

Chylous ascites after lymphadenectomy for gynecologic malignancies: the conservative treatment

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Summary

Purpose: This study aimed to evaluate the efficacy and outcomes of the conservative treatment for postoperative chylous ascites in patients with gynecologic malignancies. **Materials and Methods:** The authors retrospectively analyzed 107 patients who underwent pelvic and/or para-aortic lymphadenectomy (PLND and/or PALND) for gynecologic malignancies. **Results:** Among the 107 cases, chylous ascites occurred in 13/81 of patients who received PLND and PALND, in 2/3 patients who received only PALND, and none of the patients who received only PLND. The mean time interval between the operation and the appearance of chylous ascites was 2.8 (range, 2–5) days. The cure rate of chylous ascites with the conservative therapy was 100%. None of the cases had recurrent chylous ascites during follow-up. **Conclusions:** The conservative therapeutic strategy for treating chylous ascites can be a front option in patients with chylous ascites and a gynecologic malignancy without invasive interventions.

Key words: Chylous ascites; Gynecologic malignancies; Conservative treatment.

Introduction

Chylous ascites is pathological lymphatic fluid in the peritoneal cavity, which is rich in lipids, milky-white colored, and has a high triglyceride level (>110 mg/ml) [1]. Postoperative chylous ascites usually develops when surgically treating a gynecologic malignancy, particularly following pelvic and/or para-aortic lymphadenectomy (PLND and/or PALND). Postoperative chylous ascites is an unusual complication, but the number of cases is increasing [2].

Management of postoperative chylous ascites may be challenging, as there are few reports on feasible, effective, and non-invasive therapeutic approaches for treating postoperative chylous ascites following gynecologic oncologic surgery.

The authors report the conservative treatment for postoperative chylous ascites in gynecologic malignancy and proved the outcomes and efficacy of this conservative therapy.

Materials and Methods

This study included 107 patients who underwent PLND and/or PALND for a gynecologic malignancy between March 2011 and February 2013 at Ulsan University Hospital, Ulsan, Korea. The medical records were retrospectively analyzed for information on demographic characteristics, surgical findings, pathological findings, and clinical outcomes at the follow-up.

Bilateral PLND included all lymphatic tissue of the common,

external and internal iliac vessels and the obturator fossa. PALND included all lymphatic tissues from the bifurcation of the aorta to the renal veins. PALND was performed from the bifurcation of the aorta to the infra-mesenteric artery in patients with uterine cervical cancer to confirm a microscopic metastasis without a positive imaging study.

The authors used hemoclips or monopolar cautery for dissection and ligation of the lymphatics. They primarily used an electrothermal bipolar vessel sealing device and monopolar cautery for all the lymphatic tissue below the left renal vein during a laparoscopic approach.

All 15 patients with chylous ascites were detected from closed drains. All patients were treated by the authors' conservative management protocol (Figure 1). The conservative treatment strategy for chylous ascites consisted in three steps. First, the authors maintained not per oral intakes of meal (NPO) until the chylous ascites changed from creamy or milky into a clear fluid with negative pressure on the peritoneal drainage tube. Second, they maintained NPO without negative pressure on the peritoneal drainage tubes for four days. Third, diet was introduced in the order of water, liquid, soft, and regular and consisted of low fat components.

Repeated therapy was performed if the first therapy failed. A complete cure was defined as the disappearance of ascites for four days after a regular diet was started. All patients were followed up regularly at the standard interval for a gynecologic malignancy. Patients with progressive abdominal distension or patients with drains that consistently had chylous content despite the treatment were considered nonresponsive.

Results

Chylous ascites developed in 15 of the 107 patients. The mean age of the patients was 55.8 (range, 33–73) years.

