

## RESEARCH COMMUNICATION

# Clinical & Pathology Characteristics of Colorectal Polyps in Iranian Population

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### Abstract

**Background & Aim:** Colon polyps are important lesions and a concern because of the potential for colorectal cancer, one of the most common causes of cancer-related deaths in Iran. The distribution of polyps in the colon may affect the efficacy of screening modalities. The aim of this study was to determine clinical and pathology characteristics of colorectal polyps in the Iranian population. **Methods:** This cross sectional survey covered 856 polypectomies in 716 patients, with anatomical distribution, size and histopathology of the polyps described in 2004-2009 in the educational hospital of Taleghani in Tehran. **Results:** Polyps were observed in 437 males and 279 females. The distribution was 3.12 percent located in the rectum, 19.6 percent in the sigmoid colon, 24.4 percent in the descending colon, 13.9 percent in the transverse colon, and 29.6 percent in the cecum and ascending colon. Some 77(9%) were non-neoplastic and 779 (91%) were neoplastic. Adenomas were present in 727 (85%) cases, of these 411 (56%) were left-sided and 316 (44%) were right-sided. Carcinoma was observed in 52 cases, 18(34.5%) being left sided and 34(65.5% of carcinomas) right sided. Of the total, 354 were advance polyp (> 1cm, villous type, high grade dysplasia), 87(34%) being found in patients under 50 years of age and 149 (58.6 %) being right sided. **Conclusion:** This study showed a significant number of adenomas and carcinomas to lie proximal to the splenic flexure. Thus, it is expected that examination of the colon limited to the splenic flexure would miss 44% of such lesions. The increasing right-sided prevalence of these lesions with age suggests that evaluation of the proximal bowel is particularly important in older people. In addition there were higher stages of dysplasia and malignancy in larger polyps.

**Keywords:** Polyp distribution - polypectomy - pathology - screening significance

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### Introduction

The term polyp of the colon refers to a protuberance into the lumen from the normally flat colonic mucosa. Polyps are usually asymptomatic but may ulcerate and bleed, cause abdominal pain, and, when very large, produce intestinal obstruction. Colonic polyps are usually classified as neoplastic, hamartomatous, nonneoplastic, and submucosa. Hyperplastic polyps are the most common nonneoplastic polyp in the colon. They are small nodules or polypoid lesions composed of normal cellular components that may be indistinguishable grossly from adenomatous polyps. They do not exhibit dysplasia and have a characteristic stellate histologic appearance on cross section. Hyperplastic polyps are typically located in the left colon and are less than 5 mm in size (Provenzale et al., 1990; Weston et al., 1995). They only rarely develop into colorectal cancers. Multiple studies have evaluated the risk of proximal neoplasms in patients found to have distal hyperplastic polyps (O'Brien et al., 1990; Rex et

al., 1992; Bensen et al., 1999; Dave et al., 2003; Lin et al., 2005). A systematic review that included 18 studies estimated that 21 to 25 percent of patients found to have a distal hyperplastic polyp had a proximal neoplasm.

Inflammatory pseudopolyps are irregularly shaped islands of residual intact colonic mucosa that are the result of the mucosal ulceration and regeneration that occurs in inflammatory bowel disease (IBD). These polyps are typically multiple and scattered throughout the colitic region of the colon.

Two-thirds of all colonic polyps are adenomas, which are common in the general population. They are by definition dysplastic and thus have malignant potential. Nearly all colorectal cancers arise from adenomas, but only a small minority of adenomas progress to cancer. Approximately 30 to 40 percent of the United States population over the age of 50 have one or more adenomas whereas the cumulative colorectal cancer risk is about 5 percent. Nevertheless, the detection and removal of adenomatous polyps significantly decrease

