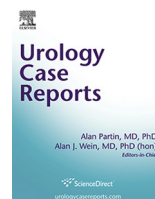




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Functional Medicine

## A Rare Complication of Chylous Leakage After Open Partial Nephrectomy Successfully Resolved by Somatostatin Analogue

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## ABSTRACT

We report the first case of a rare complication of chylous leakage after open left partial nephrectomy. The recent literature on chylous ascites after nephrectomy is reviewed and hypothesized the etiology of this rare complication. We propose an early use of octreotide, somatostatin analogue, together with diet modification to gain rapid resolution of this confounded complication.

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## Introduction

Postoperative chylous ascites is rare but occasionally reported in urological surgery, including retroperitoneal lymph node dissection for testicular cancer, radical and donor nephrectomy.<sup>1</sup> Its treatment is always a confounded task since patients are further debilitated by the serious mechanical, nutritional, and immunological consequences of the persistent loss of protein and lymphocytes.<sup>2</sup> Herein, we present the first case of chylous leakage after open partial nephrectomy, where early introduction of somatostatin analogue octreotide successfully resolved the leakage as early as in 2 weeks.

## Case presentation

A 35-year old man was referred to our hospital for further examination of a left renal mass on ultrasound screening. Computed tomography (CT) showed a 18 mm soft tissue tumor with early enhancement and wash-out of contrast media, suggestive of renal cell carcinoma. He underwent a partial resection of the left renal tumor. The left renal artery was easily secured via lumbar oblique approach by dissecting surrounding tissue about 5 mm along the artery wall using electrocautery. The renal vein was left intact. The tumor was removed under cold ischemic condition followed by hemostat suture of the renal parenchyma. Histopathological examination revealed a diagnosis of clear cell carcinoma. A normal

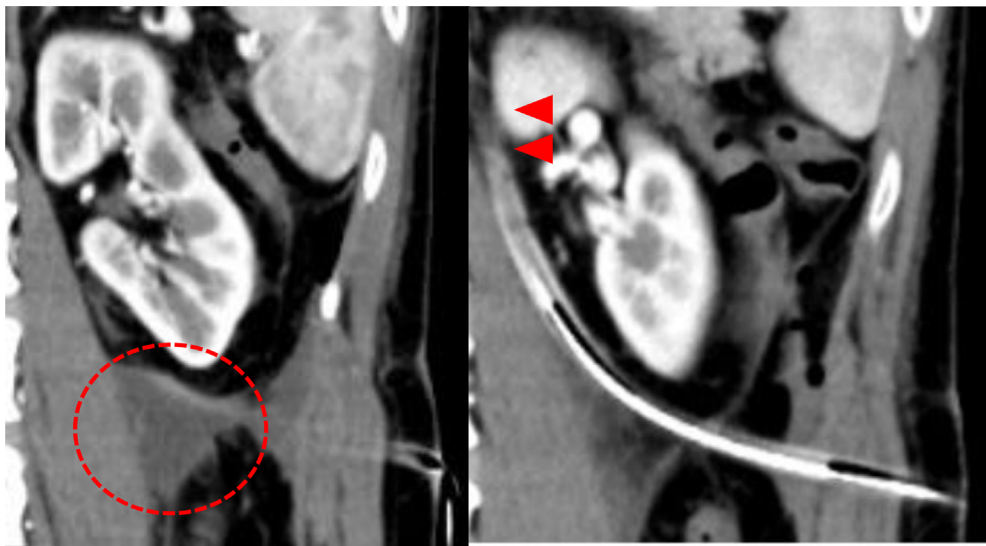
diet was started on postoperative day (POD)1. The drained fluid turned to milky color on the next day, and was found to exhibit the chemical characteristic of chyle (triglyceride level of 784 mg/dl). Then, oral intake was immediately discontinued. Chylous leakage was not observed while on the first 3-day fasting and the following 3-day low fat diet. CT scan on POD7 revealed retroperitoneal fluid retention below the lower renal pole, which was caused by the malplace of the drain tube (Fig. 1). Thus, the drainage tip was pull down to the proper position to collect remaining serous fluid. A normal diet was resumed on POD8, however chylous leakage recurred soon. Therefore, we decided to use octreotide (subcutaneous injection of 0.1 mg twice daily) on a low fat diet ahead of complete diet intervention such as total parental nutrition. The leakage was successfully resolved after 5-day octreotide therapy on POD14. The drain tube was finally removed on POD15 and the patient discharged on the next day. The clinical course was illustrated in Fig. 2. Follow-up CT 3 months later did not show any recurrence of fluid retention around the left kidney or tumor while the patient was on a normal diet.

