



SUCCESSFUL PLEURODESIS IN A MORBIDLY OBESE PATIENT WITH CHYLOTHORAX: A CASE REPORT

General Surgery

Dr. Kanwaljit Singh Consultant, Pulmonary Medicine, Indus International Hospital, Dera Bassi.

Dr. Rohit Kapoor* Assistant Professor, General Surgery, M M institute Of Medical Sciences and Research, Ambala. *Corresponding Author

Dr. Sunny Viridi Consultant, Pulmonary Medicine, Alchemist Hospital, Panchkula.

Dr. Parminder Kaur Gill Consultant, Microbiologist, Indus International Hospital, Dera Bassi.

ABSTRACT

Introduction: Chylothorax means accumulation of chyle or lymphatic fluid in the pleural cavity. It's an uncommon disorder and its etiology varies widely. It needs to be differentiated from pseudo-chylothorax which is cholesterol rich effusion. Damage, infiltration or obstruction of the lymphatic duct leads to accumulation of chylous fluid into the pleural cavity.

Case Report : A 79 year old morbidly obese female patient came to emergency room with sudden onset breathlessness (Grade 4 mMRC) from past 2 days. There was no history of any fever, cough, chest pain, palpable lump over body, decreased weight and loss of appetite. Patient did not report the history of any chest trauma or surgery in the past. , pleurodesis with 10% povidone iodine (1:4 dilution of 50 ml NS) was attempted. Pleural fluid drainage gradually decreased to 200 ml the very next day and was nil for the next 2 days. After finding a clear CP angle on Chest X ray, the drain was removed.

Conclusion : pleurodesis with povidone-iodine is a safe and effective means to contain chylous leak. It can be used as an early and cost effective measure in high output chylothorax patients who are surgically unfit and can sometimes be the only option at places with limited resources.

KEYWORDS

chylothorax, pleurodesis, lymphatic fluid, pleural fluid

INTRODUCTION

Chylothorax means accumulation of chyle or lymphatic fluid in the pleural cavity. It's an uncommon disorder and its etiology varies widely. It needs to be differentiated from pseudo-chylothorax which is cholesterol rich effusion. Damage, infiltration or obstruction of the lymphatic duct leads to accumulation of chylous fluid into the pleural cavity. The most common causes are trauma to the thoracic duct, malignant infiltration and surgical procedures (iatrogenic) leading to injury of thoracic duct. About 6 - 14 % of these cases appear to be idiopathic. [1] Moderate to massive chylous effusions can present with breathlessness which may be relieved with pleurocentesis or intercostal drainage. They may respond to either pharmacological therapy or may require surgical intervention later. We hereby present a case of idiopathic high output chylothorax which was successfully managed with pleurodesis.

Case Report

A 79 year old morbidly obese female patient came to emergency room with sudden onset breathlessness (Grade 4 mMRC) from past 2 days. There was no history of any fever, cough, chest pain, palpable lump over body, decreased weight and loss of appetite. Patient did not report the history of any chest trauma or surgery in the past. On examination she was conscious, fully oriented but was in severe respiratory distress. She had hypoxia with SpO_2 of 78% at room air, thus was started on oxygen therapy. Her Chest X-ray revealed massive pleural effusion on the left side for which an Intercostal drain was inserted and a cloudy off white colored fluid was drained. Patient's breathlessness improved after drainage and fluid was sent for further evaluation. Her pleural effusion was found to be exudative (LDH 1864 U/L, Proteins 5.6gm/dl) and lymphocytic. Other investigations revealed normal cholesterol levels (35 mg/dl) with increased triglycerides (235 mg/dl). Further her pleural fluid ADA levels were normal and CBNAAT was found to be negative. Thus diagnosis of chylothorax was confirmed on the basis of pleural fluid investigations.

CECT thorax, abdomen and pelvis were done to find out the cause, but it didn't reveal anything significant. Daily output in the intercostal drain was more than 1000ml. Cardiothoracic surgeon opinion was sought and conservative management was started with a diet containing medium chain fatty acids. Injection octreotide was started and subsequently the drain output reduced to less than 500ml/day. Daily drainage continued to vary between 300ml to 800ml for 2 weeks consistently. In an attempt to mitigate drainage, pleurodesis with 10% povidone iodine (1:4 dilution of 50 ml NS) was attempted. Pleural fluid drainage gradually decreased to 200 ml the very next day and was nil

for the next 2 days. After finding a clear CP angle on Chest X ray, the drain was removed.

DISCUSSION

Idiopathic chylothorax, though rare in occurrence, needs immediate diagnosis and treatment to prevent complications related to chylothorax. Diagnosis of chylothorax is based upon the triglyceride and cholesterol content of the pleural fluid. Presence of chylomicrons can be an additional useful test in case of doubtful triglyceride values. [2]

Management decisions are taken considering factors such as 24 hours drain output, etiology, respiratory compromise and fitness for surgical procedures. Initial line of management is expectant treatment with a medium chain fatty acids diet (i.e. coconut oil, cheese, butter, milk, yogurt) or high-protein, low-fat (<10 g fat/day) diet. [3] In contrast to long chain fatty acids, medium chain fatty acids bypass lymphatic circulation and are absorbed directly into the portal circulation thus decreasing lymphatic production. [4] Patients with high volume leaks (>1L/day) require nutritional support with TPN due to loss of large amount of lipid and lymphocyte rich fluid, leading to malnutrition and immunosuppression. [5] Total parenteral nutrition (TPN) is necessary for those who fail to fulfill the caloric requirements orally.

Intercostal Drainage of fluid may be needed in patients who present with respiratory distress. Depending on the etiology, the patients with reversible factors or having drainage <500ml/day may respond early to conservative management, while in the others such as malignancy, post-operative and post-pneumonectomy chyle leaks with drainage >1000ml/day, it may take weeks for the drainage to decrease. [4][5] Octreotide, a somatostatin analogue can be used in conjunction with chest tube drainage and dietary modifications to reduce the chylous drainage or after conservative therapy fails. [6][7]

Pleurodesis may be attempted in low output chylous effusions which persist despite conservative management and also in patients having high output leaks in which urgent surgical repair of thoracic duct is not indicated. It may be helpful in patients who are poor candidates for surgical interventions irrespective of drain output. Success rate of pleurodesis varies with respect to drain output, etiology and the agent used. Data to support success of pleurodesis alone are limited. Pleurodesis can be done medically by talc, bleomycin, tetracycline or povidone iodine and surgically by pleural abrasion, chemical insufflation or pleurectomy at the time of thoracoscopy or thoracotomy. Depending upon the patient preference and fitness for

tolerating surgical intervention, we can choose between medical and surgical pleurodesis. Pleurodesis with povidone-iodine is not a preferred option for many, but its easy availability, cheaper cost and relatively less side effects makes it a better sclerosing agent over others. [8] For patients not responding to initial therapy or post-surgical patients, definitive intervention is warranted. Options include thoracic duct embolization or disruption (TDE/TDD), thoracic duct ligation (TDL), or combinations of TDL or TDE/TDD with pleurodesis. [9] TDE/TDD has an advantage of being less invasive than TDL and also in identifying the site of leak. TDL is an invasive procedure and is performed via VATS or thoracotomy.

To conclude, pleurodesis with povidone-iodine is a safe and effective means to contain chylous leak. It can be used as an early and cost effective measure in high output chylothorax patients who are surgically unfit and can sometimes be the only option at places with limited resources.

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