CASE REPORT

Chylous ascites treated by traditional Chinese herbal medicine: A case report and discussion

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Available online 14 October 2014

KEYWORDS
Chylous ascites; Postoperative complications; Traditional Chinese herbal medicine

Summary Chylous ascites, which can lead to peritonitis, intestinal obstruction, metabolic disorder, and even death from pyemia, is a rare complication of abdominal surgery. Currently, first-line treatment involves conservative management, which includes oral diet and total parenteral nutrition (TPN). However, the efficacy of these treatments cannot be guaranteed. For example, single diet control can result in consecutive drainage for up to 1 month, and salvage surgery is required for some invalid cases. Here, we report 6 cases of chylous ascites after abdominal surgery. In addition to diet control, we delivered traditional Chinese herbal medicine (TCHM) twice daily orally. The drainage volume of the chylous fistula showed an obvious decrease 1 day after the TCHM administration and all 6 patients completely recovered within 4 to 8 days (median: 5.5 days). Although relevant data are limited, our cases would suggest that TCHM could play an important role in the management of chylous ascites. However, randomized controlled trials are still needed to confirm its efficacy in a larger population.

Introduction

It is well established that chylous ascites is a rare complication of various abdominal surgeries, with an incidence at about 5–11%.¹⁻³ It can result in poor prognosis for these patients due to complications such as peritonitis, intestinal obstruction, metabolic disorder, prolonged hospital stay, and even death from pyemia.³⁻⁵ The underlying mechanism of the disease is conventionally attributed to the extensive loss of lymph nodes after resection which can lead to inadequate drainage, congested upstream lymph ducts,¹⁻² especially for those who experience operative trauma to cisterna chyli or retroperitoneal lymphatic vessels after retroperitoneal surgery.⁷⁻¹⁰ Aggressive lymphadenectomy in the para-aortic region was also regarded as a risk factor for chylous ascites.¹⁰ The main treatment approach for chylous

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http://dx.doi.org/10.1016/j.ctim.2014.10.006
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ascites is conservative management, aimed at reducing the lymph leak of injury retroperitoneal lymphatic.\textsuperscript{9} However, the efficacy of these treatments cannot be guaranteed.

In recent years, traditional Chinese herbal medicine (TCHM) has increasingly proved to be effective in management of the postoperative complications, such as postoperative urinary retention and gastrointestinal dysfunction.\textsuperscript{12,13} However, there is no data on its role on chylous ascites. Here, we report our experience with 6 patients who underwent abdominal surgery and presented with postoperative chylous ascites. In addition to diet control, we administered TCHM after the confirmation of chylous ascites. The composition and proportions of the herbs are described in Table 1. The drainage volume of the chylous fistula showed a marked decrease 1 day after the administration of TCHM and all 6 patients completely recovered in 4 to 8 days (median: 5.5 days).

\textbf{Case presentation}

Six patients with postoperative chylous ascites were referred to Shanghai Changzheng Hospital, Shanghai, China from October 2011 to December 2012 (Table 2).

\begin{table}[h]
\centering
\caption{Ingredients and the corresponding percent of TCHM.}
\begin{tabular}{|l|l|l|l|}
\hline
Chinese name & Common name & Latin name & Percent (\%) \\
\hline
Huang Qi & Milkvetch Root & Astragali Radix & 25 \\
Yi Yi Ren & Semen Coicis & Coicis semen & 12.5 \\
Qian Shi & Gorgon Euryale Seed & Semen Euryales & 12.5 \\
Yu Mi Xu & Corn silk & Corn Stigma Stigma Maydis & 12.5 \\
Yi Mu Cao & Herba Leonuri & Leonurus heterophyllus Sweet & 12.5 \\
Fang Feng & Radix Saposhnikoviae & Saposhnikania divaricata (Turcz.) Schischk & 6.25 \\
Ma Bian Cao & Herba Verbenae Officinalis & Verbenae Officinalis L. & 6.25 \\
Jin Ying Zi & Fructus Rosae Laevigatae & Rosa Laevigata Michx & 6.25 \\
Zhe Bei Mu & Fritillaria thunbergii & Fritillariae Thunbergii Mig & 4.17 \\
Gan Cao & Glycyrrhiza & Radix Glycyrrhizae praeparatae & 2.08 \\
\hline
\end{tabular}
\end{table}

\textbf{Case 1}

A 59-year-old man presented with an obscure adrenal gland lesion and underwent a right laparoscopic adrenalectomy in 2011. After surgery, the volume of drainage was approximately 160 ml per 24 h. On the postoperative day (POD) 7, chylous ascites occurred, the patient’s tongue being pale with thin and greasy coating, and pulse being smooth. The patient was then treated with albumin, a low-fat diet and TCHM. The drainage volume immediately decreased to 87 ml/24h, and was further reduced to 15 ml/24 h 2 days later. After that, the drains were removed and no other complications occurred.

