CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 4 (2013) 1110–1112

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Duodenal ulcer penetration into the liver at the previous left hemihepatectomy site☆

Hironori Hayashi[a,*], Hirohisa Kitagawa[a], Masatoshi Shoji[a], Shin-ichi Nakanuma[a], Isamu Makino[a], Katsunobu Oyama[a], Masafumi Inokuchi[a], Hisatoshi Nakagawara[a], Tomoharu Miyashita[a], Hidehiro Tajima[a], Hiroyuki Takamura[a], Itasu Ninomiya[a], Sachio Fushida[a], Takashi Fujimura[a], Takashi Tani[b], Tetsuo Ohta[a]

[a] Department of Gastroenterologic Surgery, Division of Cancer Medicine, Graduate School of Medical Science, Kanazawa University, 13-1 Takara-machi, Kanazawa, Ishikawa 920-8641, Japan
[b] Department of Surgery, Public Central Hospital of Matto Ishikawa, 3-8, Kuramitsu, Hakusan, Ishikawa 924-0865, Japan

ARTICLE INFO

Article history:
Received 22 August 2013
Accepted 18 September 2013
Available online 25 September 2013

Keywords:
Hepatectomy
Duodenal ulcer
Proton pump inhibitor
Penetration
Hepatoduodenal fistula

ABSTRACT

INTRODUCTION: Duodenal ulcer penetration into the liver is a rare, but serious complication. Its frequency was thought to have decreased owing to advances in therapies for peptic ulcers. However, we encountered a case in which the duodenal ulcer had penetrated into a previous hemihepatectomy site.
PRESENTATION OF CASE: A 69-year-old man with a history of left hemihepatectomy 20 months previously presented to the emergency room with sudden-onset abdominal pain and nausea. An upper gastrointestinal examination with a fiberscope revealed a giant ulcer in the duodenal bulb. In addition, a foreign body was detected at the ulcer floor and was strongly suspected of being a ligature from previous hemihepatectomy.
DISCUSSION: The presence of a gas-filled liver mass and bowel wall thickening with inflammatory changes are important imaging findings for prompt diagnosis of such a condition, but in this case, none of these were reported. Further, no definite abscess was found. Thus, the patient was treated conservatively with a proton pump inhibitor.
CONCLUSION: This case demonstrates the importance of using absorbable suture materials, adequate lavage in the postoperative peritoneal space and gastroduodenal mucosal protection postoperatively.

1. Introduction

Duodenal ulcer penetration into the liver is a rare, but serious complication. In a previous study, among the 417 patients who underwent surgery for peptic ulcers, organ penetration was observed in 8% of the patients.[1] The frequency of this complication was thought to have reduced owing to advances in therapies for peptic ulcers; however, duodenal ulcer penetration to adjacent organs has been reported.[2–7]

Here, we report a patient in whom the duodenal ulcer penetrated into the previous left hemihepatectomy site.

2. Case report

A 69-year-old man presented to the emergency room with sudden-onset abdominal pain and nausea. He had previously undergone a hybrid laparoscopic left hemihepatectomy and splenectomy for hepatolithiasis and spherocytosis approximately 20 months earlier. Since his surgery, he had occasionally taken non-steroidal anti-inflammatory drugs (NSAIDs), loxoprofen as per his prescription. During the 3 months before his current presentation, he had discontinued taking proton pump inhibitors, at his request.

Abdominal computed tomography images revealed a deformity of the duodenal bulb and a markedly dilated stomach, containing food residue (Fig. 1); free air in the abdominal cavity was not detected. A fibroscopic upper gastrointestinal examination revealed a giant ulcer with a prominent crater in the inferior wall of the bulb. In addition, a foreign body was detected at the ulcer floor and was strongly suspected of being a ligature associated with the previous left hemihepatectomy (Fig. 2). The foreign body was eliminated, and an endoscopic biopsy was performed. Histopathological examination of the biopsy showed a simple, active ulcer. The patient received conservative therapy with a proton pump inhibitor and recovered immediately.

