

LETTER TO THE EDITOR

**LYMPH-VENOUS SHUNT IN THE MANAGEMENT OF
CHYLOUS DISEASE (TOSATTI-CARIATI INTERVENTION)**

Shen et al's article entitled "Lymphogenous Cyst-Vein Shunt in the Management of Chylothorax and Chylorrhea" (1) was well done but the references were sparse. Specifically, we have had similar experience in several cases of chylous disease that have been treated in our Surgical Institutes in Genoa during the last 7 years.

The article by Shen et al is important for us because in the difficult treatment of chylous disease, they arrived at similar conclusions to our own. They initially tried to treat a patient with "idiopathic" chylothorax and chylorrhea by ligation of the thoracic duct and talcum pleurodesis but there was recurrence of the chylous disease with formation of a lymphatic cyst. Ultimately, they performed an anastomosis between the lymphatic cyst to an adjacent superficial vein and the chylous effusion remitted. After 5 years the cyst recurred and chyle began to drain again from the abdominal wall. The cyst-vein anastomosis was occluded. The cyst was reanastomosed to the greater saphenous vein and chylorrhea disappeared for another 4 years.

In our first article on this subject (2), we reported two patients that were treated by a lymphatic-venous shunt. In a woman with lung lymphangiomyomatosis, we performed three lymphatic-venous anastomoses between the thoracic duct and azygos vein. Though the chylothorax disappeared, she died 6 months later from severe respiratory insufficiency secondary to the underlying

lymphangiomyomatosis. In a young patient with chylothorax, we performed an anastomosis between the thoracic duct and an intercostal vein. After 13 months, the chylothorax recurred, probably because the anastomosis was occluded. Thereafter, we successfully performed an anastomosis between a hyperplastic lymph node of the porta hepatis to a lumbar vein with remission of chylothorax.

In another article (3), we reported a patient with chylothorax from an inflammatory or "idiopathic" lesion of the thoracic duct that was treated by a lymphatic-venous anastomosis between a hyperplastic supraclavicular lymph node and the left external jugular vein (chylothorax never recurred). We also reported (4) our experience using the Tosatti-Cariati operation in the treatment of chylous reflux into the lower limb (chylous disease can present as chylothorax, chylous ascites, or chylorrhea with lympho-chyloedema of the legs). In this latter article, we showed the beneficial results of Tosatti-Cariati intervention based on the classic operations of Servallo and Thompson using ligatures of incompetent abdominal lymphatic pathways. The rationale of Tosatti-Cariati intervention is: 1) ligation of ectatic retroperitoneal and iliac lymphatics; 2) drainage of stagnant lymph and chyle into the bloodstream using an anastomosis between hyperplastic lymphatics and adjacent veins, i.e., an iliac lymph node to an iliac vein or an inguinal ectatic lymph nodes and/or lymphatics to the saphenous vein; or

3) between a mesenteric or retroperitoneal lymphatic to a mesenteric vein. Moreover, we had similar experience with a 20-year-old man who presented with chylous ascites, chylothorax, and lymphocyte depletion of T helper cells (CD 4+) and B cells (CD 9+) (5-7). After failure of non-operative treatment, a lymphovenous shunt was first performed and chylothorax disappeared for one year. After recurrence, we performed two lymphovenous anastomoses: one between a superior mesenteric vein and a hyperplastic mesenteric lymph node, and the second between the inferior mesenteric vein and a retroperitoneal lymphatic. Further, all incompetent lymphatic abdominal wall pathways were ligated. Antibiotics were administered for one year to prevent post-operative lymphangitis that can close the lymphatic-venous anastomoses. Lymphoscintigraphy performed 9 months later demonstrated significant improvement in lymph flow and early "pick-up" of the radiotracer by the liver suggesting accelerated lymph return to the bloodstream. After 7 years, the chylothorax and the chylous ascites had not recurred. The experiences of our group and that of Shen et al demonstrate that: 1) "idiopathic" chylous disease, after the failure of non-operative treatment, should be treated by ligation or excision of insufficient and ectatic lymphatics and anastomosis of hyperplastic lymph node(s) or dilated collector(s) (that have an increased intraluminal pressure of ~50-70 cm of water) (8) to the greater saphenous vein (the latter must have intact valves) or an iliac vein (intraluminal pressure of 4-8 cm of water) or a mesenteric vein (pressure of 10-14 cm of water); 2) most patients with idiopathic chylous disease can be treated by this approach; 3) in case of closure of the lymphatic-venous anastomosis with recurrence of chylous disease, a newly constructed lymphatic-venous shunt is highly successful.

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A. Cariati, M.D.

Department of Emergency Surgery

Villa Scassi Hospital

Via Fratelli Coda 67/5 sc. A

16166 Genoa, Italy

E-mail: andrea.cariati@villascadssi.it

F. Cetti, M.D.

Department of General Surgery

University of Siena, Italy

E. Cariati, M.D.

Department of Surgery

University of Genoa, Italy