**Table 1. Anatomical Distribution of Colorectal Adenomatous Polyps**

| Anatomical Distribution | Ascending & Cecum | Transvers | Descending | Sigmoid | Rectum |
|-------------------------|-------------------|-----------|------------|---------|--------|
| Tubular                 | 130               | 57        | 134        | 133     | 84     |
| Tubulovillous           | 73                | 39        | 41         | 20      | 14     |
| Villous                 | 51                | 23        | 29         | 15      | 8      |
| Total                   | 254               | 119       | 204        | 168     | 106    |

the morbidity and mortality associated with colorectal cancer. Age is a major risk factor for the development of colonic adenomas. Colonoscopic screening studies in asymptomatic people suggest that the prevalence of adenomas is about 25 to 30 percent at age 50 (Rex et al., 1991; 1993; 1995) and autopsy studies have found rates as high as 50 percent by age 70 (Williams et al., 1982). Adenomatous polyps are more common in men (Rex et al., 1995). An adenoma that is diagnosed at the same time as an index colorectal neoplasm is called a synchronous lesion. One that is diagnosed at least six months later is considered metachronous. Thirty to 50 percent of colons with one adenoma will contain at least one other synchronous adenoma (Carlsson et al., 1987). The location of adenomatous polyps has important implications for screening programs. During the last decades, a shift in anatomic distribution of polyps from the left to the right colon has been inferred from longitudinal studies of metachronous colorectal cancer location. Preliminary, retrospective data suggest that the African-American population may be most predisposed to the occurrence of right-sided colonic adenomas (Ozick et al., 1995). Advancing age is also a risk factor for right-sided polyps and cancers (Patel et al., 2001). The histologic features and size of colonic adenomas are the major determinants of their malignant potential. The glandular architecture of adenomas is characterized as tubular, villous, or a mixture of the two (O'Brien et al., 1990): Tubular adenomas account for more than 80 percent of colonic adenomas. They are characterized by a network of branching adenomatous epithelium. To be classified as tubular, the adenoma should have a tubular component of at least 75 percent. Villous adenomas account for 5 to 15 percent of adenomas and . They are characterized by glands that are long and extend straight down from the surface to the center of the polyp. To be classified as villous, the adenoma should have a villous component of at least 75 percent. Tubulovillous adenomas, having 26 to 75 percent villous component, account for 5 to 15 percent of adenomas. Polyps are further categorized as sessile if the base is attached to the colon wall, or pedunculated if a mucosal stalk is interposed between the polyp and the wall. Small polyps (<5 mm, also known as deminutive are rarely pedunculated. It is important to appreciate that while adenomas are most commonly found within raised lesions, up to 27 to 36 percent are flat (Rembacken et al., 2000; Saitoh et al., 2001; O'brien et al., 2004; Soetikno et al., 2006).

**Materials & Methods**

This is cross sectional study that covered 716 patients with colorectal polyps. These patients referred to

**Table 2. Frequency of Size of Polyps**

|               | <1 CM | 1-2 CM | >2CM |
|---------------|-------|--------|------|
| Tubular       | 323   | 31     | 60   |
| Tubulovillous | 50    | 53     | 84   |
| Villous       | 9     | 20     | 97   |
| Total         | 382   | 104    | 241  |

gastrointestinal department of Taleghani hospital in 2004-2008. Reasons for colonoscopy included: abdominal pain, gastrointestinal bleeding, weight loss, anemia or colorectal cancer screening. Gastroenterologists performed polypectomy after full colonoscopy examination by OLYMPUS CV-240. Colonoscopy results were entered in data base of colonoscopy software by gastroenterologists. Samples after polypectomy were transferred in pathology department. Two pathologists evaluated histopathology of samples and pathology reports were reviewed by the researchers. Data of colonoscopy and pathology reports were analyzed by spss.

**Results**

Of all polyps observed 437 males and 279 females had colonoscopic polypectomies. The mean age was 44.3 yr (15-79 yr). Of all 856 polyps in these 716 patient ,106(12.3%) were in rectum, 168(19.6%) were in sigmoid,209(24.4%)were in descending colon, 119(13.9%) were in transverse colon and 254(29.6%) were in cecum and ascending colon(Table 1 ).140 of these patients had synchronous lesions.

Of all polyps 77(9%) were non-neoplastic and 779(91%) were neoplastic. Adenomas were present in 727(85%) cases and of these ,411 (56% of adenomas) were left-sided and 316(44% of adenomas) were right-sided . Carcinoma was observed in 52 cases, of these 18(34.5%) were left sided and 34(65.5% of carcinomas ) were right sided.

