

## Case Report

# Abdominal Subcutaneous Emphysema: a Rare Post-operative Complication in Aesthetic Breast Augmentation

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We like to present the extremely rare complication of Subcutaneous Emphysema at the abdomen and chest in Breast Augmentation without the presence of pneumothorax, and to the best of our knowledge is the first reported case. A 32-years-old-female underwent Breast Augmentation and silicone implants were placed through a submammary incision in submuscular position. The patient was discharged but during the following hours, although the patient was generally well she noticed an otherwise painless swelling at the left hypochondrium. She came back to the Clinic and the clinical examination revealed minor swelling and crepitus at the upper abdomen, extending gradually to the lower abdomen. An urgent CT scan confirmed the Subcutaneous Emphysema at the abdominal subcutaneous tissue and chest, but excluded the presence of pneumothorax or other complication. Isolated Subcutaneous Emphysema at the abdomen and chest during Breast Augmentation can be an innocent sign. However it is important to evaluate the patient immediately in order to exclude an implant-related surgical complication and pneumothorax.

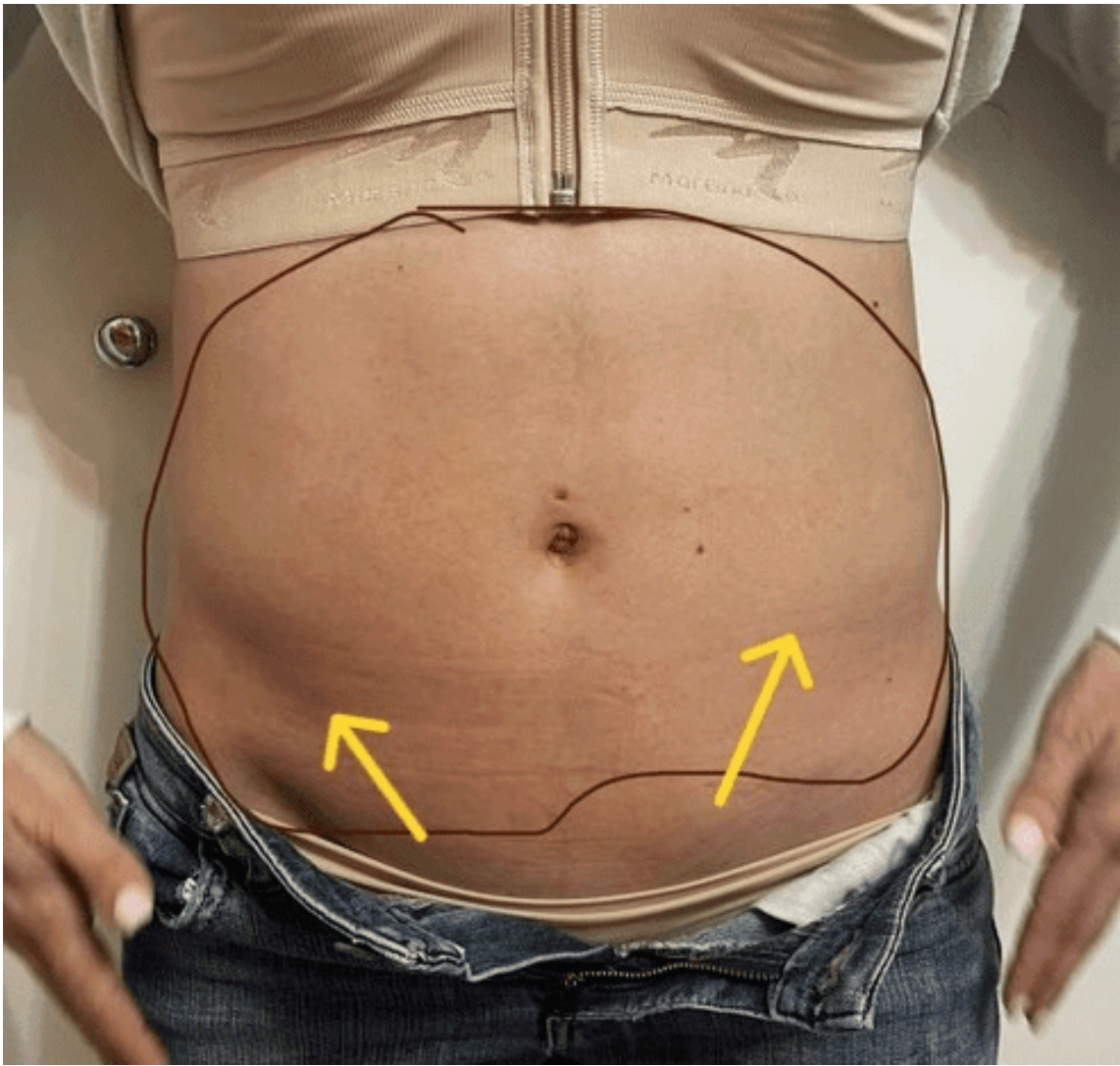
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## Introduction

