The first year follow-up after colorectal adenoma polypectomy is important: A multiple-center study in symptomatic hospital-based individuals in China

Qin-Yan GAO1*, MD, Hui-Min CHEN1*, MD, Jian-Qiu SHENG2, MD, Ping ZHENG3, MD, Cheng-Gong YU4, MD, Bo JIANG5, MD, Jing-Yuan FANG (✉)1, MD, PhD

1 Department of Gastroenterology, Renji Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai Institute of Digestive Disease, Shanghai 200001, China
2 Department of Gastroenterology, PL.A. The Military General Hospital of Beijing, Beijing 100700, China
3 Shanghai 1st Hospital, Shanghai Jiao Tong University, Shanghai 200001, China
4 Department of Gastroenterology, The Affiliated Drum Tower Hospital of Nanjing University Medical School, Nanjing 210008, China
5 Department of Gastroenterology, Nanfang Hospital, Nanfang University, Guangzhou 510515, China

© Higher Education Press and Springer-Verlag Berlin Heidelberg 2010

Abstract  The recurrence of colorectal adenoma (CRA) is high. Although there are guidelines for colonoscopy surveillance after polypectomy in other countries, little is known about its recurrence rate and recurrence peak, especially in China. The aim of the present research is to investigate how long after polypectomy follow-up should take and to analyze risk factors of recurrence. 1208 patients who received polypectomies from five clinical research centers in four regions of China (Shanghai, Guangzhou, Nanjing and Beijing) were included. They were divided into 4 groups: group A (follow-up ≤1 year after polypectomy), group B (follow-up 2–3 years after polypectomy), group C (follow-up 4–5 years after polypectomy), and group D (follow-up > 5 years after polypectomy). The sex, age, adenoma location, size, number, and pathological characteristics were compared. On the whole, the recurrence rate was 59.46% in group A, 61.09% in group B, 78.07% in group C, and 87.12% in group D, which indicated an increased tendency with a prolonged follow-up duration. There was a significant difference between group A and C or D, and between group B and C or D (P < 0.01), but there was no statistical difference between group A and B. Additionally, the recurrent patients in the first year had a recurrence rate of 97.33% in the first three years (59.46/61.09), which means that the peak of recurrence was almost entirely concentrated in the first year. The recurrence rate was higher in males and the elder.

The risk factors included multiple numbers, villous feature, high-grade dysplasia of medium or smaller size and location in the distal colon. In conclusion, the peak of recurrence was almost totally concentrated in the first year; meanwhile, the first year follow-up is of critical importance in China. It may not be necessary to do the follow-up examination during the second and third years, but after three years, another colonoscopy should be undertaken.

Keywords colorectal adenoma; polypectomy; follow-up; recurrence; risk factor

1 Introduction

Colorectal cancer (CRC) is a common malignant tumor of the digestive system. Its mortality rate is still high in North America [1] and has the tendency of increase during recent years in China. Nearly 90% of CRC is developed from colorectal adenoma (CRA) [2,3], and the CRA rate is relatively higher in the elderly. It has been observed by colonoscopy that about 7.9% of patients aged between 50–75 years with abdominal pain had over 1 cm villous CRA, 1.6% of which have been accompanied with high-grade dysplasia [3], while in Europe, the rate of prevalence was as high as 21.3% and 6.7% in those elderly with the average hazard ratio CRA or high-grade dysplasia CRA [4]. It has been shown that early diagnosis and resection of CRA can prevent CRC; thus, colonoscopy has been shown to be a critically important procedure. Studies have proved that sigmoidoscopic screening of those asymptomatic
patients over 50 years old could detect CRC early and reduce the mortality rate significantly [5,6]. The combination of polypectomy and follow-up could reduce CRC incidence by more than 75% [3]. However, the recurrence rate of CRA is high. Some studies reported that the recurrence of CRA three years after a polypectomy could reach as high as 40%–50% [7]. Therefore, close follow-up remains very important for prevention. The National Polyp Study [8], which compared one-year and three-year surveillance intervals, had already found no difference in risk for a subsequent large adenoma. Additionally, the Funen Adenoma Follow-up Study [9], which compared two-year and four-year surveillance intervals, also found no difference in risk for new adenomas after four years (5.2% vs 8.6%, which was not statistically significant). These two trials suggest that polyp surveillance before three years has little value. Although there are guidelines for colonoscopy surveillance after polypectomy in the US [10] and other countries [11], very little analysis and research was found on recurrence period after polypectomy, and the exact peak recurrence was still unclear in clinics, especially in China. Our study aimed to investigate such periods and to analyze CRA recurrence risk factors.