\textbf{Case 2}

A 68-year-old woman was diagnosed with renal cancer and underwent a left laparoscopic radical nephrectomy in 2011. The volume of drainage decreased gradually after the surgery, but increased to approximately 140 ml/24h on POD 5 with no obvious cause. A chyle test was positive and chylous ascites was confirmed. She presented a pale tongue with thin and greasy coating, and rapid pulse. The patient was

\begin{table}[h]
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\caption{Clinical profile of patients in whom chylous fistula developed.}
\begin{tabular}{|l|l|l|l|l|}
\hline
Patient no. & Age & Gender & Primary site & Surgery & Biochemically proved \\
\hline
1 & 59 & Male & Right adrenal gland occupying lesion & Right laparoscopic adrenalectomy & No \\
2 & 68 & Female & Left renal cancer & Left laparoscopic radical nephrectomy & Yes \\
3 & 49 & Female & Right renal cancer & Right partial nephrectomy & Yes \\
4 & 47 & Male & Left non-functioning kidney & Left laparoscopic radical nephrectomy & Yes \\
5 & 63 & Male & Left ureteral cancer & Left laparoscopic nephroureterectomy & No \\
6 & 57 & Male & Bladder cancer recurrence & Cystectomy & No \\
\hline
\end{tabular}
\end{table}
simultaneously administrated a low-fat diet and TCHM. Her volume of drainage decreased to 45 ml/24 h 2 days later, and at this point the patient recovered and no other complications were reported.

**Case 3**

A 49-year-old woman was diagnosed with renal cancer and underwent a right partial nephrectomy in 2011. Similar to Case 2, she presented chylous ascites on POD 5 (approximately 180 ml/24 h), with no obvious cause. She presented a pale tongue with thin and greasy coating, and thread pulse. The patient was simultaneously administrated a low-fat diet, albumin and TCHM. The volume of drainage decreased to 40 ml/24 h 6 days later, and no other complications were detected in the follow-up.

**Case 4**

A 47-year-old man was diagnosed with a non-functioning kidney and underwent left laparoscopic radical nephrectomy in 2011. The discharge (approximately 155 ml/24 h) turned milky on POD 4 and the chyle test was positive. He presented a pale and swollen tongue with thin, white and greasy coating, and smooth pulse. The patient received a low-fat diet and TCHM. The volume of fluid in drainage was decreased to 30 ml/24 h 6 days later, and no other complications were recorded.

**Case 5**

A 63-year-old man was diagnosed with ureteral cancer and underwent left laparoscopic nephroureterectomy in 2012. The discharge of 260 ml/24 h turned milky on POD 5 and chylous ascites was confirmed. He presented a pale and swollen tongue with thick, white and greasy coating, and soft-superficial pulse. The patient immediately received a low-fat diet and TCHM. The volume of fluid in drainage was then decreased to 50 ml/24 h 6 days later, and no other complications were detected in the follow-up.

**Case 6**

A 57-year-old man presented with cystectomy due to a recurrence of bladder cancer in 2012. The discharge increased on POD 3 (approximately 340 ml/24 h). He presented a pale and swollen tongue with thick, white and greasy coating, and soft-superficial and smooth pulse. The patient received a low-fat diet, albumin and TCHM. The volume of fluid in drainage was then decreased to 50 ml/24 h 2 days later, and no other complications presented during the follow-up.

**Syndrome differentiation**

According to the principle of traditional Chinese medicine (TCM), the Qi deficiency could be occurred in some wound situation (including surgery) since the majority of the patients would lost this important element in these processes. Taking into consideration of the role of Qi deficiency in TCM, it would be predictable that it could lead to some symptoms like fluid retention as well as delay the time of healing when it was happened. The patients’ pale or and swollen tongue with thin or thick greasy coating combined with smooth or soft-superficial pulse accorded with Qi deficiency and dampness syndrome. Indeed, the therapeutic principle of TCM is strengthening Qi and removing dampness.