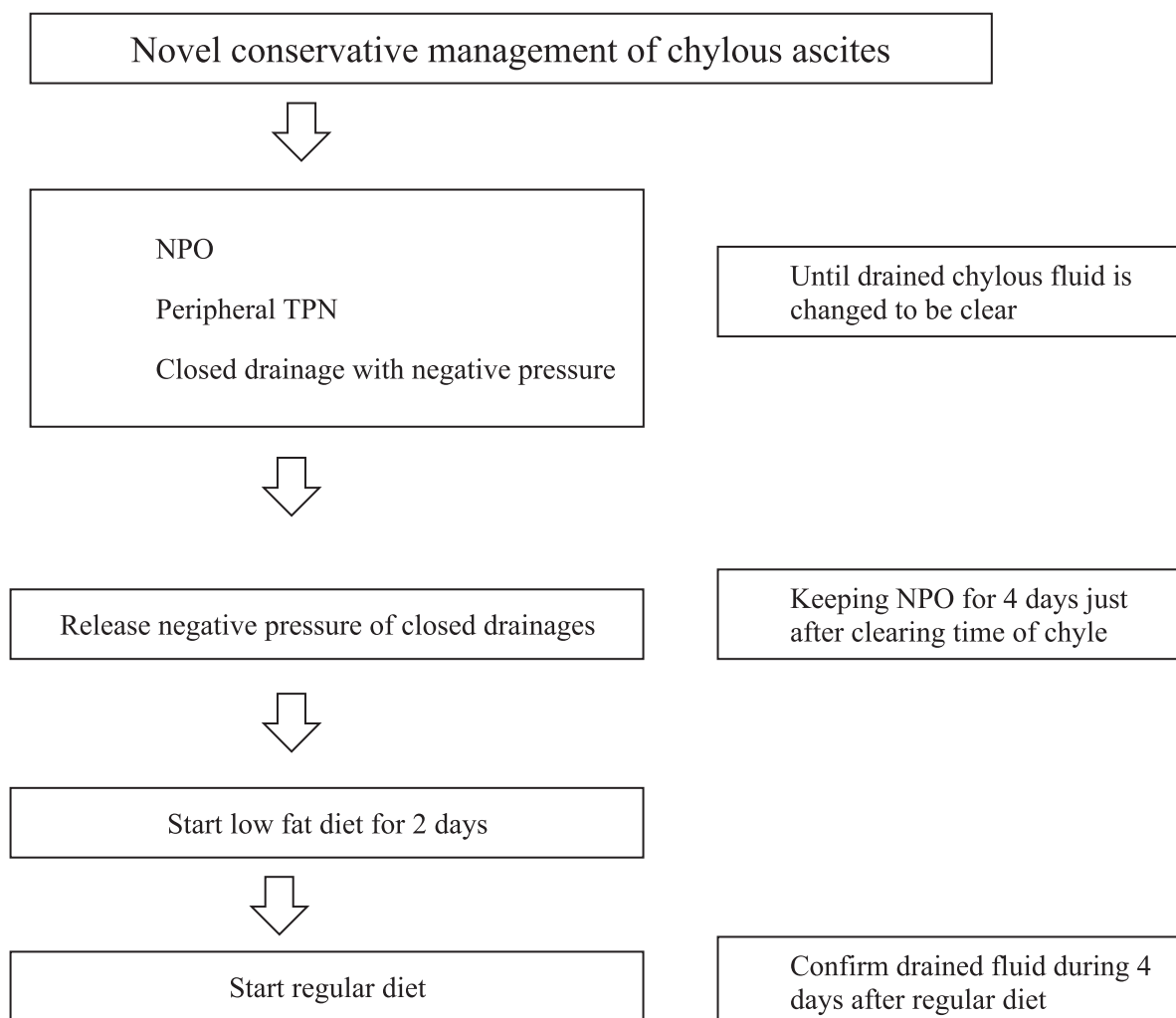


Figure 1. — Therapeutic strategy for the novel conservative chylous ascites treatment. NPO: not per oral intake of meal; TPN: total parenteral nutrition.

