Research Article

Histological profile and risk factor analysis of colonic polyp: distal villous type is common predictor of high grade cytological dysplasia

Abstract

Introduction: Colorectal cancer is the third most common cancer worldwide and also one of the leading cause of mortality in western countries. The main target of our study is to evaluate the profile of polyp and compare degree of dysplasia by patients age, sex, site of polyp, number of polyp and histological type.

Materials and methods: It is a single centered, retrospective study. 88 adult patients who had at least one neoplastic adenoma found during colonoscopy within 2009 to 2010 were retrospectively analyzed. Patients who were less than 18 years old, with family history of colon cancer, with family history of polyposis syndrome, with history of colonic resection and with IBD are excluded. Moreover, patients who already had colon cancer and whose pathological reports were not found are also excluded. We carried out our statistical analysis using SPSS21 software.

Results: 88 patients with adenomatous polyp are selected where 62 (70.5%) are male and 26 (29.6%) are female. Age range was in between 31-81 where mean age was 60.2. Among them 56 (63.6%) patients had single polyp and 32 (36.4%) had multiple colon polyp. Most of the patients 58 (65.9%) left sided adenoma and 30 (34.1%) patients had right sided adenoma. The commonest histological type was tubular adenoma 55 (62.5%) followed by tubulovillous 28(31.8%) and villous adenoma 5 (5.7%). 29 (33%) patients adenoma showed mild dysplasia while 14 (15.9%) had adenoma with mild to moderate dysplasia. In addition, 25 (28.4%) patients with adenomas had moderate grade and 11 (12.5%) had moderate to severe and 9 (10.2%) had severe grade of dysplasia.

Conclusion: Distal polyp and villous histological type are more associated with high grade of dysplasia. Degree of dysplasia increased with age but showed weak association and there is no relationship between number of polyp and sex of the patients.

Keywords: colonic polyp, dysplasia, villous type, polypectomy, tubular adenoma

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Introduction

Colorectal polyp may be defined as growth of tissue on the lining of colon and rectum. It is assumed that adenomatous polyp is the most potent precursor of colorectal cancer.[1] Consequently colonoscopic polypectomy can reduce risk of colorectal cancer.[2] All polyps are not cancerous nonetheless large number of colon cancers grow as a consequence of adenomatous polyp.[3] Though colorectal cancer incidence rate is high in western countries, now a days it is reported high in Asian countries too.[4]

The colonic polyp is mainly classified into cancerous and non-cancerous polyp. The noncancerous polyp is a hyperplastic polyp, inflammatory polyp. Hyperplastic polyp is the commonest noncancerous polyp which is most commonly found in rectum and sigmoid colon. They have no malignant potential and histologically they are serrated polyps.[5] The adenomatous polyp is a cancerous polyp which may turn into cancer over time. The adenomatous polyp can be histologically classified into-

1. Tubular adenoma-It consists of interconnecting adenomatous gland. Approximately it consists of 20-25% of villous component. This is the most common type of polyps and it has low risk of developing cancer showing low grade dysplasia.

2. Villous adenoma-It consists of elongated gland extended from peripheral surface to central which results in forming projection. Here 75-80% are villous components and show relatively high grade dysplasia.

3. Tubulovillous adenoma-which consists of both tubular and villous components.

Comparatively 87% of all adenomas are tubular, and 8% are tubulovillous and rest are villous.[6] Though most of the cases are symptomless, sometimes polyps cause abdominal pain and dark colored stool due to bleeding and altered bowel habit.[7] Colonoscopy is the most potent and conductive method for not only polyp detection but also removal of polyp as therapeutic intervention.[8]

Materials and methods

i. It is a cross-sectional, single centered retrospective study. 88 patients were chosen for our study who had at least one polyp diagnosed during colonoscopy. Besides, the polyp must be adenomatous which is neoplastic. Only adult indoor patients of QILU hospital in China are included. Indication of colonoscopy is not included. Exclusion criteria are

ii. Patient under 18 years old

iii. Positive family history of colon cancer

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iv. Positive family history of polyposis coli

v. History of colonic resection

vi. Patient with IBD

vii. Patient already had colon cancer

viii. Whose pathological reports were not found

We get all demographic information like age, sex, size of polyp, degree of dysplasia, number and site of polyp as well as histological type from colonoscopy report and histopathology report. We found this from hospital database. Colonoscopy was done after adequate bowel preparation. Informed written consent were taken. All the colonoscopies were done by gastroenterologist using Pantex 11. Histopathology was performed on biopsy and polypectomy specimen.