A total number of 354 were advance polyp(> 1cm ,villous type, high grade dysplasia )and 87(34%) of Advance polyps were in under 50 year patients and 149 (58.6 %) were right sided.

Between all examined polyps only 241 were greater than 2 cm in diameter and 104 were 1-2 cm size and 382 were less than 1cm in size (Table 2).

**Discussion**

Clinical management of the malignant polyp is one of the most challenging dilemmas in gastroenterology. A thorough knowledge of the various endoscopic, histological and clinical variables is needed in order to unravel the best treatment for each patient. The National Polyp Study (NPS), a randomized clinical trial to evaluate

effective surveillance of patients discovered to have one or more colorectal adenomas, was the framework for this statistical analysis which used a multiple logistic model to assess the independent risk factors of patient and polyp characteristics associated with high-grade dysplasia in adenomas. The database included 3371 adenomas from 1867 patients. Adenoma size and the extent of the villous component were found to be the major independent polyp risk factors associated with high-grade dysplasia ( $p$  less than 0.0001). The adjusted odds ratios were 3.3 for medium-sized adenomas and 7.7 for large adenomas relative to small adenomas and 2.7 for villous A adenomas, 3.4 for villous B adenomas, and 8.1 for villous C and D adenomas relative to tubular adenomas. Increased frequency of high-grade dysplasia in adenomas located distal to the splenic flexure was attributable mainly to increased size and villous component rather than to location per se. The adjusted odds ratio was 1.4 ( $p$  less than 0.11) for left-sided location. Multiplicity of adenomas affected the risk for high-grade dysplasia in patients but was dependent on adenoma size and villous component and was not an independent factor. The adjusted odds ratio was 1.3 ( $p$  less than 0.17) for multiplicity. Increasing age was associated with risk for high-grade dysplasia in patients, and this effect was independent of the effect of adenoma size and histological type. The adjusted odds ratio was 1.8 ( $p$  less than 0.0016) for age greater than or equal to 60 yr. Gender was not associated with high-grade dysplasia. The adjusted odds ratio was 1.0 ( $p$  less than 0.95) for men. The size of the patient series, the prospective nature of the data collection, the completeness of information on all patients, the requirements of complete examination of the entire colon and pathological examination of all lesions encountered, and the exclusion of patients with previously diagnosed adenomas are, collectively, features unique to this study. The detailed model provided by the analysis integrates multiple patient and adenoma factors associated with high-grade dysplasia in colorectal adenomas.

In other study Colorectal carcinoma is one of the most common causes of cancer-related deaths in Australia. The distribution of polyps in the colon may effect the efficacy of a screening modality. The aim of this study was to determine the age-matched anatomic location and histologic type of colorectal polyps observed at colonoscopy over a 10-year period at our endoscopy unit. Endoscopy reports on 2,578 patients were reviewed; polyp/lesion histology and location (left, right, or both) were determined in 2,553. Of all polyps observed, 1,310 (51%) cases were left-sided, 510 (20%) were right-sided, and 733 (29%) were synchronous. Adenomas were present in 1,659 cases (65%); of these, 734 (44%) were left-sided only and 405 (24.5%) were right-sided only. Carcinoma was observed in 189 (7%) cases, of which 71 (37.5%) were left-sided only. There was an increased right-sided prevalence of adenoma or carcinoma with age ( $p = 0.0029$ ). This was not a screening study, but it has shown that a significant number of adenomas and carcinomas lie proximal to the splenic flexure. Thus, in the absence of left-sided lesions, it is expected that examination of the colon limited to the splenic flexure would miss 23% of such lesions. The increasing right-sided prevalence

of these lesions with age suggests that evaluation of the proximal bowel is particularly important in older people.

In conclusion, this study has shown that a significant number of adenomas and carcinomas lie proximal to the splenic flexure. Thus, in the absence of left-sided lesions, it is expected that examination of the colon limited to the splenic flexure would miss 44% of such lesions. The increasing right-sided prevalence of these lesions with age suggests that evaluation of the proximal bowel is particularly important in older people. In addition there were higher stages of dysplasia and malignancy in larger polyps.

This study supports previous work that suggests that there is a significant shift to the right in the anatomical distribution of polyps in population. It also shows that the

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