Single-incision laparoscopic excision of a chylous mesenteric cyst: A case report

Masanori Yoshimitsu a,*, Manabu Emi a, Masashi Miguchi a, Hiroshi Ota a, Keishi Hakoda a, Ichiro Omori a, Toshihiko Kohashi a, Naoki Hirabayashi a, Hideki Ohdan b

a Department of Surgery, Hiroshima City Asa Citizens Hospital, Hiroshima, Japan
b Department of Gastroenterological and Transplant Surgery, Applied Life Sciences, Institute of Biomedical & Health Sciences, Hiroshima University, Hiroshima, Japan

A R T I C L E   I N F O

Article history:
Received 9 September 2016
Received in revised form 17 November 2016
Accepted 17 November 2016
Available online 22 November 2016

Keywords:
Chylous mesenteric cyst
Single-incision laparoscopic resection

A B S T R A C T

INTRODUCTION: Chylous mesenteric cysts are rare intra-abdominal lesions located in the mesentery of the gastrointestinal tract and may extend from the base of the mesentery into the retroperitoneum. The treatment is the complete removal of the cyst

PRESENTATION OF CASE: A 49-year-old female presented with abdominal pain. Abdominal computed tomography showed a 5.0-cm-diameter intraabdominal, homogenous cystic lesion located on the mesentery of the small intestine. Single-incision laparoscopic surgery was performed for complete resection.

DISCUSSION: Only a handful of cases of laparoscopic surgery for a mesenteric cyst have been reported, and no reports have been published regarding single-incision laparoscopic surgery for a mesenteric cyst.

CONCLUSION: We report the first known case of a chylous mesenteric cyst that was successfully treated by single-incision laparoscopic surgery.

© 2016 The Author(s). Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

1. Introduction

Mesenteric cysts are benign lesions that are found within the abdomen. They have an incidence of <1 in 100,000 patients [1]. Most mesenteric cysts present with variable and nonspecific symptoms [2]. In addition, rarely, carcinomas have been found to arise in mesenteric cysts [3]. Fortunately, they usually behave as benign tumors, and malignancy accounts for only 3% of the cases, arising gradually or de novo[1]. The treatment is the complete surgical removal of the cyst. The first successful report of laparoscopic surgery for a mesenteric cyst was in 1993 [4], and subsequently only a handful of laparoscopic cases have been reported [3,5–8]. Single-incision laparoscopic surgery has been performed for resection of benign and malignant gastrointestinal tumors in recent years; however, its safety and feasibility is still controversial, and there have been no reports of its use in resecting mesenteric cysts. This report deals with the first case of a mesenteric chylous cyst successfully treated by single-incision laparoscopic surgery.

2. Presentation of case

A 49-year old woman presented to her primary care physician’s office with a 1-month history of vague abdominal pain. At the physical examination, no mass was detected. Abdominal ultrasonography confirmed a rounded cystic formation 4.8 cm in diameter in the region of the pancreatic tail. The pain was described as intermittent and was not brought on by any particular events, nor was it relieved by anything specific.

The patient had no previous medical or surgical history. Prior to the operation for the mesenteric cyst, she was found to have normal laboratory values, including normal levels of markers for malignancy. Preoperative computed tomography (CT) of the abdomen (Fig. 1) showed a 5.0-cm-diameter intraabdominal, homogenous cystic lesion containing surface formation with an enhanced capsule located on the mesentery of the small intestine. Magnetic resonance imaging (MRI) revealed a solitary circumscribed cyst measuring 4.9 cm × 4.2 cm, with a thick capsule containing a dense, high-fat fluid. Based on the findings of preoperative CT and MRI, a single port laparoscopic operation was chosen. GelPOINT® (Applied Medical, Rancho Santa Margarita, Ca, USA) was used for the surgery. GelPOINT® contains a Gelseal Cap, Alexis Wound Retractor, and 4 sleeves (ports). Initially, a 40-mm incision was placed at the umbilicus. The Alexis Wound Retractor accommodated the abdominal wall, and three sleeves (ports) were kept impaled on the Gelseal Cap.

