Somatostatin in the Treatment of Chylothorax*

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A case report is presented of spontaneous chylothorax successfully treated by conservative means. The helpful role of the inhibitory peptide, octreotide, is discussed. (CHEST 2001; 119:964–966)

Key words: chylothorax; octreotide

Abbreviation: TPN = total parenteral nutrition

Since thoracic duct ligation was introduced in 1948 by Lampson1 for the surgical treatment of chylothorax, no new invasive or noninvasive definitive therapy has been available.2 We report the first case of prompt cessation of lymphorrhrea in an adult patient with chylothorax using octreotide, a long-acting somatostatin analog.

CASE REPORT

A 79-year-old woman was admitted to St. Mary Hospital in Hoboken, NJ, complaining of progressively debilitating weakness and dyspnea. Her non-Hodgkin’s lymphoma had been in remission with chemotherapy off and on for 8 years. She admitted having a heavy sensation in her chest. She was alert, and the only physical findings were the absence of breath sounds and dullness to percussion on the left chest. On chest radiography, she had almost complete opacification of the left hemithorax. Laboratory tests revealed hemoglobin level of 8.5 g/dL. The serum albumen level was 2.9 g/dL on admission and 1.7 g/dL on the 25th day after admission. The chest fluid culture revealed no growth. Chemical analysis of the chest fluid revealed cholesterol, 89 mg/dL, and triglycerides, 640 mg/dL. Cytologic smear of the fluid showed granulocytes, reactive mesothelial cells, and copious lymphocytes highly suggestive of lymphoproliferative disease. ECG indicated a “borderline ECG.” CT scan revealed large nodes at the left thoracic inlet and confluent paraortic adenopathy from diaphragm to pelvis.

Progressive deterioration of the patient’s strength and nutrition occurred from the massive loss of proteins in spite of total parenteral nutrition (TPN) of 1,800 to 2,200 calories daily. The serum albumen level kept decreasing (Fig 1). Eleven days after admission, doxycycline, 500 mg, was instilled into the left chest. The fluid became watery and loculated, and the original chest tube clotted, necessitating a second tube thoracostomy to drain the watery, cloudy fluid (Fig 1).

Octreotide, 100 mcg tid, was started subcutaneously, and the chest drainage stopped by the third day. Treatment was continued for a total of 17 days (Fig 1). Oral intake was withheld from the seventh to the 28th day of hospitalization. The patient required a thoracentesis on the 29th day to empty the loculated, yellow, watery fluid. The patient became stronger and much less dyspneic. The albumen level started improving. The left chest remained clear until discharge on the 45th day of hospitalization. She has remained well for > 20 months at home.

COMMENT

It has been a decade since the arrest of lymphorrhagia in the neck was observed after the use of somatostatin.3 Nine years later, chylothorax was treated by the somatostatin analog, octreotide, in a 4-month-old boy.4 It took 2 days for the lymphorrhrea to stop in the first patient and 11 days in the second patient. In our patient, the lymphorrhrea stopped by the third day.

When thoracic duct ligation was first proposed in 1948, the mortality associated with chylothorax was reduced from 50 to 15%.1 Most patients now are given a 14-day course of TPN. Approximately 20 to 50% of patients will then require surgical treatment with a mortality of 15%. Tumor, usually of lymphatic type, is responsible for the chylothorax in adults.

Patients with pulmonary lymphangiomatosis, a rare condition in young women, fatal usually from chylothorax, may benefit from octreotide therapy. Octreotide reduces the thoracic duct flow and its triglyceride level. Side effects, such as diarrhea or dizziness, thrombocytopenia, hepatotoxicity, and other reactions, did not occur. The drug has been successfully used in the treatment of GI fistulae.5

Octreotide has pronounced inhibitory effect on basal and pentagastrin-stimulated gastric acid secretion. It blocks pancreatic secretion by inhibiting enzyme secretion. It also inhibits biliary secretion. It decreases the volume of high-output GI fistulae, thus lessening the metabolic systemic derangements of the patient. In fistulae of lesser output, the cessation of drainage is dramatic and curative.

