

CASE REPORT

Successful management of chylous ascites after pancreatoduodenectomy using etilefrine: a case report

Yusuke Takahashi* and Hitoshi Seki

Department of Digestive Surgery, Nagano Municipal Hospital, Nagano, Japan

*Correspondence address. Nagano Municipal Hospital, Department of Digestive Surgery, 1-1333 Tomitake, Nagano 381-8551, Japan.
Tel: +81-26-295-1199; Fax: +81-26-295-1148; E-mail: yusuke_takahashi@hospital.nagano.nagano.jp

Abstract

An 84-year-old woman underwent subtotal stomach pancreatoduodenectomy (PD) for distal cholangiocarcinoma. Over 1000 ml of serous ascites, which appeared milky after starting a high-protein, low-fat, middle-chain triglyceride diet, was discharged from the inserted drain. On postoperative day (POD) 13, she underwent right hemicolectomy for transverse colonic volvulus, which occurred on POD 9 and was refractory to conservative therapies. Following second surgery, the chylous ascites (CA) amount continued to increase. Octreotide, albumin and diuretics were administered, but the amount of ascites did not decrease. Etilefrine was administered on POD 19; the ascites amount gradually decreased. The drain was removed 3 days after etilefrine administration. She had no symptoms of abdominal distention after drain removal. Etilefrine's effectiveness for chylothorax after esophagectomy and CA after distal pancreatectomy has been reported. We present a case of CA successfully treated by etilefrine following PD. Our case highlights etilefrine's usefulness for CA following PD.

INTRODUCTION

Chylous ascites (CA) occurs in 3.3–10.4% of patients [1, 2] after pancreatic surgery. Conservative therapies using octreotide, albumin or diuretics with diet therapy are usually administered; however, percutaneous lymphangiography or surgery is warranted if these therapies fail.

Chylothorax after esophagectomy or CA after distal pancreatectomy has been successfully managed using etilefrine [3–5]; however, no studies have reported on the usefulness of etilefrine for CA after pancreatoduodenectomy (PD). We report a case of CA after PD that was successfully managed using etilefrine with octreotide.

CASE REPORT

An 84-year-old woman underwent subtotal stomach-preserving PD for distal cholangiocarcinoma. On postoperative day (POD) 1, over 1000 ml of serous ascites was discharged from the inserted drain (Fig. 1). Octreotide (Sandostatin®) (200 µg/day) was administered subcutaneously for suspected lymphatic leakage on POD2. She had no PD-related complications, such as a pancreatic fistula, intra-abdominal abscess or peritonitis. The ascites appeared slightly milky after starting a high-protein, low-fat, middle-chain triglyceride (MCT) diet on POD4. The inserted drain was removed on POD6, as there was no evidence of infection.

Received: December 11, 2019. Revised: January 12, 2020. Accepted: January 22, 2020

© The Author(s) 2020. Published by Oxford University Press.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact journals.permissions@oup.com

