

Successful Treatment Of Giant Duodenal Ulcer Perforation With Tube Duodenostomy: Case Report

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1. Abstract

Duodenal perforation is one of the causes of surgical acute abdomen that requires urgent surgical intervention and can be life-threatening. Although its frequency has decreased with the widespread use of proton pump inhibitors and Helicobacter pylori eradication treatment, peptic ulcer disease is still the most common cause of duodenal perforation. Duodenal perforations most commonly occur on the front side of the first part of the duodenum. Most duodenal perforations can be successfully treated with primary repair with or without omentopexy. However, the possibility of successful treatment with primary repair decreases, especially in patients with large diameter, delayed and widespread loculated fluid and interloop abscesses in the abdomen. Tube duodenostomy is an alternative surgical method that can be widely and successfully used as a definitive or bridge treatment in patients with giant duodenal perforation, extensive fluid and abscess in the abdomen.

Key Words:

Duodenum, perforation, tube duodenostomy

2. Introduction

Although the frequency of peptic ulcer disease has decreased after the widespread use of proton pump inhibitors and Helicobacter pylori eradication treatment, peptic ulcer disease is still the most common cause of duodenal perforation [1,2]. Trauma, Crohn's disease, duodenal

ischemia, chemotherapy, foreign body ingestion, tumors and endoscopic interventions represent other possible causes of duodenal perforation. The mortality rate due to duodenal perforation has been described between 8% and 25% [3]. Most of duodenal perforation can be treated by primary repair with or without an omental patch [4,5]. Tube duodenostomy has been used for many years as an effective and reliable technique in the treatment of difficult duodenal injury and perforation [6]. In this study, we aimed to present a patient with giant duodenal perforation that treated successfully by tube duodenostomy.

3. Case Report

Forty-five years old male patient. He applied to the emergency room with complaints of abdominal pain, abdominal swelling, and nausea and vomiting, which started about 10 days ago. In his medical history, he had surgery for duodenal perforation approximately 3 years ago. In physical examination; fever: 38.1°C, TA: 90/50 mmHg, pulse: 120/min. The abdomen has distention, there is widespread tenderness and rebound in the abdomen upon palpation. In laboratory findings, WBC: 17,000 mcL, CRP: 39.2 mg/dl, procalcitonin: 100 ng/ml, BUN: 62.1 mg/dl, creatine: 4.2 mg/dl. In abdominal CT, there is free air under the diaphragm and diffuse fluid containing air in all quadrants of the abdomen (Figure 1).

Figure 1: Preoperative abdominal CT imaging of patient.



The patient underwent emergency laparotomy under general anesthesia.

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A perforation area of approximately 4x3 cm in size was detected on the front side of the 1st continent of the duodenum. There was approximately 8 liters of bilious fluid and interloop abscesses in the abdomen, and the intestinal loops were severely dilated. Considering that the primary repair option would fail, tube duodenostomy underwent with the help of a 20F Pezzer catheter extending distal to the perforation area. The abdomen was cleaned by washing with approximately 10 liters of saline solution and the surgery was completed by placing 3 drains into the abdomen. On the 6th postoperative day, a leak test was performed with methylene blue from the tube duodenostomy and oral intake was allowed. The patient tolerated oral intake and a control abdominal CT was performed on the 25th postoperative day (Figure 2). No fluid or collection was observed in the abdomen. The patient, who had tube duodenostomy and abdominal drains removed at the 6th postoperative week, was discharged in full recovery.

Figure 2: Post-operative 25th day abdominal CT imaging of patient.



4. Case Discussion

Two types of duodenal perforation can be considered according to the presence or the absence of a free leakage: contained and non-contained perforations. In contained perforations, (in which free leakage is avoided by contiguous structures) a conservative management is feasible^{7,8}. In non-contained perforation, bowel contents leak into the abdominal cavity, and an operative management is mandatory. Despite tube duodenostomy has good outcomes in patients with giant duodenal perforation it has not gained universal acceptance and has been underutilized^{9,10}. In their study, about small bowel perforations associated with endoscopic retrograde cholangiography, Dubecz et al stated that tube duodenostomy can be used safely in the management of difficult duodenal perforations [11]. In a recent study of 40 patients with giant duodenal ulcer perforations, the group who underwent tube duodenostomy had one post-operative leak compared to 14 in the conventional repair group (Cellan Jones or Graham patch) and only one mortality [12]. Recent literature data have shown that,

in patients with complex duodenal perforation, tube duodenostomy has less leakage, lower mortality rates and shorter hospital stay [13,14].