Since the GI secretory volume and enzymes are decreased by the octreotide, it is thus logical to expect a decrease in the volume and protein content of the fluid in the thoracic duct. The therapeutic implication, therefore, follows that the volume and protein loss in the hydrothorax may be reduced to the point that the leakage heals.

It is true that cessation of oral intake stops food and fluid absorption from the GI tract. It also stops the stimulation of GI secretions into the gut. Less volume is thus offered for absorption and flow into the thoracic duct.


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Lack of oral intake is thus an added advantage in the attempt to conservatively heal the chylothorax. In our patient, cessation of oral intake probably helped and should be tried in conjunction with octreotide therapy. It seemed to us, however, that the addition of intrapleural doxycycline during a high-volume output only clotted the chest tube, resulting in multiple loculations that necessitated a new chest tube placement as well as an additional thoracentesis to remove a loculation of cloudy, yellow fluid (Fig 1). The effectiveness of octreotide cannot be proven or established by our case report.

Confirmation of our result will be necessary to establish the long-term effectiveness of octreotide therapy, as well as clarification of the role of TPN, chemotheraphy, irradiation, and pleurodesis in the therapy of chylothorax. The financial advantage is obvious, considering the speed of cessation of lymphorrhea after somatostatin is started, the avoidance of an operation, and the reduction of hospitalization time.

REFERENCES

Treatment of Pulmonary Artery Compression Due to Fibrous Mediastinitis With Endovascular Stent Placement*

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We present the case of a 32-year-old woman with high-grade right pulmonary artery stenosis secondary to fibrous mediastinitis. The patient was managed with balloon angioplasty and stent placement. Only 15 cases of this nature have been reported in the literature, and this is one of the first to be managed with endovascular stent placement. (CHEST 2001; 119:966–968)

Key words: balloon angioplasty; fibrous mediastinitis; pulmonary artery stenosis; stent

Abbreviation: SVC = superior vena cava

Fibrous mediastinitis is a rare condition first described in 1855 by Nathan Oulmont.1 It is typically associated with mycobacterial and mycotic infections.2 Patients typically present with superior vena cava (SVC) syndrome.3,4 Most cases have a benign clinical course until the lesion constricts a major mediastinal structure.2 Fifteen other cases of fibrous mediastinitis with pulmonary artery compression have been described in the literature.5–12 In the past 10 years, endovascular approaches have provided an effective treatment option for those individuals suffering from SVC syndrome.13,14 Recent advances in endovascular techniques have allowed the dilation and stenting of the pulmonary artery. To our knowledge, only one other case of fibrous mediastinitis has been managed with pulmonary artery endovascular stenting.11

Case Report

A 32-year-old woman from the Mississippi Valley presented with severe shortness of breath and chronic cough. Physical examination demonstrated distended neck veins and symptoms consistent with SVC syndrome. Chest radiograph revealed an area of calcification in the right parasternal region at the level of the third rib (Fig 1). A pulmonary perfusion scan was performed that indicated essentially no perfusion to the right lung. A CT scan was performed that revealed a lesion adjacent to the right main pulmonary artery. The patient underwent two mediastinoscopies. Frozen section evaluation and cultures demonstrated a fibrous histology with no evidence of mycobacterial or fungal infection. The patient was prescribed an anti-inflammatory steroid regimen, with some resolution of the SVC syndrome. A CT scan demonstrated a mass approximately 3.0 cm by 2.5 cm by 2.0 cm and SVC stenosis with significant collateral veins. Peripheral administration of contrast was unable to visualize the right pulmonary circulation, so a catheter was employed to administer the contrast proximal to the right pulmonary artery (Fig 2). This showed an abrupt stenosis of the right main pulmonary artery. An angiographic study revealed 95% stenosis of the right pulmonary artery at its junction with the right lower pulmonary artery, and total occlusion of the right upper pulmonary artery (Fig 3). The stenosis was dilated and stented with a Palmaz 424 medium catheter (Cordis/Johnson and Johnson; Miami, FL) over a 5.8F 10-mm balloon catheter. A poststen Angiogram confirmed the appropriate placement of the stent and patency of the right lower and middle pulmonary arteries (Fig 4). The patient was prescribed aspirin, 5 grains tid, and discharged. Shortly after the stent placement, the patient had complete

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