* Corresponding author at: Department of Surgery, Hiroshima City Asa Citizens Hospital, 2-1-1 Kabeminami, Asakita-ku, Hiroshima 7310293 Japan.
E-mail address: m4432@asa-hosp.city.hiroshima.jp (M. Yoshimitsu).
During the laparoscopic exploration, it was noted that the mesenteric cyst was in the upper-left quadrant. It was a thick-walled structure and fixed in the mesentery with mesenteric vessels of attachment (Fig. 2). The cyst was mobilized from the mesentery using harmonic shears and a radio knife. We completely controlled the major vessels running near the tumor and sealed the chylous and blood vessels to and from the cyst.

Once free, the cyst was removed from the abdomen via the incision which measured from 40-mm to 50-mm in length within the umbilicus without making any punctures and using a surgical retrieval bag. The operation time and blood loss were 169 min and 90 ml, respectively. By 5 days after the operation, the dull abdominal pain had vanished. The patient was discharged on the 5th postoperative day. A pathological examination of the cyst revealed the fluid to be benign. Laboratory tests on the cyst’s liquid confirmed chylous content. The wall of the cyst was found to be fibrous with a histology consistent with chronic inflammation (Figs. 3 and 4).

The patient is currently alive at 2 years after undergoing the operation.

3. Discussion

Most mesenteric cysts are rare and benign but tend to present with variable and nonspecific symptoms, such as abdominal pain, nausea, vomiting, anorexia, and a change in bowel habits, and cause complications, including intestinal obstruction, volvulus, torsion, bleeding, or rupture [2]. Similar lesions have been found to be cystic lymphangiomas, cystic stromal tumors, and mesotheliomas on a pathologic analysis. In addition, carcinomas have been found to arise in mesenteric cysts, albeit rarely [3].

The diagnosis of mesenteric cysts can be challenging, as chylous cysts mimic other pathologies, such as pancreatic pseudocysts or cystic tumors, pelvic diseases, and aortic aneurysms. A preoperative diagnosis may be achieved using imaging techniques (ultrasonography, CT, nuclear MRI) [9–11]. Ultrasonography is the first-line technique, as it can localize the cystic mass and often the involvement of the near anatomical structures. CT can then be used to
confirm the diagnosis based on the ultrasonography findings and is important for adequately planning the surgical approach [12].

In a review of a series of 162 patients, 60% of mesenteric cysts occurred in the small-bowel mesentery, 24% in the large bowel mesentery, and 14.5% in the retroperitoneum, while the site of 1.5% of cases was indefinite [13]. The etiology of mesenteric cysts remains unclear, but a failure of the lymph nodes to communicate with the lymphatic or venous systems or the blockage of the lymphatic system as a result of previous pelvic surgery, trauma, pelvic inflammatory disease, infection, endometriosis, or neoplasia have been suggested as contributing factors [14].

Mesenteric cysts are rare, but surgeons must consider the diagnosis in the presence of a cystic abdominal tumor, if they are symptomatic or cause complications. Although a number of treatment methods are available, surgical excision is considered the mainstay for therapy. The first-choice therapy is complete surgical excision to avoid recurrence and possible malignant transformation, which may require the removal of part of the mesentery with the mass. This can be done either by laparotomy or laparoscopy. The decision for a surgical approach depends on the size of the cyst, its dimensions, and its relationships with major abdominal structures, as well as the surgeon’s degree of experience in minimal access surgery. In the present case, the procedure was performed by an experienced endoscopic surgeon licensed for such techniques (endoscopic surgical techniques certification of the Japan Society for Endoscopic Surgery).

The present patient underwent complete excision of the cyst by single-incision laparoscopy. Under laparoscopy we judged the tumor to be located in the jejunal mesentery near the Treitz’s ligament. We placed the cannulas with the aim of achieving good control of the superior mesenteric vessels and the first small bowel loops, should it have been necessary to mobilize the jejunum. In this case, the progressive dissection of the cyst was initiated at its cephalic edge, near the jejunal mesentery, where the branches of superior mesenteric vessels were accurately detached from the mass, taking care to avoid a risk of iatrogenic injury to the major abdominal vessels and bowel loops. To avoid any risk of a chylous fistula, every vessel was accurately sealed and divided using a harmonic dissector. We were eventually able to remove the cyst without any injury, and endobags were used to retrieve the cyst. Only surgeons sufficiently experienced in laparoscopic surgery and single-incision laparoscopic surgery should perform this procedure.

