Conservative Management of Postoperative Chylothorax Using Somatostatin

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Chylothorax is a rare but serious postoperative complication of thoracic surgical procedures. We report the case of a 77-year-old man who underwent a coronary artery bypass procedure using a left internal mammary artery pedicle graft. A permanent pacemaker was required postoperatively. A persistent postoperative chylothorax developed necessitating continuous drainage and conservative management. Somatostatin was instituted when after 1 week this management failed to resolve the chylothorax. This led to rapid cessation of chyle production. Enteral feeding was reinstituted without complication and surgical intervention was avoided.


Chylothorax is a rare but well-recognized complication of general thoracic and cardiac procedures [1, 2]. Conservative therapy currently includes the use of a low-fat diet with medium chain triglycerides, or keeping the patient NPO with total parenteral nutrition. Both are combined with pleural drainage. Operation may be necessary if drainage persists despite conservative management. Often, by 1 week of conservative management it becomes evident whether or not surgery will be needed [1]. Timing of the operation depends on the amount and duration of drainage, but typically is recommended by 1 to 2 weeks if output remains greater than 1,000 mL/day [3]. The surgical approach needed will depend on the probable injury incurred at the time of the original operation.

In February 1999, a 77-year-old man underwent a triple coronary artery bypass procedure with a left internal mammary artery placed to the left anterior descending, a reversed saphenous vein graft to the posterior descending artery, and a reversed saphenous vein graft to an obtuse marginal branch. The operation was uneventful. The patient resumed a diabetic diet on postoperative day 4. Chest x-ray at that time was unremarkable. He was discharged on postoperative day 8 to a transitional care facility for physical therapy and postoperative rehabilitation.

On postoperative day 18, the patient returned to clinic with complaints of progressive shortness of breath, anorexia, and fatigue. A chest x-ray revealed a large left pleural effusion. A thoracentesis was performed and the fluid was serosanguinous. A pigtail catheter was then placed to completely drain the effusion. After the lung fully expanded, the patient’s respiratory symptoms improved markedly. He slowly resumed a diabetic diet with the pigtail catheter in place. At first, the chest tube drainage remained low after the initial effusion was drained. However on hospital day four, after tolerating a diet, the fluid character became milky with an increase in production to 900 mL per day for 2 days. The triglyceride level was 835 mg/dl. When the character of the fluid changed to chylous, the patient was made NPO and started on total parenteral nutrition on hospital day 5. After 24 hours of this therapy, the drainage fell to 300 to 400 mL per day and stabilized at this level for 6 days. This amount of drainage was felt to be too great to reabsorb if the chest tube was removed or diet resumed. As the patient appeared to be failing conservative therapy, the addition of somatostatin was considered. Somatostatin injections of 50 µg subcutaneous every 8 hours was instituted on hospital day 12. This dose was based on the minimum dosing recommendations for treatment of a pancreatic fistula. As the patient is a diabetic, the decision was made to start at a low dose and monitor the drainage response as any effect on blood sugar levels. He required no change in his insulin regimen. Due to the immediate decrease in drainage, the dose was not increased. By hospital day 13, the drainage was at 140 mL/day, then zero by hospital day 14. The total parenteral nutrition was discontinued, and a diabetic diet resumed on hospital day 15. There was no increase in chylous drainage and after 4 days of no output, despite resuming a complete diet, the somatostatin was discontinued. The time course of somatostatin use was based on the patient’s response and concern that, as he resumed a full diet, the drainage may recur. The catheter was then removed and a follow-up chest x-ray confirmed no reaccumulation of fluid. The patient was discharged home on hospital day 19 without surgical intervention. The timetable for resorting to surgical intervention for failed conservative management is after 7 to 10 days. After this time, the likelihood of resolution without surgery is low [1].

Comment

Chylothorax after myocardial revascularization procedures is rare, but does occur particularly when a left internal mammary artery graft is used [2]. It is due most often to branch avulsion rather than complete transection of the thoracic duct. This is also true of duct injuries following central line placement. In a review of case
A 29-year-old gravid female presented at 22 weeks gestation with an acute Type I aortic dissection and coarctation of the aorta. She underwent emergent repair of her aortic dissection using cardiopulmonary bypass and hypothermia. At 25 weeks gestation, she underwent repair of her coarctation of the aorta. The patient had a cesarean delivery of a viable, normal male infant at 39 weeks gestation.

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