

# Delayed Postoperative Chyluria after Radical Gastrectomy A Case Report

Shaoliang Han, Jun Cheng, Xian Shen, Hongzhong Zhou, Zhi Liu, Junlin Li

Department of General Surgery, the First Affiliated Hospital of Wenzhou Medical College, Wenzhou 325000, Zhejiang Province, China

**ABSTRACT** Chyluria is the leakage of lymphatic fluid to urine, due to trauma or obstruction to the lymphatic system. Postoperative chyluria is a rare complication of abdominal surgery. The treatment options are varied and include total parenteral nutrition (TPN), elemental diet with medium chain triglycerides (MCT), and surgical ligation. To our knowledge this is the first report of such a complication following radical gastrectomy for gastric cancer. We review the literature and briefly discuss the management options.

**Key words** Survivin; Ant; NT4; Fusion gene; Vector

Chylous ascites is the accumulation of lymphatic fluid within the peritoneal cavity, due to trauma or obstruction to the lymphatic system. Postoperative chylous ascites is a rare complication of abdominal surgery, such as extensive retroperitoneal or near the root of the mesentery dissection with an incidence ranging from 1.2 to 3%<sup>[1-3]</sup>. This is frequently reported after retroperitoneal dissections, and results in high morbidity and mortality. Up to today, only 6 cases of chylous ascites have been described after gastric ulcer surgery with troncal vagotomy associated with pyloroplasty and only 2 after gastrectomy up to today<sup>[1-2]</sup>.

There has been no report of chyluria after radical gastrectomy for gastric cancer up to today. Herein, we report a case of relayed postoperative chyluria after radical distal gastrectomy with D2 lymph node dissection for gastric cancer.

## CASE REPORT

A 65-year-old male with the chief complaint of epigastric pain of duration of 2 months, endoscopic findings revealed that a Borrmann 3 type ulcerative le-

sion of 3.5cm × 4cm in size located at the lesser curvatures. The patients received a D2 distal gastrectomy and gastro-duodenostomy with omentectomy for a prepyloric T3N2M0 poorly differentiated adenocarcinoma. On histopathologic examination, the metastatic degree was 8/19, with positive of No.1, No.3, No.7 and No.8. The patient recovered well and discharged on the 17th postoperative day. Eight months later, the patient passed ivory white urine, and deteriorated by intake of high-protein and high-fatty foods. Many fatty microspheres were found in the urine by Sudan III stain, and the diagnosis of chylous urine was determined. At the microscopic examination dilated lymphatic channels were present with some lymphatic inflammation. After 9 weeks of conservative treatment, the disease was not improved; therefore, ligations of lymphatic ducts around the left renal pedicle were underwent and recovered smoothly. The patient was survived 3 years with disease recurrence (abdominal dissemination).

## DISCUSSION

According to our knowledge, there has been no report of chyluria after radical gastrectomy for gastric cancer up to today. The mechanism of chyluria after radical gastrectomy is not clear. It is generally accepted that the origin of chylous ascites or chylous thorax effusion is a congenital lymphatic inflammation or operative injury of lymphatic ducts<sup>[2-6]</sup>. The retroperitoneal lymph node dissection may injure the pathway of pathway of lymphatic circulation, and the scare tissue may cause the

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Correspondence to: Shaoliang Han, the Department of General Surgery, the First Affiliated Hospital of Wenzhou Medical College, Wenzhou 325000, Zhejiang Province, China.

E-mail: slhan88@hotmail.com or slhan88@126.com

Phone: 086-0577-88069307(O)

Fax: 086-0577-88069555

blockage of lymphatic retain to lead lymph juice leak from peripheral sites. Whereas lymphatic juice pressure is greater than that of intra-interstitial tissue pressure or cavity internal pressure (such as kidney and ureter), the lymphatic juice leak to urine, namely form chylous urine. This is usually occurring in the patients with advanced gastric carcinoma or gastric malignant lymphoma diffusely disseminated.

The typical chyluria is closely correlated with food characteristics, that is, there is no chyluria before blockage of proximal lymphatic duct, and the chyluria deteriorates after intake of fatty food, demonstrating as ivory white. The diagnosis is suspected on the total lipids in urine much higher than that in serum and many fatty microspheres are found in urine by Sudan III stain, and confirmed by the ether test and the side of chylous reflux was determined by cystoscopy. When disease further develops, the continuous loss of liquid and protein may cause immune dysfunction and malnutrition, decrease in lymphocyte because of large amount of lymphatic juice.

It is difficult to make an early diagnosis. Occasionally, when these lesions are suspected, they may be diagnosed by lymphography or lymphoscintigraphy. Pui et al<sup>[5]</sup> reviewed the images of whole-body lymphoscintigrams using <sup>99m</sup>Tc-antimony sulfide colloid or dextran were acquired in 18 patients with chyluria, chyloperitoneum and/or chylothorax, they found that lymphoscintigraphy was normal (5 of 11 patients) or showed lymphatic obstruction (6 of 11 patients) in chyluria associated with filariasis. Lymphatic obstruction was demonstrated in chyloperitoneum and/or chylothorax associated with liver cirrhosis (2 patients), postoperative (1 patient) or congenital (1 patient) lymphatic dysplasia, inferior vena cava obstruction (1 patient) and nephrotic syndrome (1 patient). Enhanced lymph flow was seen in systemic lupus erythematosus (1 patient). Follow-up lymphoscintigrams showed patency of lymphovenous anastomosis (1 patient), improvement (1 patient) or no change (1 patient) in lymphatic drainage after treatment. Therefore, the lymphoscintigraphy allows functional assessment of lymphatic transport and depiction of regional lymph nodes, is fast and nontraumatic and has no known side effects.

The treatment options are varied and include total parenteral nutrition (TPN), elemental diet with medium chain triglycerides (MCT), and surgical ligation<sup>[5-6]</sup>. This conservative treatment proved to be effective as it has already been reported with resolution in almost 60% of the patients and remains the first choice option<sup>[2-3]</sup>. Zhang et al<sup>[4]</sup> reported that 53 patients (55 renal units) with chyluria underwent renal pedicle lymphatic disconnection via the retroperitoneoscopic and conventional open approaches. They recognized that retroperitoneoscopic renal pedicle lymphatic disconnection for chyluria has the advantages of minimal invasion and rapid recovery compared with open surgery. In our report, the case with chyluria after radical gastrectomy was cured with performing renal pedicle lymphatic disconnection.

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