Patients ages are classified into <50 years old, 50-70 years old and >70 years. Anatomical distributions are classified into Proximal colon (cecum, ascending colon, hepatic flexure, transverse colon and splenic flexure) and Distal colon (descending colon, sigmoid colon and rectum). Number of adenomatous polyps are described as single or multiple. Histo-Pathological findings and degree of dysplasia (mild grade, mild to moderate, moderate grade, moderate to severe degree and severe dysplasia) are also considered and analyzed. It is a patients based study not number of polyp based.

Statistics were computed and analyzed by using SPSS version 20. To evaluate the relationship between independent variables chi square test is used and P value less than 0.05 indicates statistical significance.

Result

On the basis of above selection criteria we obtained data from 88 patients. Among them 62 were male (70.5%) and 26 were female (29.6%). The age range of patients was in between 31-81 years where the mean age was 60.2 (SD-9.286). Most of the polyp patients are in between 50-70years group where we found 62 (70.5%) patients with polyp. Below 50 years group we found 10 patients (11.4%) and above 70 years it contained 16 (18.2%) patients. So age is a risk factor of developing colon cancer.

In our study we found majority of patients 56 (63.6%) out of 88 patients had only one polyp where 32 (36.4%) patients had multiple polyp. Among them 58 patients (65.9%) had distal polyps indicating that the polyps located in distal to splenic flexure (descending colon14%, sigmoid colon20%, rectosigmoid junction 4% and rectum27%) and 30 patients(34.1%) had proximal colon polyps (appendix 2%, cecum 7%, ascending colon 8%, transverse colon 13%, splenic flexure 4%) (Figure 1).

The most prevailing histological type of adenoma was Tubular adenoma for 55 (62.5%) patients. Subsequently it was Tubulovillous adenoma 28 (31.8%) and then Villous adenoma 5 (5.7%). The majority number of patients (n=29,33%) had adenomatous polyps showing mild dysplasia, where 14 patients (15.9%) had adenoma exhibiting mild to moderate degree of dysplasia. Meanwhile, 25 patients (28.4%) were in moderate dysplasia and the minor group of patient 11 (12.5%) and 9 (10.2%) had polyps with moderate to severe and severe dysplasia respectively (Figure 2). All data are calculated in percentage (Table 1).

Degree of dysplasia and its association with age, sex, number, site and histological types were described in (Table 2). The histological type of colon was the most independent risk factor for severe degree of dysplasia (p=0.000). Site of colon is another major risk factor of

severe dysplasia (p=0.004). The adenomatous polyp lying in distal to splenic flexure showed more advanced form of dysplasia. Detection rate of colon increases with the age of patient. In our study we did not find any meaningful relationship of sex and number of colon with degree of dysplasia.
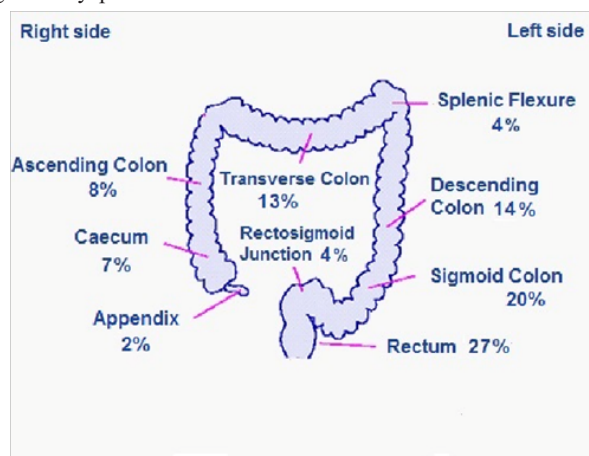

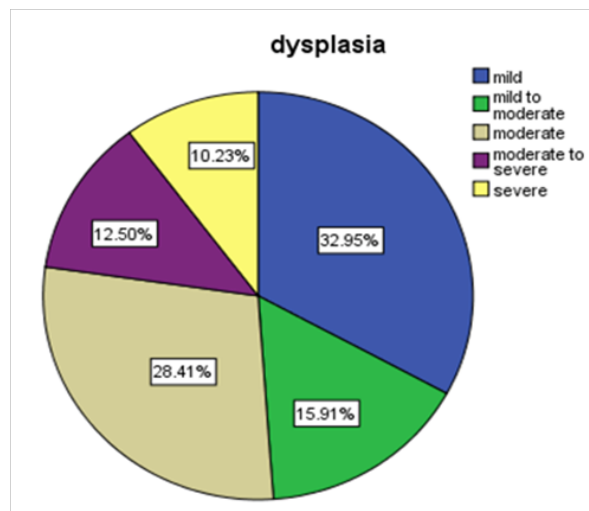**Figure 1** Distribution of colon polyp.