## Discussion

Anatomically, the cisterna chili is located at the level of renal hilum. Retroperitoneal urological surgery, mainly lymphadenectomy performed for testis and renal cancer, involves extensive dissection that may disrupt the major lymphatic channels and result in chylous collection. However, chylous leakage did occur in the present case as partial nephrectomy, in which the detachment of the left renal artery was minimized. This may be caused by the

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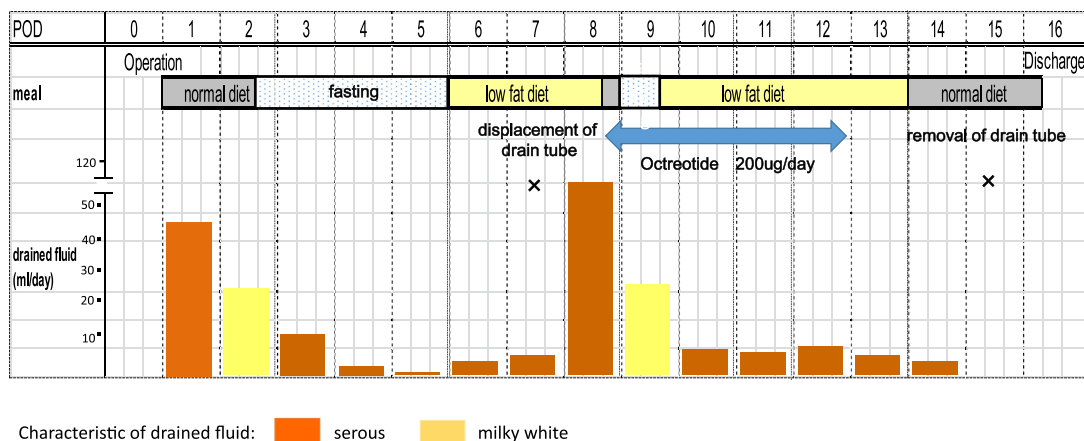
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**Figure 1.** Postoperative CT scan revealed a small amount of fluid retention in the retroperitoneal space (left panel, in red circle) as a result of the mal-placed drain tube adjacent to the renal hilum (right panel, arrow head).

use of monopolar coagulation that lead to the disruption of a minute lymphatic vessel along the left renal artery. Actually, postoperative chylous ascites was reported to be not a rare complication (incidence: 5.1%) in laparoscopic nephrectomy, where electro or ultrasound coagulation is often done to achieve lymphostasis, such procedures can lead to lymphatic leakage that may be masked under high pressure state by pneumoperitoneum.<sup>3</sup> In this series, the incidence of chylous ascites significantly decreased after the introduction of clips during para-aortic or caval and hilar dissection. Although there may be some extent of chylous leakage due to lymphatic channel damage, a small leak can commonly close spontaneously. Nevertheless, the small amount of chylous leakage (25 ml on POD2) did not disappear simply by diet modification in our case. The drain tube unexpectedly placed adjacent to the renal hilum might prolong chylous leakage, otherwise spontaneous closure of disrupted lymphatic vessel should be gained by adhesion to the surrounding tissue immediately after surgery. Thus, we displaced the drain tube to proper position several days after the onset of chylous leakage. However, the leakage did not disappear when a normal diet was resumed.

Most patients with chylous ascites were initially managed by diet modification such as a low fat diet, a medium chain triglyceride supplementation, and total parental nutrition to achieve to decrease mesenteric lymphatic flow and chyle production. Prolonged parental nutrition for 2 to 8 weeks resolves chylous ascites in majority of the cases.<sup>1,4</sup> If chylous leakage continues after a period of dietary intervention, the use of somatostatin analogue octreotide should be considered. Octreotide is assumed to decrease intestinal blood flow and inhibit lymph secretion through somatostatin receptor in the intestinal wall, thereby improving chylous ascites. After 24 to 72 hours of therapy, it drastically and promptly decrease lymphatic output to close chylous fistula without serious adverse effects.<sup>5</sup> In the present case, chylous leakage was small in the total amount enough to be expected a spontaneous remission on a persistent low fat diet. However, we recommend an early use of octreotide to facilitate its resolution, since diet intervention alone requires several weeks to 2 months until adequate lymphatic closure. Also, persistent chylous leakage lose protein and lymphocytes, resulting in nutritional and immunological disturbance, which delays patients' postoperative recovery and leads to patients' psychological burden during prolonged hospitalization.



**Figure 2.** The clinical course of the present case.

## Conclusion

Chylous ascites is rare but morbid condition following renal surgery. To prevent this undesired condition, it is essential to perform meticulous ligation or clipping of all fibrous fatty tissue during dissection around perihillar vessels. If chylous leakage occurs, an early introduction of octreotide in addition to diet modification should be considered.

## Conflict of interest

The authors declare that there is no conflict of interests on this paper.

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