



Successful Treatment of Postoperative Chylothorax Using Bedside Talc Slurry Pleurodesis

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Abstract

Postoperative chylothorax remains an uncommon but potentially life-threatening complication of various intrathoracic procedures, and the ideal management of this condition is still controversial. We report the treatment of four patients with chylothorax after thoracic surgical procedures during the year of 2010 and 2011. Instead of surgical intervention, their management had succeeded in bedside intrapleural talc slurry administration. We think the confirmed effectively, fast rehabilitation, the availability and low cost of the product and the ease of bedside administration makes talc slurry pleurodesis an attractive treatment for postoperative chylothorax without trapped lungs.

Keywords: Postoperative chylothorax; Treatment; Bedside

Introduction

Postoperative chylothorax, the result of leakage from the thoracic duct or one of its main tributaries, remains an uncommon but potentially life-threatening complication of various intrathoracic procedures, and the ideal management of this condition is still controversial [1,2]. Varying degrees of success and failure by all kinds of measures have been described [3], but there are very few reports employing talc pleurodesis for the treatment of postoperative chylothorax. Hence we had a try utilizing bedside talc slurry pleurodesis as the procedure for patients with postoperative chylothorax without trapped lungs.

Patients and Procedures

Ethical approval for clinical application of this technique was obtained from the Ethics Committee of Beijing Shijitan Hospital. An informed consent form from all patients was signed individually before operation. Four patients with postoperative chylothorax, including two male and two female (ages range from 52 to 80 years old) after VATS right upper mediastinum lymph node biopsy, right upper lobectomy for lung cancer and Ivor-Lewis esophagectomy for malignant lesion, respectively, were selected to undergo this procedure during the year of 2010 and 2011. Their initial postoperative courses were uneventful but on the third to fifth day a large amount creamy chylous discharge, 700 to 1000 milliliter/24 hours, unexpectedly started to emerge from their pleural drain. After the diagnosis of chylothorax established, complete cessation of oral intake and total parenteral nutrition via central venous line was applied immediately. Talc slurry was injected when the chyle production decreased less than 900 ml/d, and there was no evidence of residual effusion in the pleural space as assessed by bedside plain chest roentgenography.

Pleurodesis procedure

All patients had thoracostomy tubes after their initial operation. 10 milligram morphine was admitted intramuscular 30 min before talc administration procedure started. 10 grams of asbestos-free talc powder diluted in 60 milliliter of saline solution (0.9%) with 30 milliliter of 1% lidocaine was instilled into the pleural space through the pleural drain. The drain was then kept clamped for 2 hours. The patients were asked to change position every 10 to 15 min to allow adequate distribution of talc. The position was initially changed from supine to left lateral, then prone and right lateral. Finally, the head of the bed was kept up by 45 degrees for 15 minutes and then down by 45 degrees for another 15 minutes.

Results

After pleurodesis, our patients experienced light pleuritic pain only in the day of treatment, and moderate fever from the second day, lasting almost one day. In all patients, the flow of chyle was decreased “suddenly” to less than 100 milliliter/24 hours. Their drains were removed 5 to 6 days

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after the procedure. Patients restarted meal at two weeks thereafter. On review one month to two years after discharge, both clinical and radiographic follow-up were obtained and there was no evidence of chylothorax recurrence even after challenge with a fatty diet. They were on regular diet and enjoying a good quality of life.

Comment

Talc pleurodesis has seldom been utilized as the procedure for postoperative chylothorax. Inspired by the management of malignant pleural effusion with talc pleurodesis [4], we made an attempt to utilize bedside tube talc slurry instillation for chylothorax after surgery. Our cases suggest that the bedside talc pleurodesis can be an alternative option for the treatment of postoperative chylothorax. It avoids the morbidity associated with persistent leakage as well as unnecessary exploration with its associated complications. Furthermore, we assume this procedure could be repeated for the same patient if necessary, but all our cases succeeded at their first try.

Another issue concerns the therapeutic mechanism. We believe there are some factors contributing to the success. The main principle underlying the treatment was that of promoting a sterile inflammation of the pleura and at the same time maintaining full expansion of the lung; in this way the pleural space is obliterated, allowing pleural symphysis to occur. The “sudden” reduction in chyle drainage of our patients also lead us to believe that the cure results may not from gradual healing of the injured lymph duct but from obliteration of the pleural space. Secondly, the reducing of the chyle flow in the thoracic duct and hence to collapse the thin-walled lymphatic conduit plays

another role in the success. Finally, the adhesions between the visceral pleura of the lung and the area of dissection are also likely to be caused by inflammatory reaction. Postoperative adhesive processes in the surrounding tissue facilitating the closure of leak area. The reexpansion of the lung may have further obliterated the pleural space compressing the injured area.

It is obviously necessary to observe standard practice as regards talc slurry pleurodesis, including the use of asbestos-free talc to avoid potential carcinogenesis, to ascertain that the lung has fully expanded before talc insertion, and to maintain sterile conditions before and during talc injection as well as the antibiotics application.

The confirmed effectively, the availability and low cost of the product and the ease of bedside administration make talc slurry pleurodesis an alternative treatment for postoperative chylothorax.

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