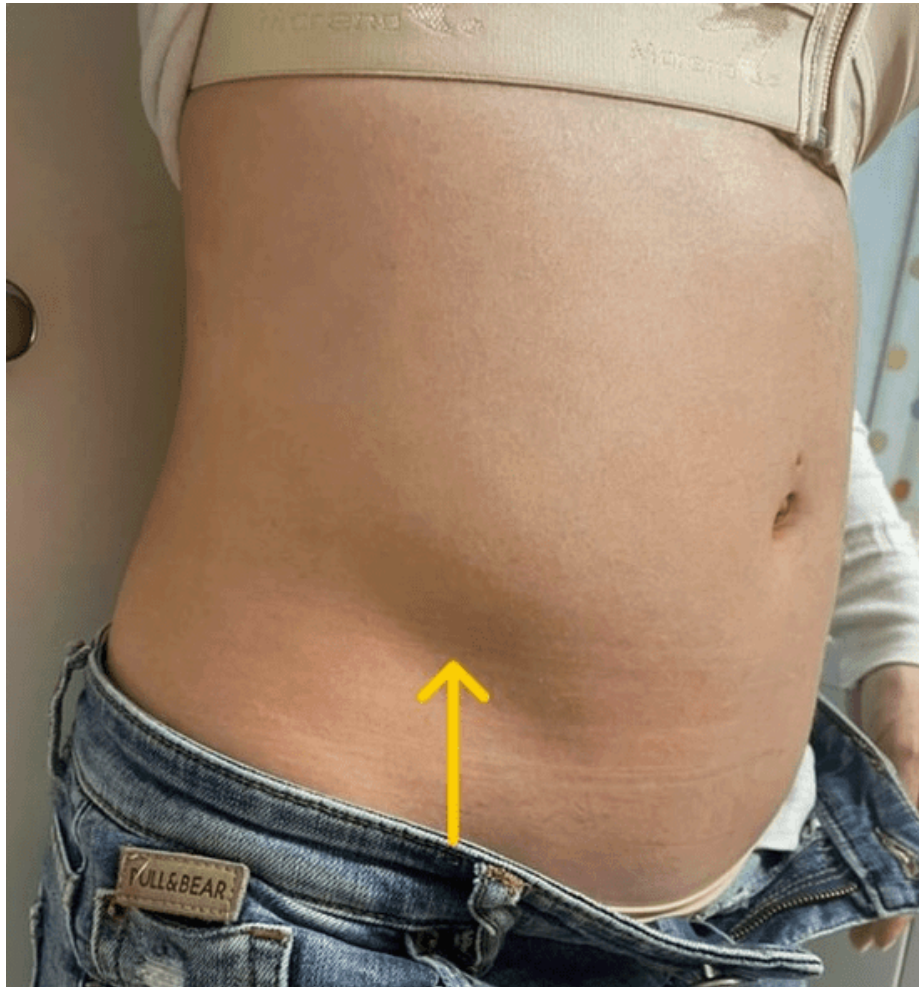
Breast Augmentation (BA) is one of the commonest aesthetic procedures whereas Pneumothorax with Subcutaneous Emphysema (SE) has been described as one of its rare complication<sup>1</sup>. We present a rare case of SE at the abdomen and chest in BA without the presence of pneumothorax, and to the best of our knowledge is the first reported case.