3. Discussion

To the best of our knowledge, only 6 cases of the duodenal ulcer penetration have been diagnosed by endoscopy.[2–7] In particular,

* Corresponding author: Tel.: +81 76 265 2362; fax: +81 76 234 4260.
E-mail address: pwrofdrms2000@staff.kanazawa-u.ac.jp (H. Hayashi).

2210-2612/$ – see front matter © 2013 The Authors. Published by Elsevier Ltd on behalf of Surgical Associates Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.ijscr.2013.09.013

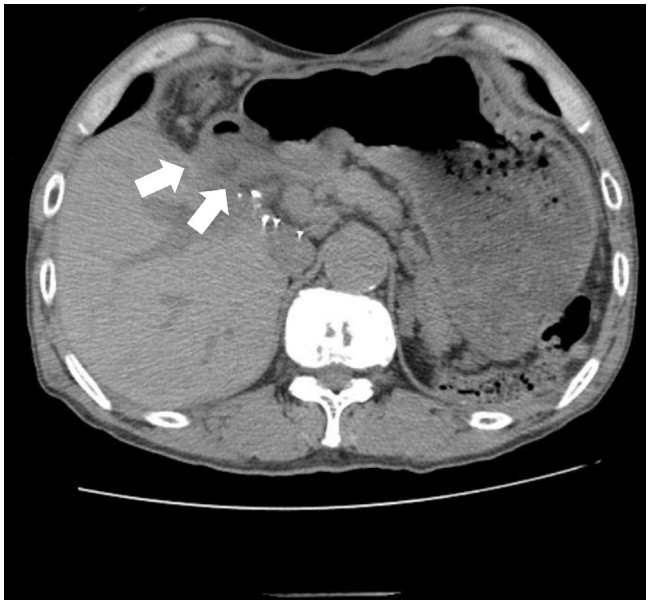

Fig. 1. Abdominal computed tomography images revealing duodenal bulb deformities (white arrows) and a markedly dilated stomach with residual food.

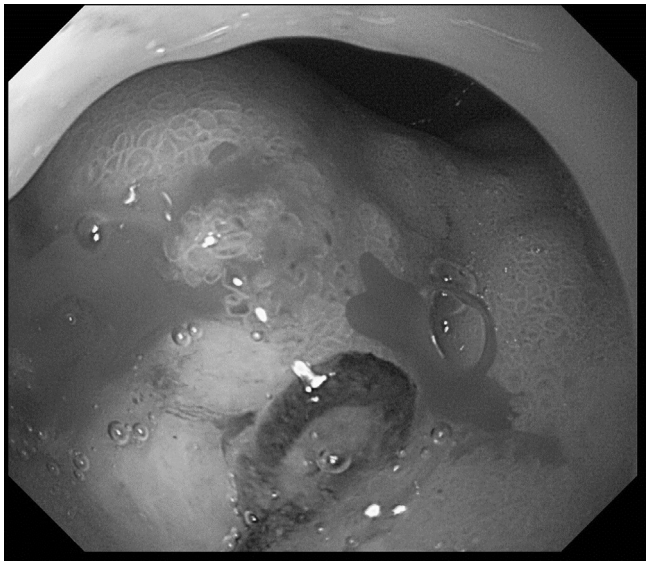

Fig. 2. An upper gastrointestinal examination with a fiberscope revealing a giant ulcer and a prominent crater. A ligature of the previous left hemihepatectomy at the inferior wall of the bulbs.

our case is important because the ulcer had penetrated into the previous hepatectomy site.

In approximately half the previous cases, diagnosis was based on the presence of liver tissue on histological examination.[3–7] The remaining cases were diagnosed by ultrasonography or computed tomography. Previous reports on this condition described a gas-filled liver mass on ultrasonography and bowel wall thickening with inflammatory changes in the adjacent soft tissues and organs and are considered important imaging findings for the diagnoses.[2,8]

Many of these cases were treated surgically[2,6,7] because liver penetration was thought to be caused by a deep, giant ulcer. In addition, in cases with abscess formation in the liver, prompt drainage is important. In the reported surgical cases, all patients had uneventful postoperative courses. The present case was different from the other cases in that no definite abscess or peritoneal irritation symptoms were observed. Thus, the patient was treated with conservative therapy using proton pump inhibitors. However, in cases of abscess formation, aggressive surgical treatment is important to ensure the patient's prompt recovery.