In our case, the patient had giant and relapse duodenal perforation with intraabdominal abscess and about 10 liters of fluid. Additionally, the patient had hypovolemic and septic shock so we preferred to applied tube duodenostomy for management of duodenal perforation. In conclusion; tube duodenostomy is a surgical technique that should be kept in mind as a definitive or bridging treatment in patients with giant and complex duodenal perforation.

References

1. Yuan Y, Padol IT, Hunt RH. Peptic ulcer disease today. *Nat Clin Pract Gastroenterol Hepatol.* 2006;3(2):80–9. doi: 10.1038/ncpgasthep0393.
2. Behrman SW. Management of complicated peptic ulcer disease. *Arch Surg.* 2005;140(2):201-8. doi: 10.1001/archsurg.140.2.201.
3. Machado NO. Management of duodenal perforation post-endoscopic retrograde cholangiopancreatography. When and whom to operate and what factors determine the outcome? A review article. *JOP.* 2012;13(1): 18–25.
4. Pacilli M, Pavone G, Fersini A, et al. Tube Duodenostomy to Treat Large Duodenal Perforation: Our Experience and Literature Review. *Chirurgia (Bucur).* 2022;117(5):594-600. doi: 10.21614/chirurgia.2787.
5. Jani K, Saxena AK, Vaghasia R. Omental plugging for large-sized duodenal peptic perforations: a prospective randomized study of 100 patients. *South Med J.* 2006;99(5):467-71. doi: 10.1097/01.smj.0000203814.87306.cd.
6. Isik B, Yilmaz S, Kirimlioglu V, ve ark. A life-saving but inadequately discussed procedure: tube duodenostomy. Known and unknown aspects. *World J Surg.* 2007;31(8):1616-24; discussion 1625-6. doi: 10.1007/s00268-007-9114-3.
7. Negoï I, Paun S, Hostiuç S, et al. Most small bowel cancers are revealed by a complication. *Einstein (Sao Paulo).* 2015;13(4):500-5. doi: 10.1590/S1679-45082015AO3380.
8. Berne TV, Donovan AJ. Nonoperative treatment of perforated duodenal ulcer. *Arch Surg.* 1989;124(7):830–32.
9. Di Lascia A, Tartaglia N, Petruzzelli F, et al. Right hemicolectomy: laparoscopic versus robotic approach. *Ann Ital Chir.* 2020;91:478-85.
10. Lal P, Vindal A, Hadke NS. Controlled tube duodenostomy in the management of giant duodenal ulcer perforation: a new technique for a surgically challenging condition. *Am J Surg.* 2009;198(3):319–23. doi: 10.1016/j.amjsurg.2008.09.028.
11. Dubecz A, Ottmann J, Schweigert M, et al. Management of ERCP-related small bowel perforations: the pivotal role of physical investigation. *Can J Surg.* 2012;55(2):99-104. doi: 10.1503/cjs.027110.
12. Lal P, Vindal A, Hadke NS. Controlled tube duodenostomy in the management of giant duodenal ulcer perforation: a new technique for a surgically challenging condition. *Am J Surg.* 2009;198(3):319-23.

doi: 10.1016/j.amjsurg.2008.09.028.

13. Wu X, Zen D, Xu S, et al. A modified surgical technique for the emergent treatment of giant ulcers concomitant with hemorrhage in the posterior wall of the duodenal bulb. *Am J Surg.* 2002;184(1):41-4. doi: 10.1016/s0002-9610(02)00889-9.
14. So JB, Yam A, Cheah WK, et al. Risk factors related to operative mortality and morbidity in patients undergoing emergency gastrectomy. *Br J Surg.* 2000;87(12):1702-7. doi: 10.1046/j.1365-2168.2000.01572.