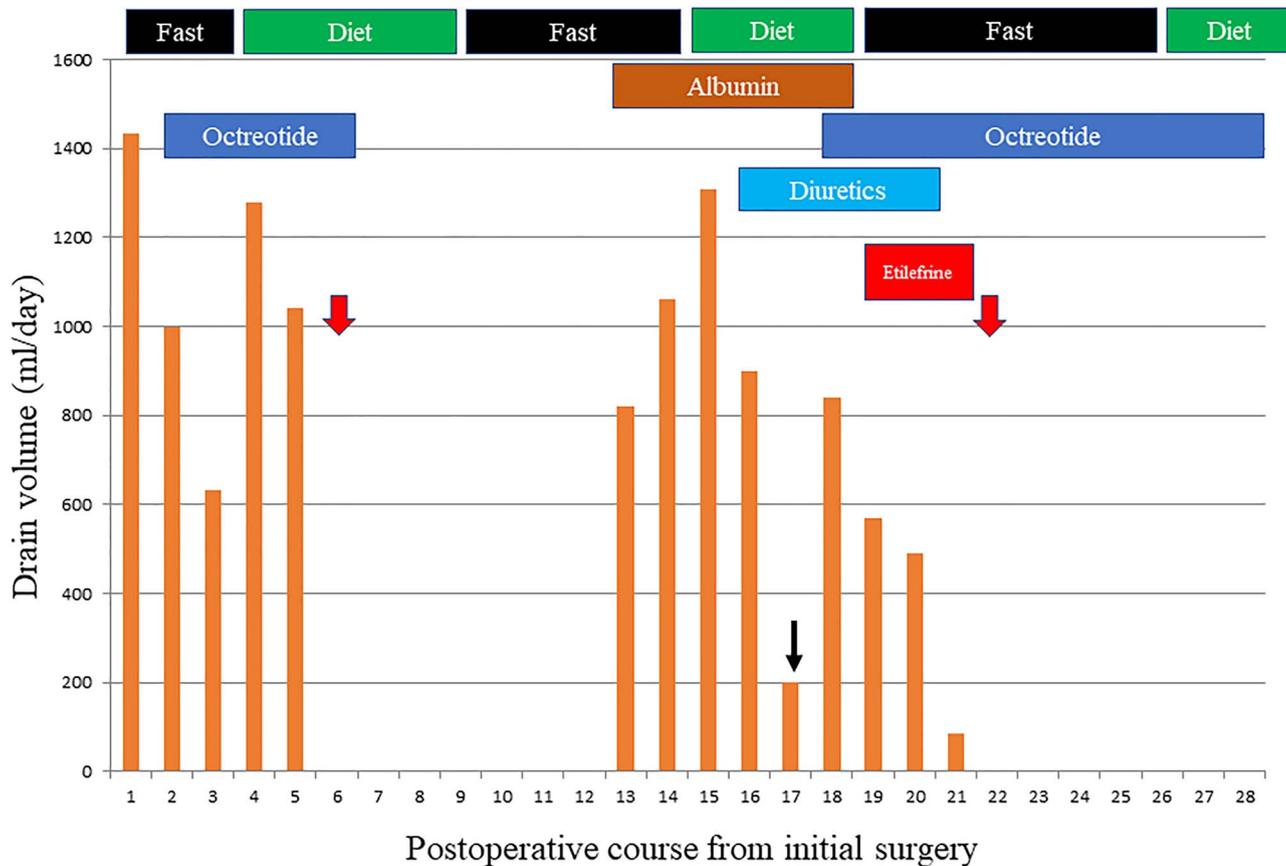


Figure 1: Perioperative drain volume and therapies. Black arrow indicates drain clamp. Red arrows indicate drain removal.

On POD9, she complained of abdominal distention. Abdominal computed tomography (CT) showed a dilated transverse colon and accumulation of ascites in the pouch of Douglas (Fig. 2a and b). Transverse colonic volvulus was diagnosed, and endoscopic release was performed, with temporary symptomatic improvement. On POD11, her abdominal symptoms returned. Right hemicolectomy without lymphadenectomy was performed on POD13, as the entity was considered refractory for short-term recurrence. An accumulation of CA was observed during the second surgery and the drain in the pouch of Douglas was replaced (Fig. 1).

Her abdominal distention improved. Albumin and diuretics (Furosemide® 20 mg/day and Spironolactone® 50 mg/day) were administered, and the drain was clamped on POD17; however, the drain clamp was released on POD18 as abdominal distention recurred. Octreotide (Sandostatin®) (200 µg/day) was readministered; however, the ascites remained milky, with a triglyceride level of 198 mg/dl.

On POD19, etilefrine (120 mg/day) was administered intravenously, with remarkable reduction in ascitic fluid drainage. On POD22, asymptomatic atrial fibrillation occurred, and etilefrine administration was terminated. Atrial fibrillation was treated by β-blockers and sinus rhythm was restored immediately. Since the ascites appeared serous and was within 100 ml, the drain was removed. A high-protein, low-fat, MCT diet was restarted on POD26 and octreotide was terminated on POD28, with no abdominal symptoms. The patient had no symptoms including abdominal distention and was discharged on POD35. Nine months after initial surgery, the CT showed a small volume of ascites in the pouch of Douglas with no apparent recurrence

(Fig. 2c). During the perioperative period, the serum albumin level decreased from 4.0 to 1.0 g/dl preoperatively; however, it increased to 3.5 g/dl 9 months after initial surgery.

DISCUSSION

CA may be caused by radical lymphadenectomy, concomitant vascular resection, pancreatic fistula and intra-abdominal abscess [2, 6]. The second surgery for right hemicolectomy owing to transverse colonic volvulus may have been related to this pathogenesis; however, lymphadenectomy was not performed, and accumulation of CA was observed during the second surgery. In contrast, lymphadenectomy for distal cholangiocarcinoma was performed in the first surgery without any postoperative complications; therefore, the first surgery may have caused the CA.

The diagnosis and severity of CA after pancreatic surgery is dependent on the appearance of the output from the inserted drain, triglyceride content (≥ 110 mg/dl) and therapeutic intervention according to the International Study Group on Pancreatic Surgery [7]; this case was classified as grade B. The patient started on a fat-limited diet after pancreatic surgery. Octreotide (Sandostatin®), diuretics (Furosemide® and Spironolactone®) for CA were administered subcutaneously and orally, respectively. However, these medical therapies failed (Fig. 1).

