Sherif and Ott [11] described a case in which they used a Jackson-Pratt drain, a closed suction drain with bulb reservoir, providing decompression of the head and neck in 3 h. The drain was removed on Day 7 without complications.

Herlam et al. [12] examined the use of ‘blowholes’, infraclavicular incisions into the subcutaneous tissue, in 4 cases. SE resolved rapidly in <4 days. No complications were noted.

Three further case reports used infraclavicular incisions. Dumont and Farag [13] and Turnbull and Heap [14] both describe immediate symptomatic relief in cases of extensive SE. Vijayalakshmi and Thinakar Vel [15] described a case in which they used bilateral submandibular stab incisions that gave relief in 6 days without complications.

**CLINICAL BOTTOM LINE**

SE is usually a benign, self-limiting condition only requiring conservative management. The interventions discussed above are useful in the context of severe patient discomfort, respiratory distress or persistent air leak. In the absence of any comparative study, it is not possible to choose definitively between infraclavicular incisions, new drain insertion and increased suction on an in situ chest drain. All three techniques described have been shown to provide effective relief of severe SE.

Increasing suction on a chest tube already in situ provided relief in patients developing SE following pulmonary resection. Cerfolio et al. [2] showed resolution in 66%, increasing to 98% in those who underwent VATS with identification and closure of the site of an air leak.

Insertion of a drain into the subcutaneous tissue also provided rapid sustained relief. Several studies aided drainage by using regular compressive massage [6–9]. Minor bruising along a lipo-suction tract line was seen in one case [3]. Infraclavicular incisions were also shown to provide rapid relief, but were noted to be more invasive and carried the potential for cosmetic defect [4]. No major complications were illustrated in the above reports.

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**REFERENCES**


**eComment. Multisite drainage of extensive subcutaneous emphysema**

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I have read the paper by Johnson et al. [1] with great interest. The authors are to be commended for trying to answer an important question concerning a vexing complication that arises after thoracic surgery: what is the best option for patients presenting with extensive subcutaneous emphysema in the postoperative period? Here, I take the opportunity to mention that they have failed to identify a previous study based on a series of six patients with subcutaneous emphysema, which was recently published [2]. The publication by Pompeo proposes a new technique for recalcitrant subcutaneous emphysema. The novel technique performed in six patients after thoracoscopic lung volume-reduction surgery consists of creating a subcutaneous communication between port sites using ring forceps. A multi-perforated silicone tube is placed anteriorly and gradually pulled posteriorly. Ultimately, the extra pleural tube, which is connected to a Heimlich valve, achieves a simultaneous drainage of the three port incisions and the chest tube entry site. Of note, time to resolution of the subcutaneous emphysema in the former study was less than 48 hours after drainage in all patients. There were no procedure-related complications.

The optimal approach to patients who present with subcutaneous emphysema is not always apparent. Indications must be carefully considered on an individual patient basis. A watchful-waiting attitude is mainly applied in limited subcutaneous emphysema. However, in extensive cases the standard management includes increasing suction on an in situ chest drain. In case of recalcitrant subcutaneous emphysema additional methods can be used, this includes infra-clavicular skin incision and subcutaneous insertion of different types of catheter or drains. The authors should be commended for their meticulous work collecting and analysing data on this highly important topic.

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