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A practical port-sharing approach for concomitant cholecystectomy with laparoscopic sleeve gastrectomy: single-centre experience

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Ethics approval and consent to participate

This study was conducted with approval from the Ethics Committee of Tri-Service General Hospital.

Conflict of Interest

The authors declare no conflict of interest.

Keywords: Bariatric surgery. Cholecystectomy. Concomitant. Laparoscopy. Port-sharing. Sleeve gastrectomy.

Dear Editor,

Gallbladder disease is a common obesity-related illness. Rapid weight loss in obese patients undergoing bariatric surgery has been associated with a high incidence of gallstone

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formation [1]. The necessity of concomitant laparoscopic cholecystectomy (LC) has been discussed and been proven safe when indicated [2]. However, details regarding the surgical techniques for concomitant cholecystectomy with laparoscopic sleeve gastrectomy (CC-LSG) are rarely mentioned. Herein, we presented our clinical practice of four-port-sharing technique for CC-LSG.

Case reports

A cohort study was conducted between January 2017 and March 2022 using a prospective database. Forty-five patients with gallbladder disease received CC-LSG using our four-port-sharing technique. Surgical techniques were showed in Figure 1. The patients' demographic characteristics, intraoperative outcomes, and postoperative outcomes were examined. Of 45 patients in this study, 18 patients with symptomatic cholelithiasis, 25 patients with asymptomatic cholelithiasis, and 2 patients with gallbladder polyps were identified. The mean age of these 45 patients (26 men and 19 women) was 38.3 years, and the mean body mass index was 41.8 kg/m². There was no case of conversion to laparotomy. The mean operative time of LC and following LSG, the volume of blood loss, and hospital stay were 52.7 minutes and 95.2 minutes, 13.3 mL, and 3.8 days, respectively. No postoperative complications, including hemorrhage, bile leakage, staple leakage, pulmonary embolism, incisional hernia, and wound infection were noted.

Discussion

Additional ports may be required to perform simultaneous operations in laparoscopic surgery. In general, seven ports are needed to accomplish concomitant laparoscopic operations [3, 4]. Ohta et al. proposed a total of seven port-sharing trocars in CC-LSG, including three trocars being greater than 10 mm [5]. In our study, four-port sharing technique was designed to perform CC-LSG. There are only two trocars equal to or larger than 10 mm, including the umbilical trocar (12 mm) and the left abdominal trocar (10 mm). These two trocars are used to substitute the conventional trocar sites of the upper abdomen. The four-port-sharing technique not only reduces the number of trocar incisions by reusing the ports, but it also achieve safe surgical outcomes. Furthermore, this approach offers satisfying cosmetic results (due to one incision hidden in the umbilicus), and it may reduce postoperative pain compared to the conventional method (seven ports).

In conclusion, in our clinical series, our four-port-sharing technique is safe and feasible for



obese patients with gallbladder diseases undergoing CC-LSG.

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Fig. 1 Conventional trocar placement: (a) For conventional LC, four trocars (indicated by red circles) were used. The first 12-mm trocar was placed above the umbilicus as a camera port. The other three trocars were placed in the subxiphoid, right upper abdomen, and right lateral abdomen, respectively. (b) Five trocars (indicated by red circles) were conventionally used when performing LSG. A liver retractor was inserted through the subxiphoid trocar or the thread method (without trocar use) was employed for liver retraction. The gallbladder and resected stomach were retrieved through the 12-mm trocar site. Our practical four portsharing approach when performing CC-LSG. During LC: (c) Three ports were used (indicated by the red circles), including the umbilical trocar (12 mm), the subxiphoid trocar (5 mm), and the right lateral abdominal trocar (5 mm). The left abdominal trocar was used flexibly to enable adequate exposure of the surgical field. (d) The surgical view of Calot's triangle was well exposed. During LSG: (e) Three port (indicated by the red circles) were routinely used. A laparoscope was shifted to the left abdominal trocar (10 mm). A 12-mm trocar was used for LigaSure, an Endo GIA for gastric stapling, and retrieval of specimen. (f) Surgical view of posterior mobilization during LSG.