European Journal of Cardio-Thoracic Surgery 43 (2013) 1077
doi:10.1093/ejcts/ezs577 Advance Access publication 14 November 2012

LETTER TO THE EDITOR

The intrathoracic vacuum-assisted closure device in case of post-pneumonectomy empyema

Thorsten Krueger*, Jean Yannis Perentes, Hans-Beat Ris and Michel Gonzalez

Division of Thoracic Surgery, Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland

* Corresponding author. Department of Thoracic and Vascular Surgery, Centre Hospitalier Universitaire Vaudois, Rue du Bugnon 46, 1011 Lausanne, Switzerland. Tel: +41-21-3142408; fax: +41-21-3142358; e-mail: thorsten.krueger@chuv.ch (T. Krueger).

Received 11 September 2012; accepted 3 October 2012

Keywords: Vacuum-assisted closure • Pneumonectomy • Empyema • Broncho-pleural fistula

We have read with great interest the article by Rocco *et al.* [1] reporting right-sided post-pneumonectomy empyema management in 3 cases by open-window thoracostomy and the subsequent application of the vacuum-assisted closure device (VAC). Remarkably, the intrathoracic VAC therapy was performed in an outpatient setting with bedside changes of the wound dressing every 3 days. The authors describe that VAC therapy was efficient in draining the post-pneumonectomy space and helped obliterate it. No information is given about the treatment's efficiency in healing broncho-pleural fistula. However, in their experience, VAC therapy was discontinued in 2 of the 3 patients because of the development of severe side-effects including hypotension and intolerable chest pain. Also, in 1 patient, the VAC foam was entrapped by granulation tissue and its removal was considered difficult through the narrow thoracostomy.

We have recently published a series of 27 consecutive patients who underwent intrathoracic VAC therapy for the management of severe intrathoracic infections, including post-resection empyema with or without broncho-pleural fistula [2]. In our experience, the intrathoracic VAC treatment was well tolerated by these high-risk patients; in particular, we did not observe haemodynamic impairment or difficulties of pain control. VAC treatment was completed in all patients and allowed for efficient control of intrathoracic infection and closure of broncho-pleural fistula when present. Our more favourable experience applying negative pressure wound therapy in these patients may be explained by a difference in our technical approach: in case of broncho-pleural fistula, the bronchial stump is debrided and closed by a pediculated muscle transposed into the chest cavity. The intrathoracic VAC dressing is then applied as an adjunct to surgery for efficient drainage, and accelerated obliteration of the chest cavity. In contrast to Rocco *et al.*, we feel more comfortable keeping these critically ill patients in the hospital during the course of VAC therapy and performing the successive VAC dressing changes under a short general anaesthesia. This is convenient for both the patient and the surgeon as the procedure is painless and efficient. General anaesthesia allows for accurate inspection of the chest cavity, debridement if necessary and easy replacement of the VAC foam. Another advantage is that an open-window thoracostomy is not required, since the intrathoracic VAC dressing can be accessed by repeated opening of the thoracotomy. Standard perioperative monitoring also permits the assessment and immediate correction of potential haemodynamic changes while packing the cavity. Once the infection is controlled and granulation tissue is abundant throughout the cavity, the residual space, if present, is filled with an antibiotic solution and final chest closure is performed. In our published series, none of the patients required chest wall reconstruction procedures as no open-window thoracostomies had been performed. The median length of VAC therapy was 22 days and the median number of VAC changes per patient was 6.

We concluded from our experience that the intrathoracic VAC therapy is a safe, well tolerated and effective treatment for the management of severe intrathoracic infections. In our opinion, it should be considered in selected patients as an alternative to open-window thoracostomy. The major advantages are the preserved integrity of the chest wall and a short and efficient treatment course, considerably affecting patients' satisfaction. However, we would not recommend this approach for bedside dressing changes in an outpatient setting.

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