Is video-assisted thoracic surgery indicated in the first episode primary spontaneous pneumothorax?

Shah Hwa Chou*, Yu-Jen Cheng, Eing Long Kao

Department of Surgery, Kaohsiung Medical University, 100 Shih Chuan 1st Road, Kaohsiung 80708, Taiwan

Received 10 February 2003; received in revised form 21 May 2003; accepted 14 July 2003

Abstract

Primary spontaneous pneumothorax (PSP) is a very common disease and recurrence is a major concern for the post-first-time victims. Owing to the convenience and popularity of video-assisted thoracoscopic surgery (VATS), should we still wait for recurrence before we perform this minimal invasive procedure to cure the disease? Between 1997 and 2002, 51 patients of PSP from the first episode received VATS the day after their admission at Kaohsiung Medical University Hospital. Forty-five patients (90%) were found to have blebs (mostly above the upper lobe). They all received wedge resection plus pleural abrasion. No mortality was recorded. The average postoperative hospital stay was 4 days. After a follow-up period of 38 months, no recurrence or complication was found. The patients are now living in good health. We found a high percentage of blebs. These are possible causes of subsequent recurrence. Surgical intervention with VATS for the first episode of PSP is safe, effective, and cosmetically excellent. The most important thing is that the fear of recurrence is finally resolved.

© 2003 Elsevier B.V. All rights reserved.

Keywords: Spontaneous pneumothorax; Recurrence; Surgical indications

1. Introduction

Primary spontaneous pneumothorax (PSP) is a very common disease. The incidence per year among men in the United States is between 1.4 and 18 cases per 100 000 population and between 1.2 and 6 cases per 100 000 among women [1]. There is around 6% of annual admission in our chest surgery ward. The universally accepted and approved indications for surgical intervention are persistent air leak, recurrent pneumothorax, first episode in patients with prior pneumonectomy, or occupational hazard [2]. The recurrence rate after the first episode is 20–50% [1–4], and 60–80% [5] after the second episode.

In the past, thoracotomy was the primary operative procedure of choice. It is invasive and should be considered only until the second episode, even though the patient is living under a constant fear of recurrence. However, during the past 10 years, video-assisted thoracoscopic surgery (VATS) has become a very popular procedure for many benign thoracic conditions. It has also become the preferred choice by an increasing number of patients because of its minimal invasiveness and cosmetic advantage. In lieu of the fact that there is an increase in acceptance of this method by most patients, the authors made a prospective study in order to find out if thoracoscopy with concomitant blebeotomy and pleural abrasions are beneficial to patients at the first attack of PSP.

2. Materials and methods

During the period from January 1997 to January 2002, 114 PSP patients were admitted in our chest surgery ward. Their ages ranged from 16 to 56 years old, with 95 males and 19 females. Sixty-nine were right-sided and 45 were left-sided. Eighty-six were first-episode patients while 28 patients had either an ipsilateral or a contralateral recurrence. The etiology and the current operative indications of the disease, as well as the procedure of VATS, were fully explained to the patients. Finally, 51 patients consented to VATS and were put into operative schedule the next day.

All of the procedures were done under one lung anesthesia using the 0° Karl Storz video thoracoscope.
The thoracoscope was inserted on patients with chest tubes through the thoracostomy wound. For patients without chest tube, the thoracoscope was inserted through a 1-cm incision over the sixth ICS, mid-axillary line. If blebs were found, wedge resection was performed using GIA through two other openings, and pleural abrasions were performed afterwards using gauze. Where no bleb was found, wedge resection of the upper lobe was also done so that the chance of recurrence would be lowered [6–8]. Pleural abrasions with gauze were again done routinely afterwards. A 28- or 32-F chest tube was inserted through the first wound. Negative suction was not routinely used.

3. Results

Fifty-one first-episode PSP patients underwent surgery. Forty-five patients (90%) were found to have subpleural blebs, which were mainly on the upper lobe (>95%). Fifty-four percent had their chest tubes removed on the second day and were discharged on the third day. Less than 12 patients stayed in the hospital for more than 4 days, while one patient stayed for 13 days due to prolonged bloody drainage through the chest tube. However, no further complications or morbidity were noted after discharge. We followed up all of the patients for an average of 38 months and found no recurrence or complication.

4. Discussion

Primary spontaneous pneumothorax is a common disease among young people. For so many years, surgical intervention was not advised in patients until recurrence. This has been considered reasonable in the past because the recurrence rate (second episode) was around 20–50%, and the operative procedures of thoracotomy and pleurectomy were invasive and traumatic for such a benign disease. However, thoracoscopy has recently become more popular and most thoracic surgeons are already familiar with the procedure. Besides the fact that it is a minimally invasive method acceptable to many patients, it is also cosmetically excellent. Owing to the advantages of thoracoscopy, we attempted to advise first-episode PSP patients to undergo thoracoscopy. After performing the procedure on 51 patients, we found 45 (90%) to have blebs, which possibly cause recurrence. These were excised and pleurectomy was done. Most patients were discharged on the third day after completing the procedure. No major complication was found. We followed up the patients for 38 months and no recurrence or complication was noted.

It has already been reported by Schramel et al. [9] that VATS is more effective in treating patients with first-time or recurrent spontaneous pneumothorax, with less morbidity and total costs as compared to conservative therapy. They advocate definite treatment at the first episode. This conclusion about the cost is accords closely to the circumstances of Taiwan, where the cost of the hospital stay is higher while the operation and anesthetic fees are relatively lower than in other countries.

With the traditional treatment, patients would be sent home until the second episode, which usually leaves patients in a state of anxiety because there is no clear indication of when and where the second episode will occur. In our opinion, thoracoscopy for the first episode of PSP is safe, effective, and cosmetically excellent. The most important advantage is that it eliminates the fear of recurrence in patients.

In the near future, if VATS is available, we think that ‘recurrence’ should not be a strict indication for surgical intervention for PSP.

References


Appendix A. ICVTS on-line discussion

Author: Dr. Luciano Solaini, Thoracic Surgeon, Thoracic Surgery Unit, S. Maria delle croci Hospital, v.le Randi, 5, Ravenna 48100, Italy

Date: 11-Sep-2003

Message: I read with interest the paper of Chou and colleagues. Having had with my Colleagues a similar experience, I basically agree with the authors. At the first episode of PSP also our way of behaving is to propose the operation by VATS within 24 hours. We propose the procedure when the pneumothorax calls for the chest tube and the operative risk is very low.
Moreover, we believe that a preoperative CT scan could be useful to study parenchyma of both lungs. Our procedure is similar to the one described by the authors; the only difference is the use of talc poudrage as a means of pleurodesis. At the beginning of our experience we performed apical pleurectomy, but now we are of the opinion that talc poudrage is more simple to use and gives the same results without complications as shown by Cardillo et al. [1].

In a period of 12 years, my colleagues and I treated about 300 cases of spontaneous pneumothorax and 80 of them were primary and at the first episode. In these cases we registered only one significant postoperative complication (pneumonia). We usually discharge the patients on the third or fourth day after surgery. So far we have not observed any long term recurrence. The advantages of this management of the first episode of PSP are, as highlighted by the Authors, the definitive solution of the problem and the sparing of time for the patient. At the end, as shown by Schramel et al. [2] and by the authors, we would like to stress that the reduction of costs of this approach is also an important aspect to take into consideration.

References