Chylous ascites did not occur in patients who only underwent PLND, and all patients with chylous ascites received PALND during surgery. A total of 91/107 (85%) of the surgeries were performed via a laparoscopic approach. The average number of dissected lymph nodes was 27.3 (range, 15–34) during PLND and 13.2 (range, 6–25) during PALND.

Closed drains were routinely inserted into the peritoneal cavity in all patients who received lymphadenectomy. The mean onset time of chylous ascites was 2.8 (range, 2–5) days after surgeries with lymphadenectomy, which was diagnosed by white-milky colored fluid and a high level of triglycerides (> 110 mg/ml) in closed drain content. All 15 patients with chylous ascites were managed by the authors' conservative management protocol (Figure 1).

The cure rate of chylous ascites was 100%. The mean number of protocol cycles for managing chylous ascites was 1.27 cycles (one cycle in 11/15 and two cycles in 4/15

patients). No recurrence developed during the follow-up period after finishing of successful initial conservative management for chylous ascites in surgery of gynecologic malignancy (Table 1).

Discussion

Pelvic and para-aortic Lymphadenectomy is an essential procedure during surgery for a gynecologic malignancy, and PALND has been widely used because of the advanced instruments and technologies available. Therefore, complications from lymphadenectomy including para-aortic lymph nodes have increasingly developed and are an important aspect of postoperative management.

Chylous ascites is an infrequent postoperative complication of this surgery. Retroperitoneal surgery, particularly lymphadenectomy, is responsible for most cases of postoperative chylous ascites [3].

Table 1. — Characteristics and outcomes of patients with chylous ascites.

	Patients with lymphadenectomy	Patients with chylous ascites
Total number	107	15 (14.0 %)
Site of cancer		
Ovary	34	7/34 (20.6 %)
Endometrium	24	2/24 (8.3 %)
Uterine cervix	41	6/41 (14.6 %)
others	8	0 (0 %)
Surgical status of lymph node		
Only PLND	23	0 (0 %)
Only PALND	3	2 (66.7 %)
PLND+PALND	81	13 (16.5 %)
Surgical mode		
Laparotomy	16	5 (31.3 %)
Laparoscopy	91	10 (10.9 %)
Mean onset time of chylous ascites (POD)		2.8 (2-5)
Cycles of a novel conservative treatment		1.27
Cure rate (%)		100 %
Recurrence rate (%)		0 %

Data are absolute number (%) or mean (range). PLND: pelvic lymphadenectomy; PALND: para-aortic lymphadenectomy; POD: postoperative day.

The incidence of chylous ascites after surgery varies at respective institutes (0.3–7%) [4–7]. The incidence rate of chylous ascites is thought to be related to the aggressiveness of the lymphadenectomy [7]. In addition, the instruments used and the type of lymphadenectomy may be related to the development of postoperative chylous ascites.

Treatments for chylous ascites include conservative and surgical management. Conservative management is recommended, including serial paracentesis, low-fat diet supplemented with medium-chain triglycerides, total parenteral nutrition, salt restriction, diuretics, and somatostatin. The response rate to conservative therapy varies because conservative management approaches differ [2, 8], and no consistent treatment algorithm applicable to all patients has been established.

In the current study, the conservative management therapy protocol was applied in 15 patients with chylous ascites (Figure 1). Closed drains are routinely inserted into the peritoneal cavity during gynecologic lymphadenectomy surgery. These drains make the diagnosis of chylous ascites simple and accurate during the postoperative period and were helpful in determining the failure or success of conservative therapy.

The mechanism of conservative management for chylous ascites might be a spontaneous collapse and occlusion of injured lymphatics. Therefore, the negative pressure on closed drains could disturb the spontaneous occlusion of injured lymphatics. Negative pressure is helpful for draining chylous ascites during the NPO period, and the chylous ascites changes to clear peritoneal fluid. This fluid transition time is the release time for negative pressure, in which the injured lymphatics could collapse and occlude naturally.

