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Comparison of Endoscopic and Open Resection for Small Gastric Gastrointestinal Stromal Tumor[1,2]

Fan Feng[3], Zhiguo Liu[3], Xiaoyin Zhang[3], Man Guo, Guanghui Xu, Gui Ren, Liu Hong, Li Sun, Jianjun Yang and Hongwei Zhang

Department of Digestive Surgery, Xijing Hospital, Fourth Military Medical University, 127 West Changle Road, 710032, Xi'an, Shaanxi, China

Abstract

The National Comprehensive Cancer Network recommends conservative follow-up for gastric gastrointestinal stromal tumors (GISTs) less than 2 cm. We have previously reported that the mitotic index of 22.22% of small gastric GISTs exceeded 5 per 50 high-power fields and recommended that all small gastric GISTs should be resected once diagnosed. The aim of the present study is to compare the safety and outcomes of endoscopic and open resection of small gastric GISTs. From May 2010 to March 2014, a total of 90 small gastric GIST patients were enrolled in the present study, including 40 patients who underwent surgical resection and 50 patients who underwent endoscopic resection. The clinicopathological characteristics, resection-related factors, and clinical outcomes were recorded and analyzed. The clinicopathological characteristics were comparable between the two groups except for tumor location and DOG-1 expression. Compared with the surgical resection group, the operation time was shorter ($P = .000$), blood loss was less ($P = .000$), pain intensity was lower ($P < .05$), duration of first flatus and defecation was shorter ($P < .05$), and medical cost of hospitalization was lower ($P = .027$) in the endoscopic resection group. The complications and postoperative hospital stay were comparable between the two groups. No *in situ* recurrence or liver metastasis was observed during follow-up. Endoscopic resection of small gastric GISTs is safe and feasible compared with surgical resection, although perforation could not be totally avoided during and after resection. The clinical outcome of endoscopic resection is also favorable.

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Introduction

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumor of the gastrointestinal tract [1] and are believed to originate from the interstitial cells of Cajal, the pacemaker cells of the gastrointestinal tract [2]. GISTs can occur anywhere throughout the gastrointestinal tract; the most common locations are the stomach, small intestine, duodenum, and colorectum. Rare cases have been reported out of the gastrointestinal tract [3].

According to the National Comprehensive Cancer Network guideline [4], gastric GISTs less than 2 cm and with a mitotic index less than 5 per 50 high-power fields (HPF) are considered as very low risk, and conservative follow-up is suggested for small gastric GISTs [5]. However, it is believed that small gastric GISTs also have malignant potential, and we have previously reported that the mitotic index of 14 out of 63 small gastric GISTs (22.22%) exceeded 5 per 50 HPF [6]. Moreover, it was reported that the size of small gastric GISTs increased significantly during follow-up [7], and one case of small gastric GIST showed rapid growth and early metastasis to the liver [8].

Given this situation, we proposed that small gastric GISTs should be resected immediately once diagnosed. However, little is known about the safety and clinical outcomes between endoscopic resection

Address all correspondence to: Hongwei Zhang, PhD, Department of Digestive Surgery, Xijing Hospital, Fourth Military Medical University, 127 West Changle Road, 710032, Xi'an, Shaanxi, China.
E-mail: zhanghwfmmu@126.com

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and surgical resection for small gastric GISTs. Thus, the present study was carried out to investigate the safety and clinical outcomes of endoscopic resection in comparison to surgical resection for small gastric GISTs.

Materials and Methods

Patients

This study was performed in the Xijing Hospital of Digestive Diseases affiliated to the Fourth Military Medical University. From May 2010 to March 2014, a total of 90 patients were enrolled in the present study, including 40 small gastric GIST patients who underwent surgical resection and 50 small gastric GIST patients who underwent endoscopic resection. This study was approved by the Ethics Committee of Xijing Hospital, and written informed consent was obtained from all patients before surgical or endoscopic resection.