Single-incision laparoscopic surgery has been performed for resection of benign and malignant gastrointestinal tumors in recent years; however, its safety and feasibility is still controversial. To our knowledge, this is the first report of single-incision laparoscopic surgery for a mesenteric cyst.

4. Conclusion

In conclusion, we believe that single port laparoscopic surgery can be performed safely for excision of a chylous mesenteric cyst in adults and should be considered if contraindications are not present.

Consent

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.
Conflict of interest statement

The authors declare no conflicts of interest in association with this study.

References

[1] R.J. [1] Kurz, T.M. Heimann, J. Holt, A.R. Beck, Mesenteric and retroperitoneal cysts, Ann. Surg. 203 (1986) 109–112.
[2] W.J. [2] Hardin, J.D. Hardy, Mesenteric cysts, Ann. J. Surg. 119 (1970) 640–645.
[3] J.E. Mason, N.J. Soper, L.M. Brunt, Laparoscopic excision of mesenteric cysts: a report of two cases, Surg. laparosc. Endosc. Percutan Techn. 11 (2001) 382–384.
[4] D.J. Mackenzie, S.J. Shapiro, L.A. Gordon, R. Ress, Laparoscopic excision of a mesenteric cyst, J. Laparoendosc. Surg. 3 (1993) 255–259.
[5] E. Kwan, H. Lau, W.K. Yuen, Laparoscopic resection of a mesenteric cyst, Gastrointest. Endosc. 59 (2004) 154–156.
[6] O. Asoglu, A. Igci, H. Karanlik, M. Parlak, M. Keer, V. Ozmen, et al., Laparoscopic treatment of mesenteric cysts, Surg. Endosc. 17 (2003) 832.
[7] R. Rosado, B. Flores, P. Medina, D. Ramirez, J. Silic, Laparoscopic resection of a mesenteric cyst: presentation of a new case, J. Laparoendosc. Surg. 6 (1996) 351–355.
[8] H. Shimura, J. Ueda, Y. Ogawa, H. Ichimiya, M. Tanaka, Total excision of mesenteric cysts by laparoscopic surgery: report of two cases, Surg. laparosc. Endosc. 7 (1997) 173–176.
[9] P. Covarelli, S. Arena, M. Badolato, S. Canonico, F. Rondelli, G. Luzi, et al., Mesenteric chylous cysts simulating a pelvic disease: a case report, Chir. Ital. 60 (2008) 319–322.
[10] A. Wiesen, K. Sideridis, B. Stark, S. Bank, Mesenteric chylous cyst, Gastrointest. Endosc. 63 (2006) 502 (discussion).
[11] T.P. Ho, V. Bhattacharya, M.G. Wyatt, Chylous cyst of the small bowel mesentery presenting as a contained rupture of an abdominal aortic aneurysm, Eur. J. Vasc. Endovasc. Surg. 23 (2002) 82–83.
[12] F. Siemers, H. Ziegler, [Intraabdominal cystic lesions — the differentiation of mesenteric cysts and cystic lymphangioma], Zentralbl. Chir. 126 (2001) 814–817.
[13] M.S. Saviano, S. Fundaro, R. Gelmini, G. Begossi, S. Perrone, A. Farinetti, et al., Mesenteric cystic neoformations: report of two cases, Surg. Today 29 (1999) 174–177.
[14] O.H. Beahrs, E.S. Judd Jr, M.B. Dockerty, Chylous cysts of the abdomen, Surg. Clin. N. Am. 30 (1950) 1081–1096.

Open Access
This article is published Open Access at sciencedirect.com. It is distributed under the IJSSCR Supplemental terms and conditions, which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.