

## Laparoscopic Surgery for benign Gastric Tumor

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**Purpose:** Laparoscopic surgery of the abdomen has grown rapidly in popularity due to the benefits, including a low level of post operative pain, early recovery, short hospitalization and excellent cosmetic results. Concerning tumor resection, most benign gastric tumors are ideal for the use of the non invasive method of a laparoscopic procedure. To evaluate the feasibility of laparoscopic surgery for benign gastric tumors, we analysed the clinicopathological findings, post operative course and prognosis.

**Methods:** Between January 1995 and August 2001, laparoscopic surgery was performed on 18 patients with benign gastric tumors at the Department of Surgery at Yonsei University Hospital. To evaluate the feasibility of laparoscopic surgery for these lesions, the sex, age, pathologic diagnosis, operative methods, tumor location, tumor size, operative time, recurrence, gas passing time and diet recovery time were analyzed.

**Results:** The patients group consisted of 3 men (16.7%) and 15 women (83.3%), with a mean age of  $51.9 \pm 15.0$  years (range, 23 - 80). The histopathological examinations showed 12 mesenchymal tumors (5 leiomyomas, 4 stromal tumors, 3 Schwannomas), 2 mucosa origin tumors (1 retention polyp, 1 villous adenoma), 2 ectopic pancreata, 1 carcinoid tumor and 1 lipoma. The operation methods were 14 laparoscopic wedge resections of stomach, 1 laparoscopic assisted partial gastrectomy and 1 gastrotomy and polypectomy. In 2 patients, a laparotomy was required following the laparoscopy

due to difficulties in detecting the tumors. In one of the 2 converted cases, preoperative endoscopic marking of the tumor site was performed, but the dye was spread very widely from the mid body to the prepylorus. The other tumor was located on the lesser curvature of the upper third, around the esophagogastric junction, but it was not exactly identified. The tumors were located in the upper, middle, and lower third of the stomach in 7, 9 and 2 cases, respectively. As a circumferential location, 7 tumors were mainly situated on the anterior wall, 6 on the posterior wall, 3 on the greater curvature and 2 on the lesser curvature. All tumors, even those on the lesser curvature and posterior wall, were able to be resected with laparoscopy. The size of the resected tumors averaged  $2.2 \pm 0.9$  cm (range, 0.8 - 4.3). The resection margins were all negative. The operation time averaged  $145.8 \pm 57.0$  min (range 70 - 280). The time to passing gas averaged  $2.2 \pm 0.9$  days (range 1 - 4). The recovery time to a soft diet averaged  $5.9 \pm 1.9$  days (range, 2 - 9). The postoperative course of all the patients was uneventful, and there were no postoperative complications with the exception of one case of diet intolerance. During the follow up there have been no recurrences to date.

**Conclusion:** With its proper application in benign gastric tumors, laparoscopic surgery needs to identify the exact site of a tumor, can contribute significantly to an improved patient outcome because it is less complicated and safer compared to conventional gastrectomy methods. (*J Korean Surg Soc* 2003;64:33-38)

**Key Words:** Laparoscopy, Benign tumor of stomach, Gastric intramesenchymal tumor

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14 , 1 , 가 가 2.2±0.9 (1 4)  
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 , 1 가 (Table 1).  
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 7 , 9 ,  
 2 , 7 ,  
 6 , 3 , 2 , , 가 ,  
 가가 .18 , 가 ,  
 (intraluminal type)가 7 , 가 가 .  
 (extraluminal type)가 11 , 가 ,  
 2.2±0.9 cm (0.8 4.3)  
 4.8±1.2 cm (3.0 8.0)  
 (gastric intramesenchymal tumor) 12 ( ; leiomyoma 5 가  
 ; stromal tumor 4 , ; Schwannoma 가  
 3 ), 2 ( 1 , 1 ), 가 가 .(14-17)  
 2 , 1 , 1 .  
 145.8±57.0 (70 280)

Table 1. Clinicopathologic features

No	Sex /age	Size (cm)	Location	Op name	Pathology	Op time (min)	Gas out (day)	Soft diet (day)	Complication	Recur-rence
1	F/27	1.5×1.0	Lower AW	Converted laparotomy	Ectopic pancreas	220	3	6	None	None
2	F/62	4.3×4.3	Lower AW	Laparoscopic wedge resection	Stromal tumor	145	2	3	None	None
3	F/65	2.5×2.0	Middle AW	Laparoscopic wedge resection	Carcinoid	150	3	5	None	None
4	F/51	2.2×2.1	Middle AW	Laparoscopic assisted partial gastrectomy	Stromal tumor	165	3	4	None	None
5	F/80	2.3×2.0	Middle PW	Laparoscopic wedge resection	Villous adenoma	280	3	7	Diet intolerance	None
6	F/57	1.5×1.0	Middle PW	Laparoscopic wedge resection	Schwannoma	75	1	2	None	None
7	M/23	2.0×1.5	Middle PW	Laparoscopic wedge resection	Ectopic pancreas	105	1	2	None	None
8	F/67	2.5×2.0	Middle PW	Laparoscopic wedge resection	Lipoma	90	1	1	None	None
9	F/45	1.2×1.0	Middle GC	Laparoscopic wedge resection	Schwannoma	105	3	4	None	None
10	M/44	3.0×3.0	Middle PW	Laparoscopic wedge resection	Stromal tumor	90	2	2	None	None
11	F/60	1.5×1.0	Middle PW	Laparoscopic polypectomy	Retention polyp	125	2	4	None	None
12	F/60	3.0×3.0	Upper PW	Laparoscopic wedge resection	Schwannoma	210	2	3	None	None
13	F/44	2.5×2.0	Upper PW	Laparoscopic wedge resection	Leiomyoma	190	2	3	None	None
14	F/69	3.5×2.5	Upper AW	Laparoscopic wedge resection	Leiomyoma	200	3	5	None	None
15	F/37	1.5×1.0	Upper LC	Laparoscopic wedge resection	Leiomyoma	105	1	2	None	None
16	F/46	1.0×1.0	Upper AW	Laparoscopic wedge resection	Leiomyoma	70	1	3	None	None
17	F/59	0.8×0.7	Upper GC	Laparoscopic wedge resection	Leiomyoma	150	3	4	None	None
18	M/39	2.5×2.0	Upper LC	Converted laparotomy	Stromal tumor	150	4	5	None	None
Mean	*/51.9	2.2×2.2				145.8	2.2	5.9		

가 , , , (14-16, 18,21,22). 가 (23). (18-20) 1 , (trans-gastric approach) ,(17,24,25) 1 가 150 , 132 182 가 (Table 2). 가 (india ink) 가 (india ink)가 가 189 119 (Table 3).

**Table 2.** Operation time according to the location

Location	Op time (min)	Mean Op time (min)
Upper (8)	70 210	150
Middle (9)	75 280	132
Lower (2)	145 220	182
P=0.5		

**Table 3.** Operation time according to the types

Type	Op time (min)	Mean Op time (min)
Extraluminal(11)	70 220	119
Intraluminal(7)	75 280	189
P=0.007		

가 2.2 cm 가 가 가 가 가 5 cm 가 , (26) 2% 5 cm 가 4 ,(27,28) (combined endoscopic

intra-gastric approach)

(29)

가

가

80

2.3 cm

7×5 cm

280

3

가

9

가

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