In general, the adverse effects of NSAIDs are well known, particularly according to the gastroduodenal ulcers.[9] However, for postoperative patients, NSAIDs are indispensable because of the consistent wound pain. Therefore, gastroduodenal mucosal protection is also indispensable. In the present case, the judgment to terminate the use of the proton pump inhibitor should be reflected upon, although it was done on the patient's request. An extension of the indications for laparoscopic surgery to reduce patient pain and NSAID use is another important assignment.[10]

In our case, it is possible that the foreign bodies were non-absorbable ligatures or metallic clips left during the previous hemihepatectomy were the foreign bodies. The presence of these may have caused the ulcers to penetrate the liver. This is rare but a possible complication after hepatectomy that may have resulted in the penetration. It is quite possible that the minute abscess formation around the foreign bodies contributed to this pathophysiology. Thus, the use of absorbable suture materials and sufficient postoperative lavage should be considered in the peritoneal space.

In summary, duodenal ulcer penetration into the previous hemihepatectomy site is a rare, but possible complication that may be prevented by careful postoperative management and less invasive surgical procedures. To prevent such a complication, using absorbable suture materials, adequate lavage in the postoperative peritoneal space and gastroduodenal mucosal protection postoperatively should be considered.

Conflicts of interest

The authors declare that there is no conflict of interest.

Funding

None.

Ethical approval

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

Author contribution

Masatoshi Shoji, Shin-ichi Nakanuma and Isamu Makino made substantial contribution to acquisition of the patient's data. Hirohisa Kitagawa, Katsunobu Oyama, Masafumi Inokuchi, Hisatoshi Nakagawara, Tomoharu Miyashita, Hidehiro Tajima, Hiroyuki Takamura and Itasu Ninomiya made substantial contribution to analysis and interpretation of the patient's data. Sachio Fushida, Takashi Fujimura and Takashi Tani made substantial contribution to revising the article. Hironori Hayashi wrote this article. And Tetsuo Ohta made final approval of the version to be submitted.

References

1. Armbruster C, Dittrich K, Kriwanek S. Der Stellenwert der selektiv proximalen Vagotomie beim komplizierten Ulcus duodeni. *Wien Klin Wochenschr* 1989;**101**:615–7.
2. Mostbeck G, Mallek R, Gebauer A, Tscholakoff D. Hepatic penetration by a duodenal ulcer: sonographic diagnosis. *J Clin Ultrasound* 1990;**18**:726–9.
3. Castellano G, Galvao O, Vargas J, Canga F, Moreno D, Sánchez F, et al. The diagnosis of peptic ulcer penetration into the liver by endoscopic biopsy. A report of 2 cases and a review of the literature. *Rev Esp Enf Digest* 1992;**82**:235–8 [article in Spanish].

4. Padda SS, Moraless TG, Earnest DL. Liver penetration by a duodenal ulcer. *Am J Gastroenterol* 1997;**92**:352–4.
5. Mall K. Duodenal ulcer with penetration into the liver. Endoscopic-biopsy diagnosis. *Med Klin (Munich)* 1999;**94**:101–4 [article in German].
6. Novacek G, Geppert A, Kramer L, Wrba F, Herbst F, Schima W, et al. Liver penetration by a duodenal ulcer in a young woman. *J Clin Gastroneterol* 2001;**33**:56–60.
7. Akyildiz M, Günşar F, Akay S, Doğanavşargil B, Ozütemiz O. Liver penetration of duodenal ulcer. *Turk J Gastroenterol* 2006;**17**:298–9.
8. Jacobs JM, Hill MC, Steinberg WM. Peptic ulcer disease: CT evaluation. *Radiology* 1991;**178**:745–8.
9. Tang RS, Chan FK. Therapeutic management of recurrent peptic ulcer disease. *Drugs* 2012;**72**:1605–16.
10. Reddy SK, Tsung A, Geller DA. Laparoscopic liver resection. *World J Surg* 2011;**35**:1478–86.