A Technique for Localizing Perforated Duodenal Ulcer During Laparoscopic Repair

Sujith Philip · Deepak Varma

Received: 12 February 2014 / Accepted: 13 May 2014 / Published online: 25 May 2014
© Association of Surgeons of India 2014

Abstract Laparoscopic repair of duodenal ulcer perforation has certain advantages over open repair. However, the conversion rate to open surgery is still high. The most common reason for conversion is inadequate localization of the ulcer perforation site during laparoscopy. Here, a technique is described which will aid in localizing the perforation, make suturing and repair easier, and helps in checking the integrity of the repair at the end of the procedure. This is done by compressing the gall bladder with an instrument like a laparoscopic fan retractor and simultaneously depressing the first part of the duodenum with another instrument. This results in bile flowing out through the perforation and simultaneously depressing the duodenum downward, making it more easily visible and making identification easier. Suturing is easier due to the liver also getting retracted simultaneously and more space being available consequently. Integrity of the anastomoses is also easily ascertained by this maneuver.

Keywords Laparoscopy · Duodenal ulcer · Repair · Localization

Laparoscopic repair of duodenal ulcer perforation is now an accepted modality of treatment with the advantage of decreased septic abdominal complications as compared to open surgery. This is in addition to the usual advantages of a laparoscopic approach like reduced size of abdominal wound,

less postoperative pain, less postoperative ileus, and decreased chance of adhesive obstruction. Moreover, laparoscopic repair is a better option for patients who are elderly and those with cardiopulmonary comorbidities [1].

However, the conversion rate for a laparoscopic approach is as high as 18 % [2]. The most common risk factor for conversion is inadequate localization of the ulcer [3]. This leads to patient not having the benefits of a laparoscopic repair. On diagnostic laparoscopy in cases of perforation peritonitis, sometimes even after adequate lavage, it may be difficult to localize the site of perforation as shown in Fig. 1. The common differential diagnoses sites are duodenum, stomach, ileum, jejunum, and appendicular and sigmoid diverticular perforation. This difficulty is compounded by inflammatory adhesions.

A simple technique to identify a duodenal ulcer perforation in such cases is to apply pressure on the gall bladder by compressing it with an instrument like a laparoscopic fan retractor and simultaneously depressing the first part of the duodenum (D1). This leads to the flow of bile through the ampulla into the duodenum and leaks out into the peritoneal cavity, thus making identification of the perforation easy. Visibility is improved by depression of D1; this is shown in Fig. 2. Even in a rare posterior perforated duodenal ulcer, which is notoriously difficult to localize, this maneuver makes localization of the affected quadrant easy. There are two additional advantages for this maneuver. Using the fan retractor to retract the gall bladder and liver upward provides more space and, consequently, makes laparoscopic suturing easy. Also, this maneuver of compressing the gallbladder is helpful at the end of the repair to test the integrity of the repair. Personal experience with this technique for the last 3 years has allowed visualization of the perforation in nine cases where the perforation was not readily apparent on diagnostic laparoscopy. Difficulty in visualization usually occurred in small

S. Philip (✉) · D. Varma
Department of Gastrointestinal Surgery and Liver Transplantation,
Medical Trust Hospital, M.G. Road, Kochi, Kerala 682016, India
e-mail: philipsujithdr@yahoo.com

D. Varma
e-mail: deepakvarma@bsnl.com

Fig. 1 Before Philip maneuver

Fig. 2 After Philip maneuver

perforations and when surgery is delayed beyond 24 h due to late presentation. This technique is less cumbersome and more easily done than other practices like instilling methylene blue or large quantity of air in the stomach after instillation of normal saline. Methylene blue instillation requires a large quantity of dye to be placed in the stomach to fill it with later unpleasant staining of tissues and the chance of toxicity when large amounts are used, as in testing for perforation [4].

Medical eponyms are practical, aid in memorizing, and are the equivalent of “medical shorthand.” In concurrence with the current recommendations, a nonpossessive eponym of Philip maneuver is suggested for this technique [5].

References

1. Chou NH, Mok KT, Chang HT, Liu SI, Tsai CC, Wang BW, Chen IS (2000) Risk factors of mortality in perforated peptic ulcer. *European Journal of Surgery* 166:149–153
2. Lunevicius R, Morkevicius M (2005) Management strategies, early results, benefits, and risk factors of laparoscopic repair of perforated peptic ulcer. *World J Surg* 29(10):1299–1310
3. Lee FY, Leung KL, Lai BS et al (2001) Predicting mortality and morbidity of patients operated on for perforated peptic ulcers. *Arch Surg* 136(1):90–94
4. Bruce J, Krukowski ZH, Al-Khairy G, Russell EM, Park KGM (2001) Systematic review of the definition and measurement of anastomotic leak after gastrointestinal surgery. *Br J Surg* 88:1157–1168
5. Jana N, Barik S, Arora N. Current use of medical eponyms—a need for global uniformity in scientific publications. *BMC Med Res Methodol*. 2009 : Mar 9;18