In all 6 cases, chylous leakage was confirmed by the detection of milky fluid in drainage tubes or a drainage volume that was more than 200 ml/day, and/or drainage that proved biochemically positive. Once chylous ascites was confirmed, all the patients were treated by conservative management and TCHM 1—2 days later (Table 3), 150 ml per time at a frequency twice a day orally. The treatments were administrated until the drains were discharged. All the herbs were purchased from Cai Tongde Pharmacy Co. Ltd (Shanghai, China) and therefore had a definite origin and were of good quality. For all the patients, the drains were removed when the discharge decreased to 50 ml/24 h.

As shown in Fig. 1, the average chylous leakage increased dramatically when single conservative management was adopted, but then markedly decreased once the TCHM treatment was initiated. After 4—8 days’ (median: 5.5 days) treatment, all the patients recovered and no other complications were detected in the follow-up.

**Discussion**

In current study, we presented 6 cases of chylous ascites that were mainly treated with a single treatment as part of a conservative management approach and TCHM. We observed a marked decrease in drainage volume and a short recovery time (4—8 days) compared to previously reports. Although related data are still rare, our cases lend support to the
adoption of an additional approach to the management of chylous ascites in future.

In previous studies, Kim et al.\textsuperscript{14} reported that the incidence of chylous ascites in left nephrectomy was higher than in right nephrectomy, which was also demonstrated in our cases (3/5 vs. 2/5). In addition, it was also reported that chylous ascites would occur on POD 5–12 when a normal diet was resumed. The drainage flow turned milky and/or the abdomen circumference slightly increased in patients without abdominal drainage.\textsuperscript{7} In our study, the chylous ascites started on POD 3–7.

Currently, the treatment of chylous ascites remains controversial and mainly includes conservative management and surgery. The former usually includes salt restriction, diuretics and somatostatin,\textsuperscript{9,15,16} which all aim to reduce the lymphatic flow. Taking into consideration the fact that the amount of lymphatic flow relates to the fat content of the diet, in particular the long-chain triglycerides that make up approximately two-thirds of dietary fat, using a high-protein and low-fat diet with medium-chain triglycerides seems reasonable. But single diet control could result in consecutive drainage for up to 1 month.\textsuperscript{10} TPN may be also recommended either alone or with the chylous diet as a complementary therapy,\textsuperscript{7} but is usually costly and the central venous catheter poses a risk of infection.\textsuperscript{3,17} It is reported that 43–71\% of patients would respond to conservative management and most of these cases could potentially be cured.\textsuperscript{9,10,17}

Surgery is a salvage option when conservative management fails or lymphatic channel leak is detected in operation with a response rate of 58–100\%.\textsuperscript{10,18} It is particularly recommended when leakage is sustained for more than 2 weeks, drainage volume reaches more than 1 l, even after 1 week, or the patient starts to experience metabolic complications.\textsuperscript{19} The standard surgical management is yet to be defined. However, it usually includes peritoneovenous shunts, image-guided sclerotherapy or surgical intervention with lymphatic duct ligation.\textsuperscript{7} Some authors advocate that surgical intervention can be performed as early as possible, but the majority of the research indicates that 2–8 weeks of observation is acceptable. Nevertheless, the optimal point for switching from conservative management to surgery has not been established.\textsuperscript{8,9,19}

In our study, 6 patients diagnosed with “Qi deficiency and dampness syndrome”, were treated with diet control and TCHM of “strengthening-Qi and removing-dampness formula” and achieved a rapid recovery. Despite the limited data, we can speculate that some components in the TCHM may contribute to its efficacy. For example, Astragalus Radix, the main herb in the decoction, has an effect on promoting wound healing and its underlying mechanisms are likely to contribute to its role in inhibiting endothelial cell apoptosis induced by Ang II, anti-inflammatory effect and relieving of microvascular insufficiency.\textsuperscript{20–22} In addition, Rosa laevigata Michx., Verbena officinalis L. and Saposhnikovia divaricata (Turcz.) Schischk were reported to have anti-inflammatory effects.\textsuperscript{23–25} Saposhnikovia divaricata (Turcz.) Schischk can inhibit the hyperpermeability of peritoneal capillary in mice induced by Hac.\textsuperscript{25} Coisus semen, Leonurus heterophyllus Sweet and Corn Stigma Stigma Maydis all have effects on improvement of the immune functions, such as promoting T lymphocyte proliferation.\textsuperscript{26–28} Nonetheless, we have to admit that no direct evidence is available at present to explain the efficacy of the TCHM. And we advocate more rigorous randomized controlled trials to confirm the role of TCHM in chylous ascites in the future.

Conflict of interest
The authors have no conflicts of interest to declare.

Acknowledgement
The study is supported with grants from Shanghai Municipal Health Bureau of China (no. ZYSNXD-CC-MZY054 to Professor Pinkang Wei).

References


