

## Case Report

DOI: <https://dx.doi.org/10.18203/2349-2902.ijssurgery20233351>

# Self-resolving, benign subcutaneous emphysema after bilateral open inguinal hernioplasty: a case report

Divya J. Banerjee, Himesh R. Chauhan\*

Department of Surgery, GMERS Medical College and Hospital, Sola, Ahmedabad, Gujarat, India

Received: 30 August 2023

Accepted: 02 October 2023

**\*Correspondence:**

Dr. Himesh R. Chauhan,

E-mail: dr.himesh78@gmail.com

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

Subcutaneous emphysema after surgery is commonly seen after thoracic or laparoscopic procedures but very rarely as a post-operative complication in open abdominal inguinal surgeries. Typically, if subcutaneous emphysema or abdominal crepitus is present after open abdominal surgeries it can mean grave underlying cause like hollow viscous perforation or gas gangrene which calls for prompt life-saving interventions. Here, we present a case of benign self-resolving post-operative subcutaneous emphysema after open bilateral inguinal hernioplasty with no apparent obvious underlying cause.

**Keywords:** Lichtenstein hernioplasty, Subcutaneous emphysema, Benign, Self-resolving

## INTRODUCTION

Subcutaneous emphysema is the infiltration of air underneath the dermal layers of skin.<sup>1</sup> It occurs frequently in critically sick patients associated with blunt or penetrating trauma to thoracic cavity, sinus cavities, facial bones, barotrauma or bowel perforation. It may also be caused iatrogenically during intubation, malfunction of ventilator circuit and trauma to the airway.<sup>2</sup> Airway compromise and sudden subcutaneous emphysema may develop suddenly after post-operative vomiting and nasogastric tube related trauma.<sup>3</sup> Computed tomography (CT) and plain X rays can help identify subcutaneous emphysema. Intermittent areas of radiolucency seen in X ray, often representing a fluffy appearance on the borders of abdominal walls demonstrates emphysema. Dark spots in the subcutaneous layer indicative of gas may be seen in CT. CT may be able to identify the source of injury causing subcutaneous emphysema that may otherwise not be visible on an X-ray.<sup>4</sup> SE does not need treatment in the majority of cases and needs observation unless it is large, advocating the need for needle decompression or multiple nicks to resolve.<sup>5</sup>

Here, we present an extremely rare case of subcutaneous emphysema after open bilateral inguinal hernioplasty for bilateral direct inguinal hernia in a tertiary care hospital of Ahmedabad, Gujarat, India that resolved spontaneously and no apparent cause was found for the same.

## CASE REPORT

A 48-year-old male presented with bilateral inguinal swelling and cough impulse which was reducible. It was diagnosed to be a case of bilateral reducible direct inguinal hernia. The patient had history of smoking and no comorbidities.

Lichtenstein hernioplasty with tension free mesh repair was done and the surgery went uneventful. On post-operative day 1 patient developed pain in bilateral inguinal region with palpable crepitus extending from inguinal region to bilateral flanks. Urgent chest and abdominal erect X rays were done which showed radiolucent areas suggestive of SE although there was no free gas under right dome of diaphragm suggestive of hollow viscous perforation. Contrast enhanced computed tomography (CECT) abdomen was done which confirmed the clinical

findings. On post-operative day 2 it was reduced in the inguinal region only presenting at bilateral flank regions. The patient passed flatus and stools normally and was taking food orally. Significant pain reduction found on post-operative day 3 along with further reduction of SE. There was no stitch line discharge, redness, hematoma or seroma formation. The patient was discharged on post-operative day 5 after resolution of all symptoms and signs.

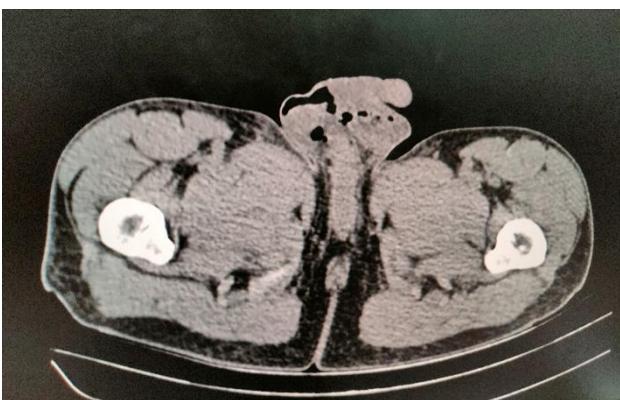
On follow up the patient had no complaints. Clinically no signs of subcutaneous emphysema found. Patient was kept on regular follow up for two weeks post operation and he was off all pain medications till the end of two weeks.



**Figure 1: X ray showing subcutaneous emphysema.**



**Figure 2: CT suggestive of benign subcutaneous emphysema with no apparent cause.**



**Figure 3: SE extending to scrotum.**

## DISCUSSION

Subcutaneous emphysema can be a benign self-limiting finding in post-operative cases of open abdominal surgeries. While it must raise concern given the cause of SE might be hollow viscous perforation or necrotising fascitis, sometimes it might have no consequences and resolve on its own. In the setting of a clinically stable patient, benign subcutaneous emphysema can be considered, although reserved strictly as a diagnosis of exclusion. It may develop secondary to normal postoperative intra-abdominal free air travelling into the subcutaneous spaces along the extensively dissected retroperitoneum but in this case retroperitoneum was not explored.<sup>6</sup> It may also be due to the emergence of a pressure gradient between the peritoneum and surrounding structures, causing rupture of the anterior abdominal wall with subsequent dissection of the abdominal muscles sheath and infiltration of the pneumoperitoneum in subcutaneous tissue but CT scan showed no signs of obvious abdominal wall injury.<sup>7</sup>

## CONCLUSION

Although the incidence of subcutaneous emphysema after open abdominal surgeries is extremely low, surgeons must be aware of this benign self-resolving condition while being vigilant to exclude the other causes of the same.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

## REFERENCES

1. Kukuruz K, Aboeed A. Subcutaneous Emphysema. In: StatPearls. Treasure Island (FL): StatPearls Publishing. 2023.
2. Sullivan TP, Pierson DJ. Pneumomediastinum after freebase cocaine use. AJR Am J Roentgenol. 1997;168(1):84.
3. Schumann R, Polaner DM. Massive subcutaneous emphysema and sudden airway compromise after postoperative vomiting. Anesth Analg. 1999;89(3):796-7.
4. Medeiros BJDC. Subcutaneous emphysema, a different way to diagnose. Rev Assoc Med Bras (1992). 2018;64(2):159-63.
5. Aghajanzadeh M, Dehnadi A, Ebrahimi H, Fallah Karkan M, Khajeh Jahromi S, Amir Maafi A, et al. Classification and Management of Subcutaneous Emphysema: a 10-Year Experience. Indian J Surg. 2015;77(Suppl 2):673-7.
6. Foote JR, Kohler MF, Young-Pierce J. Case report of massive subcutaneous emphysema: A benign postoperative finding. Obstet Gynecol Cases Rev. 2014;1:2.

7. Kassir R, Abboud K, Dubois J, Baccot S, Debs T, Favre JP, et al. Perforated diverticulitis of the sigmoid colon causing a subcutaneous emphysema. *Int J Surg Case Rep.* 2014;5(12):1190-2.

**Cite this article as:** Banerjee DJ, Chauhan HR. Self-resolving, benign subcutaneous emphysema after bilateral open inguinal hernioplasty: a case report. *Int Surg J* 2023;10:1834-6.