

COMBINED ENDOSCOPIC – LAPAROSCOPIC OPERATION OF PERFORATED GASTRIC ULCER WITH OMENTOPLASTY

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SUMMARY – A combined laparoscopic – endoscopic operation of perforated gastric ulcer with gastric mucosa biopsy and use of great omentum as a vital material in ulcer perforation is described. The combination of endoscopy and laparoscopic surgical procedure allows a good insight into the pylorus and duodenum patency. Intraoperative biopsy of the antrum and gastric corpus mucosa provides a definite histologic finding concerning the possible presence of *Helicobacter pylori*. Besides fast patient recovery, the laparoscopic approach to perforated ulcer also allows for adequate irrigation, and drainage if necessary, of the abdomen.

Key words: *Peptic ulcer, surgery; Peptic ulcer, complications; Laparoscopy, methods; Omentum, surgery*

Introduction

Ulcer disease has now definitely ceased to be a contraindication for operative treatment, and the diagnosis of duodenal or gastric ulcer is daily encountered in operative schedules of surgical departments. However, complications of ulcer disease are still present, and so is the issue of proper choice of the techniques and procedures to be used in the management of these complications, raising vigorous discussions, both in the literature and at particular surgical departments¹⁻³.

The technique described is not a complete novelty^{4,5}. It is a combination of two standard methods used in the medical treatment and diagnosis of ulcer disease and its complications, i.e. laparoscopy and endoscopy. Satisfactory results have been reported from two centers. Our results confirmed the value of the method. It should be emphasized that the combined endoscopic – laparoscopic method ensures complete therapeutic management of one

of the ulcer disease complications, i.e. gastroduodenal ulcer perforation.

The '70s were the turning point in the treatment of ulcer disease. Efficient conservative antiulcer therapy enabled fast healing of the ulcer, while interventional digestive endoscopy contributed to the predominance of conservative treatment for ulcer disease. The '80s brought new concepts on the genesis of ulcer disease. *Helicobacter (H.) pylori* was demonstrated to be the main cause of gastritis and ulcer disease. Ulcer was found to be efficiently cured and its recurrence prevented by a combination of antibiotic therapy (Sumamed for 3 days and Amoxyl for 7 days) and omeprazole (for 4 weeks).

The '90s were characterized by considerable changes in surgery. The minimally invasive surgery has brought a 'revolution' to the domain of traditional surgery, and video surgery has soon become part of standard procedures in the management of malignant and benign diseases of the stomach.

Patients and Methods

Combined endoscopic – laparoscopic operation of perforated gastroduodenal ulcer was performed in six pa-

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Received May 22, 2000, accepted in revised form August 17, 2000

tients, four patients with duodenal ulcer perforation and two patients with gastric ulcer (anterior wall) perforation. There were four men and two women, mean age 40. The patients had not been previously treated for ulcer disease. The time elapsed from ulcer perforation to hospital admission ranged between five and nine hours. All patients were operated on immediately upon admission.

The operation was performed under general anesthesia. Upon CO₂ insufflation to 14 mm Hg, four trocars were inserted (three 10-mm and one 5-mm). The fourth trocar was inserted in case the liver had to be retracted. Upon exploration of the abdomen and thorough irrigation of the subphrenic space, paracolic space, interintestinal spaces, and bottom of the pelvis, the surgeon proceeded performing omentoplasty and fixation of the omentum by suture.

Then, a gastroscope was introduced, and in case of gastric ulcer biopsy of the ulcer edge was performed. Biopsy material was examined for the presence of *H. pylori*. Patency of the pylorus and duodenum was controlled. Biopsy forceps were used to pull the omentum through the ulcer perforation and to seal the opening.

Two stitches were enough for fixation of the omentum to the gastric wall or duodenum. The abdomen was irrigated with saline, and drainage was used in the patients with a history of ulcer perforation exceeding 8 hours. The drains were placed on the trocar entry points and taken out after 24–48 hours. The nasogastric tube was removed on day 4 postoperatively. The patients received antiulcer therapy (H₂-blocker) which was modified in case of verified presence of *H. pylori*.