## *Case report*

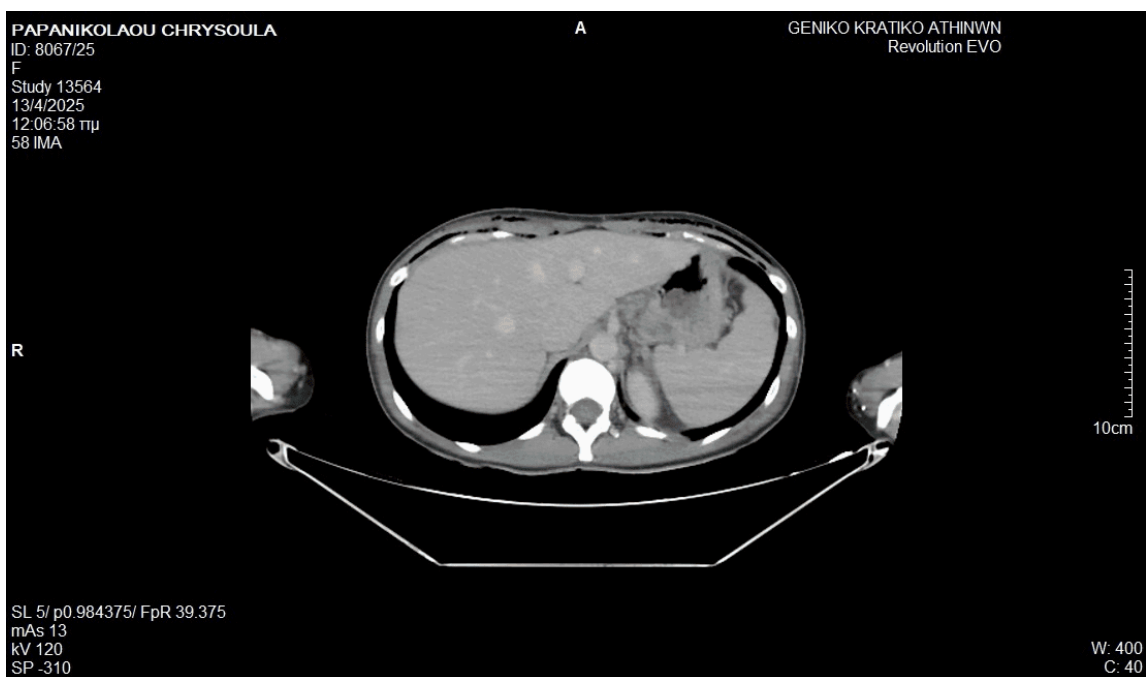
A 32-years-old-woman with unremarkable medical history underwent a drainless BA under general anaesthesia. Textured silicone implants, round high-profile, 275 cc each, were placed through a submammary incision in submuscular position under the pectoralis major muscle. The patient was discharged at the first post-operative day with per-os antibiotics sultamicillin. During the following hours, although the patient was generally well and the breasts were fine and uncomplicated, she noticed an otherwise painless swelling at the left hypochondrium. Therefore we advised her to come back to the Plastic Surgery Clinic. Upon her arrival at the department, the clinical examination revealed minor swelling, mild discoloration with bluish hue, and crepitus at the upper abdomen, extending gradually to the lower abdomen and even to the right side of the abdominal wall (Figures 1a,b). The respiratory status remained stable. There were no signs of infection, pyrexia, tenderness or signs of acute abdomen. An urgent CT scan confirmed the SE with the presence of free air in the upper and lower abdominal subcutaneous tissue and between the oblique muscles as well as the pectoral muscles and subcutaneous tissue at the chest, but excluded the presence of pneumothorax, pneumomediastinum or other complication (Figure 2). The SE was attributed to the maneuvers done during implant insertion. The patient was re-assured, discharged from the hospital and continued to be followed-up. Photographs were taken almost every day during the immediate post-operative period in order to evaluate the clinical progress and for documentation. The patient was very pleased with the aesthetic breast outcome, whereas the emphysema was resolved gradually and ultimately disappeared within the 7th post-operative day.



**Figures 1a.** Patient's photos taken 1<sup>st</sup> post-operative day: minor swelling extending gradually to the lower abdomen and even to the right side of the abdominal wall.



**Figures 1b.** Patient's photos taken 1<sup>st</sup> post-operative day: minor swelling extending gradually to the lower abdomen and even to the right side of the abdominal wall.



**Figure 2.** The CT scan confirmed the SE with the presence of free air in the upper abdominal subcutaneous tissue and between the oblique muscles.

## Discussion

Among the known complications of breast augmentation, pneumothorax represents an infrequent complication, although in clinical practice may occur more frequent than the reported cases<sup>[1][2]</sup>. It also may occur with other concomitant complications as SE. The chest is usually the affected site. The general status of the patient depends mainly on the presence or absence of implant-related surgical infection. If there are signs of infection, patient is unwell and getting worsened with pyrexia, painful swollen breasts, and skin redness, then the surgeon encounters a surgical emergency that it may necessitate the implant removal. SE at the chest may occur during BA as the air may be entrapped in the pocket or subcutaneous plane following wound closure and therefore it is anticipated and should not be considered as a complication. Although it is a suspected common occurrence of the BA procedure, it has not been underlined and rarely cause problems<sup>[3]</sup>. The pathophysiology of SE at the abdominal wall was attributed to the maneuvers done during implant insertion with dissection-related introduction of air which led to inadvertent trapping of air within the submuscular implant pocket, propagation along fascial planes, and ultimately to extension through the pectoral and abdominal wall tissue planes, including between the

oblique muscles. A structured literature search was performed (PubMed, Google Scholar, ResearchGate) for this extremely rare clinical situation and found that our case regarding isolated SE at the abdominal wall, in the upper and lower abdominal subcutaneous tissue and between the oblique muscles, was the first reported case. This case report highlights that an isolated SE at the abdominal wall and chest during BA procedure can be considered an iatrogenic but otherwise a self-limiting post-operative manifestation in a patient with good general condition and verified absence of pneumothorax<sup>[3]</sup>. The differential diagnosis includes pathological entities such as pneumothorax, pneumomediastinum, implant-related infection, necrotising soft tissue infection, haematoma, seroma or even visceral perforation. The work-out of these pathological entities is clinically important because the recommendation for conservative management depends entirely on adequate exclusion of these complications.

## Conclusion

Isolated SE at the abdomen and chest during BA can be a benign postoperative finding. If there are no signs of infection, then the clinical situation will resolve gradually within a few days, and re-assurance with close monitoring of the patient is enough. However it is important to evaluate the patient immediately in order to exclude an implant-related surgical complication and moreover to rule out the presence of pneumothorax or other surgical emergencies.

## Statements and Declarations

### *Funding*

No specific funding was received for this work.

### *Potential competing interests*

No potential competing interests to declare.

## References

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## **Declarations**

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**Potential competing interests:** No potential competing interests to declare.