Resection Procedures

For the surgical resection group, all patients received general anesthesia with tracheal intubation. The procedure started with a traditional left side transrectus upper abdominal incision. The incisal margin was 2 cm beyond the tumor margin, and frozen slices of the incisal margin were performed during surgery. The detailed operation method depended on the location of tumor. For the endoscopic resection group, all patients received intravenous anesthesia. Marking dots were made with hook knife 3 mm outside the tumor margin. A 10% glycerin solution containing epinephrine (0.005 mg/ml) was injected into the submucosal layer. The tumor was completely

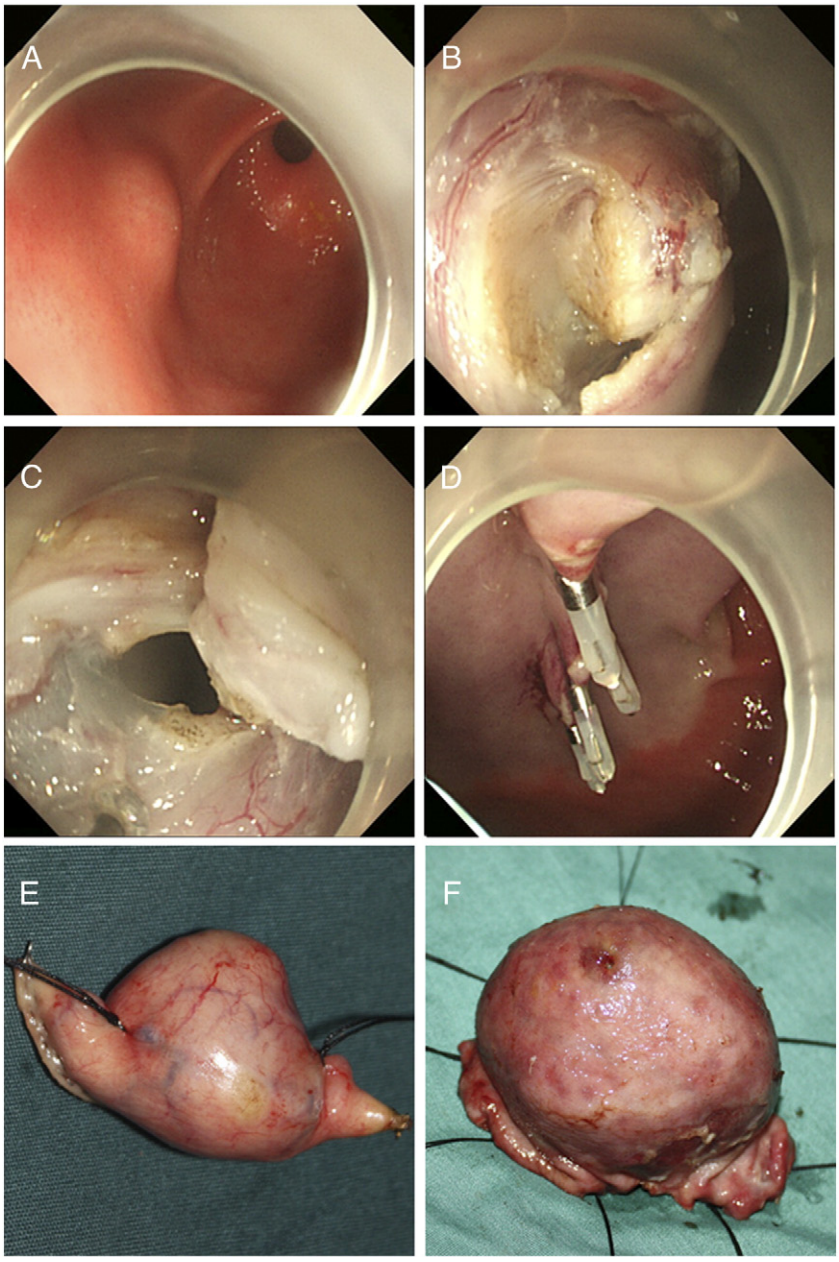

Figure 1. Endoscopic and surgical resection of small gastric GISTs. (A) Endoscopic view of small gastric GIST with intragastric type pattern. (B) Endoscopic resection of small gastric GIST. (C) Gastric perforation occurred during endoscopic resection. (D) Perforation was closed with clips after endoscopic resection. (E and F) Surgical resection of small gastric GISTs.