Case Report

Nontraumatic chylothorax: Revisited

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ABSTRACT

A 2-month-old girl came with breathlessness of 5 days’ duration. Clinical examination and plain chest radiograph showed it to be pleural effusion. On sonographically guided aspiration, the effusion fluid was found to be chyle.

Introduction of intercostal thoracic drainage tube and antibiotics helped the baby to recover. It is mainly the role of nutritional support in the form of using medium-chain-triglyceride-containing feed, which is discussed in details in the case report. There was no need of any surgery.

KEY WORDS: Chyle, chylothorax, medium-chain-triglycerides

INTRODUCTION

Chylothorax is rare, more so if there is no history of thoracic surgery or trauma. Its successful management by conservative method, i.e., nutritional support using oral medium-chain-triglycerides (MCT) and chest tube drainage, is discussed by an illustrative case report of a 2-month-old baby. The article also comments upon the indications of surgical intervention.

CASE REPORT

A 2-month-old girl of weight 5 kg was referred to us for breathlessness of 5 days’ duration. On clinical examination, the baby had dullness on percussion on right side of the chest and reduced air entry. Plain chest radiograph confirmed it to be right-sided pleural effusion.

With sonographic guidance, needle aspiration was done revealing milky-white odorless fluid. Fluid was examined and found to be sterile, with a cell count of 1,200 cells/µl with predominance (92%) of lymphocytes – all these being characteristic of chyle. Under local anesthesia, a no. 12 Portex intercostal thoracic drainage tube was introduced and anchored to the chest wall. About 100-125 ml/day of the fluid was drained through the tube for 7 days, gradually reducing down and stopping completely on the 11th day. Plain chest radiograph did not show any residual fluid. This was confirmed by spiral computed tomography of the chest, which also showed features of pan-alveolo-bronchitis. The tube was removed on the 12th day.

During this period, the baby was maintained on nasal oxygen support, intravenous fluids, antibiotics, plasma concentrates and multivitamin infusion. Breast feeding was completely stopped; top feeding prepared using SIMYL-MCT powder was given.

The baby recovered well and was off supplemented oxygen on the 26th day. Repeat plain chest X-ray films did not reveal any fluid collection again and showed complete lung expansion. Baby was discharged home on feedings made with SIMYL-MCT and advised to keep regular follow-up.

DISCUSSION

Chylothorax can be managed conservatively, i.e., non-operatively, which if failed would require surgery.

Lampson[1] demonstrated the bacteriostatic quality of chyle that seems to account for the rarity of chylothorax complicated by empyema. However, the presence of chyle causes a gross pleural reaction which becomes greatly thickened and covered by exudates.[2] This can lead to loss of chest wall and lung parenchymal function.[2] These factors make the patient prone to sepsis; hence there is need for antibiotics.[3,4]

Non-operative approach

Chyle being rich in fat content, persistent chylothorax leads to progressive nutritional depletion. Hence,
nutritional support forms a major part of the management of chylothorax.\textsuperscript{[5]} Since the amount of chyle produced daily depends mainly on the fat content of the food, the rate of accumulation of chylothorax can be controlled by dietary measures. Hott\textsuperscript{[6]} demonstrated that feedings restricted to MCT result in minimal lymph flow in the thoracic duct. This is because MCT travel directly to the liver via the portal vein and not through the lymphatic system.\textsuperscript{[7]} The decrease in the lymph flow through the thoracic duct on using MCT diet may be as much as tenfold.\textsuperscript{[8]} This was our rationale of using SIMYL-MCT for the feeds.

MCT provides 8.3 kcal per gm and 116 kcal per tablespoon.\textsuperscript{[9]} The feeding regime in a given patient will depend upon the amount of prescribed calorie intake, which depends upon his/her body weight. The total calorie intake should be above the average requirement so as to promote positive anabolic response.

**Feeding regime\textsuperscript{[7]}**

**Precautions:** MCT should be introduced slowly into the diet, i.e., at a slow rate, to avoid abdominal distension, pain, nausea, vomiting and/or diarrhea. To incorporate MCT into the diet, add 1 tsp MCT oil to 4 oz fat-free milk/fruit juices.

Total parental nutrition (TPN) was found to be more effective than oral MCT in the treatment of spontaneous congenital chylothorax by Fernández et al.,\textsuperscript{[9]} Jalili\textsuperscript{[10]} suggests that if chylothorax persists even after initially being given an MCT-enriched formula feed, TPN should be started. Similar step-by-step approach has been advocated by Le Coutilte et al.,\textsuperscript{[11]}.

**Role of surgery**

In view of repeated refilling and compression of the lung, thoracotomy tube drainage is better than repeated thoracentesis.\textsuperscript{[12]}

With these conservative measures, chylothorax usually ceases. The time taken may be a few days to a few weeks – 10 days in our case. Conservative management has been found to fail in patients with high central venous pressures, as in cases of thrombosis of the superior vena cava. Milson et al.,\textsuperscript{[13]} were required to perform a surgical procedure in most of their patients – 19 of 20. Persistence of chyle flow for more than 4 weeks\textsuperscript{[5,11,14,15]} associated especially with difficulty to maintain lung inflation and pulmonary function merits surgical intervention.

The first successful intrathoracic ligation of thoracic duct was reported by Lampson\textsuperscript{[1]} in 1946 in traumatic chylothorax, and Randoff and Gross\textsuperscript{[16]} in 1957 in congenital chylothorax. Aziz Khan et al.,\textsuperscript{[17]} first used pleuroperitoneal shunt for persistent chylothorax, which was found to have 75% success rate by Murphy et al.,\textsuperscript{[18]} Use of talc, Kaolin, tetracycline or fibrin glue for pleurodesis has also been found to be successful.\textsuperscript{[19]}

Marts et al.,\textsuperscript{[20]} strongly recommend conservative management over surgical therapy as they found lower complication rate with the former. However, others advise earlier surgical intervention,\textsuperscript{[15]} especially by using video-assisted thoroscopic surgery\textsuperscript{[21]} for lesser morbidity and better results.

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**REFERENCES**


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