Evaluation for therapeutic measures to small gastric stromal tumor: A retrospective study of 90 cases

Qun Zhao, Yong Li *, Peigang Yang, Yanqiu Zang, Liqiao Fan, Bibo Tan, Yuan Tian

Third Department of Surgery, The Fourth Hospital of Hebei Medical University, Shijiazhuang, Hebei 050011, China

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ABSTRACT

Surgery and regular follow-up are two main measures for small gastric stromal tumors (sGST) less than 2 cm in diameter, while there is no sound evidence to prove which treatment is more beneficial to sGST patients. In this study, we reviewed the clinical and pathological features of patients with sGST receiving surgery and discussed the value of surgical intervention. In all, 90 patients who were diagnosed as sGST(less than 2 cm) and accepted surgical treatment were enrolled, correspondently, another 104 patients with GSTs between 2–5 cm and 74 patients with GSTs > 5 cm were collected as Control groups 1 and 2, respectively, and all of them received surgical treatment. Results showed that there were no significant difference among 3 groups in terms of gender, age, clinical features, tumor locations, and mutations of the exon 9 or 11 in C-kit gene, and immunohistochemical results of CD117, CD34, and DOG-1 proteins ($P > 0.05$). However, we observed growing percentage of medium-/high-risk GSTs and nucleus mitotic counts $> 5/50$ HPF in Control groups ($P < 0.05$). Patients with sGST were more suitable for minimally invasive procedures than the other 2 groups, with shorter hospital stay ($P < 0.05$). During the follow-up period (medium 45.4 months), the recurrence rate was also associated with tumor

Corresponding author: Yong Li. Tel.: +86 311 86095678; fax: +86 311 86077634.
   E-mail address: li_yong_hbth@126.com (Y. Li).

size, which surged from 1.11% in sGST group to 7.69% and 17.56% in Control groups 1 and 2, respectively. In all, we concluded that patients with sGST experienced low proportions of medium-/high-risk tumors; however, they still suffered from potential risk of tumor progression. Due to satisfied surgical outcome, surgical treatment could be suggested for sGST.

Introduction

Gastrointestinal stromal tumor (GIST), arising from mesenchymal tissues, is a common gastrointestinal tumor with malignant potential.[1] Some studies demonstrate that GISTs of diameter more than 5 cm are prone to liver, lung, bone distant metastasis, and recommend a combination of surgery and targeted Imatinib Mesylate therapy.[2,3] Regarding the asymptomatic behavior of small GIST (diameter < 2 cm, sGIST), regular follow-ups are regarded as a more advisable strategy than proactive surgery.[4] As research advances in the biological behavior of GIST; however, sGIST is recognized as having potential risks of recurrence and metastasis.[5,6] Currently, these 2 primary measures are applied to treat patients with sGIST. In this study, we investigate surgical measurement and explore the outcomes of the patients with small gastric stromal tumor (sGST). We reviewed the clinical and pathological records of patients with different GST sizes (diameter < 2 cm, 2–5 cm and > 5 cm) at the stomach, which is the predilection site of sGIST, to provide evidence for surgical treatment.

Materials and methods

Subjects and follow-up

Patients who were diagnosed with sGST and accepted surgery from Fourth Hospital of Hebei Medical University between January 2009 and February 2016 were enrolled in this study. A total of 90 patients with sGST of diameter < 2 cm were included in the experimental group. Another 104 patients with GSTs at 2–5 cm and 74 patients with GSTs > 5 cm were classified as Control groups 1 and 2, respectively (Fig 1). The distributions of gender and age were consistent in the 3 groups with males accounting for 48.1%-58.1% and median age being 59.0–61.0 years. Clinicopathologic records for reviewing included clinical symptoms, pathological features, surgery types, the incidence of complications, hospitalization duration, risk hierarchy, genetic mutations, and recurrence rates. Risk hierarchy was classified according to the diagnostic standards published by the World Health Organization (WHO) and the National Institutes of Health (NIH).[7,8] Paraffin sections of tumors were collected postoperatively for detecting mutations in exon 9, 11, 13, and 17 of C-kit gene as well as in exon 12 and 18 of PDGFRα gene with polymerase chain reaction (PCR). All patients were followed up monthly from the first month after surgery to April 2016. Events recorded during the follow-up included recurrence and metastasis of GSTs after surgery and the time points of the events.

Statistical analysis

The age and hospital stay of three groups were tested using ANOVA; gender, clinical symptoms, tumor locations, surgery types and pathological features were assessed with chi-square test; recurrence rates was examined using Log-rank test. All statistical analyses were achieved using SPSS (edition 21.0) software, with $p < 0.05$ regarded significant.