

Fayman et al. proposed in 2005 another mechanism inducing pneumothorax after augmentation mammoplasty. Elevated air pressures in the surgical pocket generated from the advancing breast implant resulting in air-entrance in the pleural cavity could cause a pneumothorax [5]. Pre-existing pulmonary pathology such as bullae, blebs emphysema can also be responsible.
On the other hand, pneumothorax is in thoracic surgery nearly a daily problem and thoracostomy the most practiced thoracic procedure. Bilateral pneumothoraces are rarer. They can be traumatic, iatrogenic or secondary to underlying interstitial pulmonary disease, pneumonia, emphysema, pulmonary metastases etc. or even spontaneous. Bilateral tension pneumothoraces occur when the collapse degree of both lungs is similar in a chest radiogram without tracheal shift because of the bilateral pathology [7]. ‘Deep sulcus sign’ bilaterally with depression of both diaphragms can also been detected [6].

Bilateral tension pneumothorax represents an emergency situation presenting with severe dyspnea, cyanosis or tachycardia and leads to decreased cardiac output because venous return is compromised due to compression of vena cava, right atrium or large veins, which can be potentially life threatening [7,8]. Therefore prompt treatment is required. Needle decompression can be performed followed by percutaneous catheter insertion or thoracostomy.

In our case emergent bilateral thoracostomy was favored, using two 24 Ch chest drains, one on each side. The clinical state of the patient allowed us to perform thoracostomy in the emergency room rather than needle decompression. Other colleagues, confronting with tension pneumothorax during operation and having to intraoperative resuscitate, carried out first the needle decompression and secondary inserted the chest drains. In this case lack of time favors the emergent needle decompression. We preferred to insert a medium diameter chest drain in the 7th intercostal space at the mid axillary line, rather than in the 2nd intercostal space at the midclavicular line to accomplish a better postoperative aesthetic result. We don’t think that a chest tube of a smaller or bigger diameter or another tube insertion location would have changed the outcome or would have had an effect on the total hospital stay duration. Chest drains were not directly placed on suction to avoid pulmonary expansion edema. No persistent air leak from the thoracic drains was observed so no further radiological examination or surgical procedure was necessary. Pneumothoraces resolved uneventfully the next days.

Although we assume that the cause in our reported case was iatrogenic, there is a chance of spontaneous bilateral pneumothoraces resulting from ruptured blebs or bullae during operation considering the patients age and the smoking history.

To summarize, we suggest that patients should always be informed of the risk of pneumothorax before aesthetic breast surgery and surgeons should be aware of its symptoms and prepared for an emergency treatment. Surgery procedures on thorax can always be complicated with pneumothorax.
Consent, Acknowledgments and Disclosures:

Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Series Editor of this journal.

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Authors’ contributions:
S.Mavridis: Case report design, collection of data, writing sections of the manuscript
HG.Gnauk: analysis and interpretation of data
M.Schumacher: study design, writing sections of the manuscript
R.Wagner: Supervision, scientific discussion

REFERENCES:


Figure 1: Chest X ray at time of admission demonstrating a bilateral tension pneumothorax
Figure 2: Post-tubing state