Figure 2 Percentage of degree of dysplasia of colon.

Table 1 Percentage of predictors of colon polyp

		Frequency	percent
Age	<50	10	11.4
	50-70	62	70.5
	>70	16	18.2
Sex	Male	62	70.5
	Female	26	29.5
Number	Single	56	63.6
	Multiple	32	36.4
Site	Proximal	30	34.1
	Distal	58	65.9
Histology	Tubular	55	62.5
	Tubulovillous	28	31.8
	Villous	5	5.7
Degree of Dysplasia	Mild	29	33
	Mild to moderate	14	15.9
	Moderate	25	28.4
	Moderate to severe	11	12.5
	Severe	9	0.2

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Table 2 Various degree of dysplasia and effect of age, number, histological type, sex and site of polyp on dysplasia

	Dysplasia						Total	P value
		Mild	Mild to moderate	Moderate	Moderate to severe	Severe		
Age	<50	5	0	1	4	0	10 11.4%	
	50-70	20	12	20	5	5	62 70.55 %	0.033
	>70	4	2	4	2	4	16 18.2%	
Number	Single	16	7	19	8	6	56 63.6%	0.392
	Multiple	13	7	6	3	3	32 36.4%	
Histology	Tubular	28	11	11	3	2	55 62.5%	
	Tubulovillous	1	3	11	7	6	28 31.8%	0.000
	Villous	0	0	3	1	1	5 5.7%	
Sex	Male	19	11	17	8	7	62 70.5%	0.892
	Female	10	3	8	3	2	26 29.5%	
Site	Proximal	16	0	10	2	2	30 34.1%	0.004
	Distal	13	14	15	9	7	58 65.9%	

Discussion

Colonic polyps are considered as premalignant lesions that may develop into adenocarcinoma as per sequence.[9,10] A main target of colorectal cancer screening by colonoscopy is to find and remove these precancerous polyp.[11] The colonoscopy is a highly sensitive but costly procedure. So it is not practiced as a routine procedure of colon cancer screening of all citizens in many Asian countries.

Our database included 88 patients having adenomatous polyps. Prevalence of polyp was found high in male (70.5%) rather than female (29.5%). Male female ratio we found was 2.2:1 which is nearer to ratio of 2:1 in countries such as Kuwait.[12] However it is slightly higher than the ratio (1.6:1) in another west Asian country, Iran.[13] But it is not an independent risk factor of developing colon cancer. Though it had been shown that the male showed higher dysplasia, it was not up to statistical significance (P=.892).

Age is a major independent risk factor. The maximum adenomas were detected within the age range of 50-70 and mean age was 60.2. The mean age is higher compared with few previous reports, for example, 56.5 in south Asian country Srilanka and 50 in West Asian country Iran. So Degree of dysplasia increased with advanced age (p<0.05).

Chance of developing cancer is closely related with histological type and site of the colon. In our study we found that the tubular adenoma (62.5%) was the most commonest neoplastic colon polyp followed by tubulovillous (31.8%) and villous (5.7%) adenoma in China. Though some South Asian countries find that the tubulovillous adenoma is the commonest histological type of colon polyps, Europe, USA, ASIA report that Tubular adenoma is the commonest type.[14–17]

In our study we found that most of the patients had adenomatous polyps lying in distal to splenic flexure (65.9%) and the minor group lay proximal to splenic flexure (34.1%). Left sided polyp had more tendency to show high grade dysplasia (p=0.004) Recto sigmoid part is the most common site of neoplastic polyp which is consistent with other study reports.[18]

This study had some limitations 1) Study was performed in a single academic center with small numbers of sample 2) It was a retrospective study where size of all adenomas was not found 3) All patients of this study were Chinese so the racial impact may exist 4) Though all investigations were done by specialists, the detection of some adenomas was unavoidably missed.

Conclusion

It was a retrospective study where we found that the prevalence of colonic polyps increased with age and the mean age was higher in East Asian country China than some West and South Asian countries. Most of the patients had single, distal polyp where tubular type is the most common one. Villous component is the most independent risk factor of high grade of dysplasia which may turn into adenocarcinoma.

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Conflicts of interest

The authors have no conflict of interest for this research.

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