The present results show a much higher cure rate (100%) than that in other reports, which may have been influenced by the degree of lymphatic injury, which one of injured lymphatic system, and the type of using tools during lymphadenectomy. The high cure rate of conservative treatment in the present patients might be related with several reasons, which included that most of injured lymphatic system is lacteals but not cisterna chili and the severity of lymphatic injury is not relatively serious.

In the current study, the 11 patients with chylous ascites were cured with one cycle of the conservative protocol and four patients were cured with two cycles. All patients were cured by the conservative management protocol. The present results show a much higher cure rate than that in other reports, which may have been influenced by the degree of lymphatic injury and the type of ligation during lymphadenectomy.

The present authors performed laparoscopic lymphadenectomy using hemoclips and an electrothermal bipolar vessel sealing device or monopolar cautery. The laparotomic lymphadenectomy was performed using hemoclips and a monopolar cautery. The present incidence rate for chylous ascites was 14% higher than that of other reports, and all patients with chylous ascites received PALND (alone or combined with PLND). The present data reveal that efforts to completely ligate injured lymphatics and PALND technical modifications are needed to reduce the incidence rate of postoperative chylous ascites.

When chylous ascites is refractory to conservative treatment, treatment options include peritoneovenous shunts, image-guided sclerotherapy, or surgical intervention with lymphatic duct ligation [9]. A consistent conservative treat-

ment protocol with a high cure rate is required and should be further investigated from aspects of cost effectiveness and feasibility to manage chylous ascites.

In conclusion, some complications have increased in parallel with advanced surgical management for gynecologic oncologic surgery. Chylous ascites after lymphadenectomy during gynecologic oncologic surgery can be corrected easily and efficiently by the conservative management rather than interventional or surgical procedures.

The present authors report their experience of their conservative management protocol for postoperative chylous ascites with a high response rate.

References

- [1] Staats B.A., Ellefson R.D., Budahn L.L., Dines D.E., Prakash U.B., Offord K.: "The lipoprotein profile of chylous and nonchylous pleural effusions". *Mayo. Clin. Proc.*, 1980, 55, 700.
- [2] Frey M.K., Ward N.M., Caputo T.A., Taylor J., Worley Jr M.J., Slo-movitz B.M.: "Lymphatic ascites following pelvic and paraaortic lymphadenectomy procedures for gynecologic malignancies". *Gynecol. Oncol.*, 2012, 125, 48.
- [3] Combe J., Buniet J.M., Douge C., Bernard Y., Camelot G.: "Chylo-thorax and chylous ascites following surgery of an inflammatory aortic aneurysm. Case report with review of the literature". *J. Mal. Vasc.*, 1992, 17, 151.
- [4] Baniel J., Foster R.S., Rowland R.G., Bihrlé R., Donohue J.P.: "Complications of post-chemotherapy retroperitoneal lymph node dissection". *J. Urol.*, 1995, 153, 976.
- [5] Evans J.G., Spiess P.E., Kamat A.M., Wood C.G., Hernandez M., Pettaway C.A., et al.: "Chylous ascites after post-chemotherapy retroperitoneal lymph node dissection: review of the M.D Anderson experience". *J. Urol.*, 2006, 176, 1463.
- [6] Han D., Wu X., Li J., Ke G.: "Postoperative chylous ascites in patients with gynecologic malignancies". *Int. J. Gynecol. Cancer*, 2012, 22, 186.
- [7] Tulunay G., Ureyen I., Turan T., Karalok A., Kavak D., Ozgul N., et al.: "Chylous ascites: analysis of 24 patients". *Gynecol. Oncol.*, 2012, 127, 191.
- [8] Aalami O.O., Allen D.B., Organ Jr C.H.: "Chylous ascites: a collective review". *Surgery*, 2000, 128, 761.
- [9] Kaas R., Rustman L.D., Zoetmulder F.A.: "Chylous ascites after oncological abdominal surgery: incidence and treatment". *Eur. J. Surg. Oncol.*, 2001, 27, 187.

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