2 Materials and methods

2.1 Subjects

From 1980 to 2009, a total of 1376 patients from five clinical centers in China were included in this study. All of the patients who had lower gastrointestinal tract symptoms (e.g., changes in bowel habits, abdominal pain, and bloody stool or positive fecal occult blood), were recruited from five medical centers (Chinese in Guangdong province, southern China; Jiangsu province and Shanghai, eastern China; and Beijing, northern China). No heterogeneity was found to exist among these patients. Each patient had received a CRA polypectomy and had a minimum of one follow-up colonoscopy after the polypectomy.

2.2 Study strategy

The relevant information of the 1376 patients was retrospectively analyzed. Patients were excluded if all colonoscopies showed no CRA or if the patient suffered from inflammatory bowel disease, familial adenomatous polyposis (FAP), hereditary non-polyposis colorectal cancer (HNCPP), or had a family history of colonic cancer or FAP or HNCPP. The patient’s sex, age, and other general information were all recorded and included. All colonoscopies had to be performed by skilled endoscopists using standard colonoscopies (CF 200L, 240L, or 260L; Olympus® Optical Co., Ltd, Tokyo, Japan). Bowel preparation included two to five doses of polyethylene glycol electrolyte solution in the morning prior to an afternoon examination, or the previous evening for those patients undergoing examination in the morning. If the colonoscopy did not reach caecum, it was regarded as not qualified and was not included for further analysis.

The colonoscopists recorded the extent of the examination and the quality of the bowel preparation. After observation of CRA under a colonoscope, its location, size, and number were recorded. Polyps up to 10 mm in diameter were removed immediately and larger polyps were removed during a separate procedure, such as cautery snare and ligation and endoscopic mucosal resection (EMR). All CRA samples were sent for pathological analysis and their features and those with carcinogenesis or high-grade dysplasia changes were recorded. After CRA removal, all patients received follow-up randomly. According to the period of time until the follow-up, they were divided into four groups: group A (follow-up ≤ 1 year after polypectomy), group B (follow-up 2–3 years after polypectomy), group C (follow-up 4–5 years after polypectomy), and group D (follow-up > 5 years after polypectomy). The recurrence of CRA in the follow-up, as well as the patient’s age, sex, and adenoma location, number, size, and pathological features, were compared individually (Fig.1).

The study protocol was approved by the institutional review boards at each participating center. This study was conducted in accordance with the research code on human experimentation of our institutional medical ethical committee, as well as in agreement with the Helsinki Declaration of 1975, as revised in 1983.

2.3 Related definitions

In this study, if the endoscopist finds a polyp, regardless of whether a polyp is located in the same or different positions in a follow-up colonoscopy after the polypectomy, such a finding is considered to be the recurrence of polyps.

The size of adenoma [12] before polypectomy was determined by visual estimation with use of the open biopsy forceps (7 mm) or measured in vitro after removal. In instances in which an individual had multiple adenomas, we reported information on the largest of them.

Patients with intramucosal carcinoma or carcinoma in situ were classified as having high-grade dysplasia. Cancer was defined as the invasion of malignant cells beyond the muscularis mucosa. Statistical analysis was based on the most serious CRA in patients as proved by pathological diagnosis.

2.4 Statistical analysis

The chi-squared analysis was performed in this study, and a P value of less than 0.05 was treated as a statistically significant difference.