Etilefrine contracts the smooth muscle of the thoracic duct and decreases the flow of chyle [8]. We report the effectiveness of etilefrine for CA following PD. Although a report shows successful treatment of CA following distal pancreatectomy with etilefrine [5], the effect of etilefrine on CA remains unclear. This

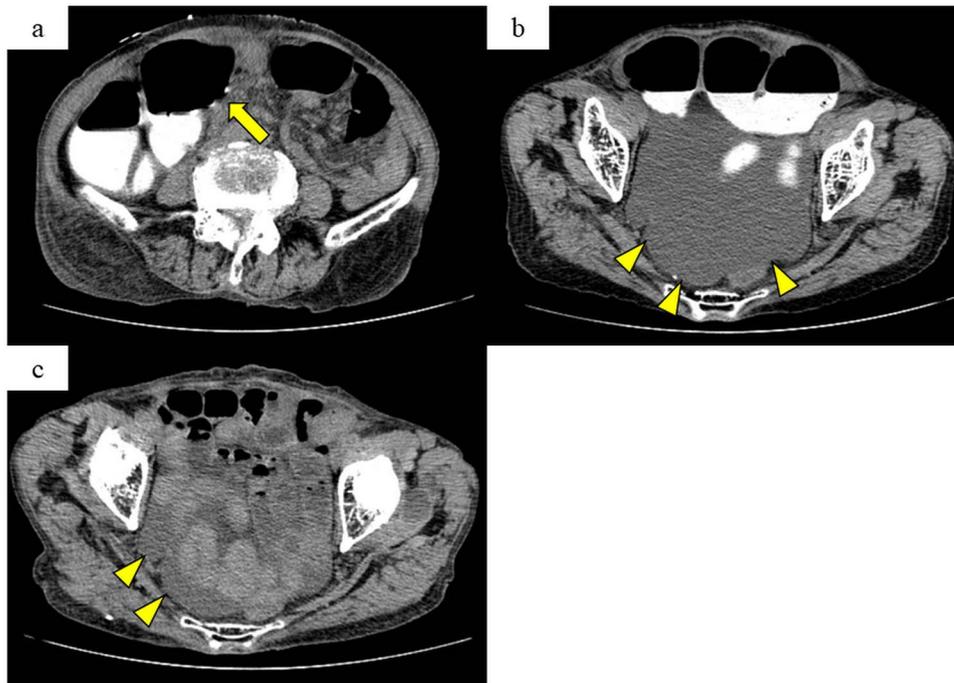


Figure 2: Enhanced CT. (a) and (b) Enhanced CT shows dilated transverse colon (arrow) and ascites (arrowhead) in the Douglas pouch (POD9). (c) Nine months after surgery, CT shows a small volume of ascites (arrowhead) in the pouch of Douglas.

drug may contract the abdominal lymphatic duct causing CA in a location other than the thoracic duct.

Etilefrine has a positive inotropic effect on the heart and induces tachycardia [3]. This patient developed atrial fibrillation the day after etilefrine administration, and recovered immediately after its termination. Etilefrine was administered at a dose of 120 mg/day based on previous studies; however, dose adjustments may be required for CA. After PD, etilefrine may be effective in CA that is refractory to other medical or diet therapies.

ACKNOWLEDGEMENTS

None.

CONFLICT OF INTEREST STATEMENT

No conflicts of interest.

FUNDING

None.

ETHICAL APPROVAL

Our institutional review board waived the requirement of ethical approval for this case report.

CONSENT

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

GUARANTOR

Y.T. is the guarantor.

REFERENCES

1. Kuboki S, Shimizu H, Yoshidome H, Ohtsuka M, Kato A, Yoshitomi H, et al. Chylous ascites after hepatopancreatobiliary surgery. *Br J Surg* 2013;100:522–7.
2. Strobel O, Brangs S, Hinz U, Pausch T, Hüttner FJ, Diener MK, et al. Incidence, risk factors and clinical implications of chyle leak after pancreatic surgery. *Br J Surg* 2017;104:108–17.
3. Guillem P, Billeret V, Houcke ML, Triboulet JP. Successful management of post-esophagectomy chylothorax/chyloperitoneum by etilefrine. *Dis Esophagus* 1999;12:155–6.
4. Ohkura Y, Ueno M, Iizuka T, Haruta S, Tanaka T, Udagawa H. New combined medical treatment with etilefrine and octreotide for chylothorax after esophagectomy a case report and review of the literature. *Medicine (Baltimore)* 2015;94:1–4.
5. Koga C, Murakami M, Shimizu J, Yasuyama A, Matsumura T, Takata A, et al. A case of successful management of postoperative chylous ascites by combination therapy with octreotide and etilefrine. *Gan To Kagaku Ryoho* 2018;45:572–4.
6. Assumpcao L, Cameron JL, Wolfgang CL, Edil B, Choti MA, Herman J, et al. Incidence and management of chyle leaks following pancreatic resection: a high volume single-center institutional experience. *J Gastrointest Surg* 2008;12:1915–23.
7. Besselink MG, van Rijssen LB, Bassi C, Dervenis C, Montorsi M, Adham M, et al. Definition and classification of chyle leak after pancreatic operation: a consensus statement by the international study group on pancreatic surgery. *Surgery* 2017;161:365–72.
8. Alam SE, Kar SM, Kar PM. Successful management of chylous ascites: a report of two cases. *Saudi J Kidney Dis Transpl* 2016;27:386–90.