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LETTER TO EDITOR

Laparoscopic transgastric resection for intraluminal gastric gastrointestinal stromal tumors located at the posterior wall and near the gastroesophageal junction

Dear Editor,

We read the article entitled "Laparoscopic transgastric resection for intraluminal gastric gastrointestinal stromal tumors located at the posterior wall and near the gastroesophageal junction" discussing a minimally invasive treatment for intraluminal gastric gastrointestinal stromal tumors at a specific location by Siow SL et al[1] in this journal with great interest. They reported that Nathason liver retractor had been used in selected cases when the upper part of the stomach was overlapped by bulky liver. During laparoscopic upper gastrointestinal procedures, the field of vision is often obscured by the left lobe of the liver and the bulky round ligament.[2] An adequate workspace and a clear view are crucial in any minimally invasive surgery, especially in single-port laparoscopic upper abdominal surgery.[3] Several techniques[4,5] including Nathason liver retractor have been reported to optimize the operative view and the working space, but they require another trocar for insertion and may cause iatrogenic liver injury. So a safe and stable liver retraction is of particular interest. A new idea described below was utilized to aid in improving the field of view during surgery without inducing liver dysfunction in using the technique.

From January 2017 to December 2017, four patients underwent single-incision transumbilical laparoscopic operations using two methods to increase the field of view during surgery. The two methods of exposure consisted of applying Cyanoacrylate glue (Beijing Suncon Medical Adhesive Company, Beijing, China) to bond the left lateral lobe of the liver to the diaphragm and placing transabdominal suspension sutures to the round ligament of the liver (Fig. 1). Clinical data were recorded. One patient with duodenal stenosis and two patients with gastric cancer diagnosed by gastroscopy and upper abdominal tomography were included. One included patient was morbidly obese. Patients ranged in age from 23 to 75 years. The patients' body mass indices ranged from 18.73 to 39.33 kg/m^2 at the time of surgery. In total, four minimally invasive procedures were performed. All patients had adequate exposure of the dissection field without the need for an additional retraction device or conversion to open surgery. The liver adhesion time and suture round ligament time was 6.8–9.7 min. The Pneumoperitoneum time was 185–270 min, and blood loss was 20–100 mL. The wounds were very small without obvious scars on the abdominal wall. There were no intraoperative or postoperative complications resulting from these two techniques. The postoperative hospital length of stay was under 14 days for all patients. Levels of alanine aminotransferase (ALT) and aspartate aminotransferase (AST) were measured in all patients. Liver function tests were found to have increased moderately on the first postoperative day but had nearly normalized prior to discharge. In all cases, no surgical site infections, intestinal obstruction, umbilical hernia were encountered at 3–12 months postoperatively.

Combining the two described techniques is a facile and effective mechanism for providing good exposure of the operative field when a single method alone does not allow

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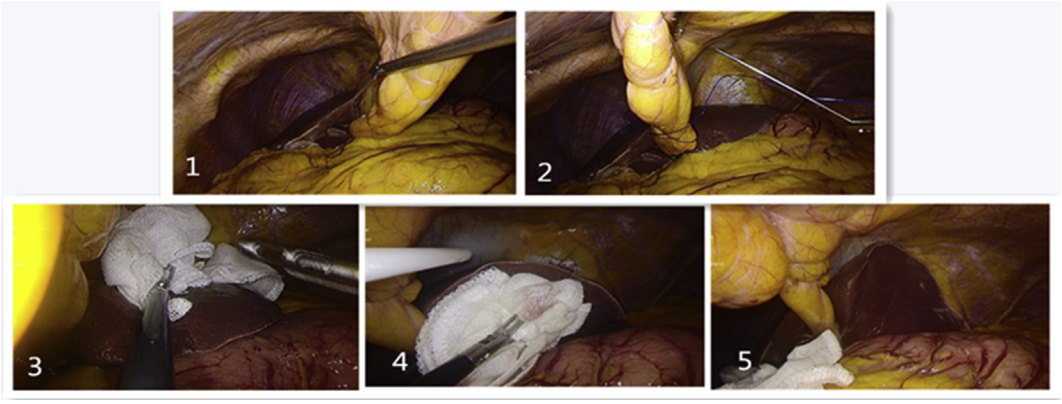

Figure 1 1—2. Suturing the round ligament of the liver; 3—4. Keeping the surface of the left lateral liver lobe dry and spraying the cyanoacrylate glue onto the diaphragmatic surface of the liver to bind the left lobe to the diaphragm; 5. A good operative field was created in the upper abdomen.

Table 1 Demographic data for patients.

	Age (years)	Sex	Diagnosis	BMI*(kg/m^2)	Past history
Patient 1	52	Female	Duodenal stenosis	18.73	Duodenal ulcer
Patient 2	75	Male	Gastric cancer	25.73	NO
Patient 3	61	Female	Gastric cancer	23.50	NO
Patient 4	23	Male	Morbidly obese	39.33	*HBV infection

*BMI, body mass index; *HBV infection, Hepatitis B virus infection.

Table 2 Liver function test results before and after surgery.

Patient	The second day following admission		The first postoperative day		The day prior to discharge	
	ALT*(U/L)	AST*(U/L)	ALT*(U/L)	AST*(U/L)	ALT*(U/L)	AST*(U/L)
1	11	17	79	77	19	23
2	25	26	91	72	21	31
3	13	19	56	62	18	16
4	166	91	195	109	64	39

ALT*, alanine aminotransferase; AST*, aspartate aminotransferase.

Table 3 Operative and postoperative characteristics.

Patient	Pneumoperitoneum time (minutes)	Time to expose surgical space (minutes)	Blood loss (mL)	Intraoperative blood transfusion	Conversion	Time to Fluid food intake (day)	Hospital stay (days)	Intra-or postoperative complications
1	185	6.8	100	NO	NO	7	14	NO
2	270	7.4	100	NO	NO	6	13	NO
3	240	8.1	100	NO	NO	6	11	NO
4	250	9.7	20	NO	NO	4	8	NO

for sufficient surgical working space in single-incision transumbilical laparoscopic upper gastrointestinal surgeries. Tables 1—3.

Conflicts of interest

The authors declare that they have no conflicts of interest and no funding sources.

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