The patients underwent endoscopic control examinations at 3 and 6 weeks after the surgery.

Results

The combined laparoscopic – endoscopic method was successfully used in six patients with duodenal or gastric ulcer perforation. There were no perioperative or postoperative complications. The duration of the operation was 70 minutes on an average. All patients were pretreated with antiulcer and antibiotic therapy (cephalosporin). As histologic findings proved the presence of *H. pylori* in all the six patients, the antibiotic treatment was changed to amoxicillin, 2 x 1 g, for seven days, and Sumamed, 1 g/day, for three days. Therapy also included Ultop for four weeks. The wounds healed *per primam intentionem*. The patients were discharged in 7 days on an average. Con-

trol endoscopic examination performed at three weeks showed a scar at the site of omentoplasty, whereas at six weeks it was difficult to discern the site of perforation.

Adequate patency of the pylorus and duodenum was endoscopically proved in all the six patients.

Discussion

The combined endoscopic – laparoscopic method in the treatment of perforated gastroduodenal ulcer was introduced at the Department of Surgery, Sestre milosrdnice University Hospital from Zagreb at the beginning of 1995. The method has been quite infrequently employed because it requires the presence of a surgeon trained in laparoscopic surgery and an endoscopist, which is not always easy to accomplish in our circumstances. Therefore, a great proportion of patients have still to be operated on by the classical surgical technique.

We find this operation is easy to perform from the technical point of view, secures the site of perforation, and can be used in case of the gastric ulcer posterior perforation (the omentum can be modelled, if necessary). The size of the perforation opening is irrelevant, because there always is enough omental material for sealing.

The laparoscopic method ensures that all critical points are readily visible, while irrigation and drainage are easy to perform if necessary. Also, drains can be placed at more 'critical' sites. The help of endoscopy is extremely valuable, while histologic verification of suspect material and detection of *H. pylori* completes the diagnostic and therapeutic procedure⁶. The tolerance of the operation is by far better than that of a classical one. The patients get up from their beds sooner and are discharged from the hospital 2–3 days sooner than after classical operative procedure. In our series, endoscopic controls performed at three and six weeks showed neat healing of the ulcer and excellent patency of the pylorus and duodenum.

If intraoperative biopsy of perforated ulcer margin indicates a carcinoma, open gastrectomy or ventricular resection should be performed.

Conclusion

The combined endoscopic – laparoscopic omentoplasty for perforated gastroduodenal ulcer is a relatively new (in hospital practice) and recognized method. The method incorporates the value of minimally invasive sur-

gery and digestive endoscopy. The arguments that speak in favor of the method include the possibility of good intragastric and extragastric exploration; detection of malignancy and bacterial invasion; and healing of defects with autologous material.

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Sažetak

KOMBINIRANA ENDOSKOPSKO LAPAROSKOPSKA OPERACIJA PERFORIRANOG ŽELUČANOG VRIJEDA S OMENTOPLASTIKOM

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Opisana je laparoskopsko-endoskopska operacija perforiranog želučanog vrijeda s biopsijom želučane sluznice i aplikacijom velikog omentuma u otvor perforacije. Kombinacija endoskopskog i laparoskopskog postupka daje dobar uvid u prohodnost pilorusa i dvanaesnika. Intraperitonejska biopsija sluznice antruma i želučanog korpusa omogućuje konačnu histološku dijagnozu te daje potvrdu moguće prisutnosti *Helicobacter pylori*. Uz brzi poslijeoperacijski oporavak bolesnika, laparoskopski pristup perforiranom vrijedu omogućava zadovoljavajuću irigaciju i drenažu abdomena.

Ključne riječi: *perforirani vrijed, laparoskopna kirurgija, endoskopija, omentoplastika*