

RESEARCH COMMUNICATION

Demographic and Anatomical Survey of Colorectal Polyps in an Iranian Population

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Abstract

Objective: Asian countries generally have low incidences of colorectal cancers (CRCs). One approach to prevention is based on recognition and removal of polyps. The aim of this study was to determine basic demographic features, anatomic distribution and characteristics of colorectal polyps in a local Asian population for comparison with western data. **Methods:** We here performed a retrospective chart review of 194 patients with colorectal polyps detected by endoscopy [total colonoscopy in 136 cases (73.1%), and flexible sigmoidoscopy in the remainder] during 1992-2005, focusing on descriptive statistics for categorical variables, including distribution pattern and histology. Cold biopsy in 14 cases, piecemeal endoscopic resection in 5 patients, and usual snare polypectomy in the remainder were performed. Patients with polyposis syndromes were excluded from the analysis. **Results:** The average age of patients was 43.2 yr (range 2-80) with 71% being males. Most of the polyps were presented in 5th decade ($p=0.029$). A total of 32 (17.2%) had synchronous proximal polyps (15% adenomas), and 154 cases had solitary polyps. The vast majority of the polyps were left sided and the most frequent type was adenoma (63%), with a villous component in 37.1%. Coexistent cancer was seen in 10.9% of cases. **Conclusion:** In this Iranian population, the majority of polyps are left sided. The incidence of adenomas and their histology appear comparable to data for western patients, but with a significantly lower rate for synchronous neoplastic lesions.

Key Words: Demographics - anatomic sites- colorectal polyps

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Introduction

A gastrointestinal (GI) polyp is a discrete mass of tissue protruding into the lumen of the bowel (Steven, 2002). Most polyps found on flexible rectosigmoidoscopy (FS) are hyperplastic (HP) or small tubular adenomas (Farraye and Wallace, 2002). Colorectal cancer (CRC), one of the most common malignancies in the industrialized world, usually arises from adenomas (Viner et al., 2002). Although CRC causes substantial morbidity, mortality and medical costs, it is a highly preventable form of cancer, based on recognition and removal of polyps (Lorn et al., 2002; Muller and Sonnenberg, 1995; Hixson et al., 1994).

Asia is generally a low incidence region for CRC (Parkin et al., 1997), with demographic differences from western patients (Goh et al., 2005). Although the incidence of CRC is low in Iran, in comparison with other GI cancers (Alireza et al., 2005; Babaei et al., 2005), there are reports of sharp increase during the last 2-3 decades. In a review of English language articles in Medline up to 2005, only one paper was found with epidemiological data for Iran (Haghighi et al., 1997). The present study was therefore conducted with the aim of determining basic demographic features of

patients with colorectal polyps, their anatomic distribution and histopathological characteristics.

Materials and Methods

Patients

We included in this descriptive study all consecutive lower gastrointestinal (LGI) endoscopic examinations in which one or more polyps were detected over a 14 year (1992-2005) period in our institute, using endoscopy report sheets filled in at the time of LGI endoscopy.

Procedures

Total colonoscopy was performed for 136 (73.1%) patients [adenomas (97), polyps greater than 1 cm with histology other than adenoma (6), suspicious cases of synchronous lesions at double contrast barium enema (DCBE) (6), surveillance cases (6), patients with multiple polyps (32), but failed to reaching to cerum (11 cases)]. The remainder underwent flexible sigmoidoscopy (FS) up to the splenic flexure, and DCBE 1-7 days afterwards for synchronous lesions. Cold biopsy was taken in 3 patients with large sessile polyps (1.5-2.5 cm in diameter) and 11

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Table 1. Indications for LGI Endoscopy in Patients with Colon Polyps at Different Decades of Life

Chief complaint/Decade	1	2	3	4	5	6	7	8	9	Total (%)
Hematochesia	21	16	10	17	20	11	19	4	-	118 (63.1)
Bloody diarrhea	1	3	2	6	2	1	1	-	-	16 (8.5)
Intermittent diarrhea and Constipation	-	-	4	-	5	-	-	-	-	9 (5.8)
Chronic diarrhea	-	1	2	-	6	3	4	-	1	17 (9)
Abdominal pain	-	-	2	3	3	1	8	4	-	21 (11.2)
Cancer surveillance	-	-	-	-	3	1	2	-	-	6 (4)
Total (%)	22(11.8)	20(10.7)	20(10.7)	26(13.9)	39(20.8)	17(9)	34(18.2)	8(4.3)	1(0.5)	187(100)

cases with polyps less than 5 mm. In 5 patients with large polyps (2-3 cm) piecemeal endoscopic resection by snare was performed. All other polyps detected during endoscopy, including one of the larger polyps in a multiple polyp case, were removed by snare polypectomy. Polyp histology was determined by standard criteria.

The size of each polyp was established with open biopsy forceps, or by ruler with polypectomized specimens. The anatomic areas were divided as follows: first 12 cm of distal colon, rectum; 12-25 cm, sigmoid colon, and the remainder according to anatomic landmarks (i.e splenic and hepatic flexure and cecum).

Exclusion Criteria

Patients with polyposis syndromes were excluded.

Follow up

To determine the incidence of polypectomy complications of perforation and significant bleeding, patients were contacted 1-7 days after endoscopy via telephone, or they had a follow-up visit to the gastroenterology clinic within 2-4 weeks.

Statistics

Chi Square calculations with MSTSTC software (Michigan University, Version 1.42) were used to determine differences between categorical variables. The same software was used to calculate the mean age of the patients.

Results

Indications for LGI endoscopy, in all patients, are presented in Table 1. The most frequent presenting symptom was rectal bleeding ($p=0.00001$), except in the 8th and 9th decades.

Table 2. Anatomic Distribution and Size of the Polyps

Segment Size (mm)	Rectum	Sigmoid colon	Descending colon and splenic flexure	Transverse colon	Ascending colon and hepatic flexure	Total (%)
< 5	10	15	5	6	2	38 (24.7)
6-10	29	20	16	2	5	72 (46.7)
11-20	9	13	8	3	1	34 (22)
> 20	7	3	-	-	-	10 (6.5)
Total (%)	55 (35.7)	51 (33.1)	29 (18.8)	12 (7.8)	7 (4.5)	154 (100)

In a total of 194 patients one or more polyps was detected. The average age of patients was 38.2 yr (range 2-90), with 71% males. Eight (4.1%) harboring polyposis syndromes with more than 100 polyps in the colorectum were not further studied. In 32 of the 186 (17.2%) patients, 2-5 polyps (synchronous polyps) was detected. Out of 32 synchronous polyps, 28 (15%) were adenomas, and 6 (3.2%) were hyperplastic (4 cases) or juvenile (2 cases). One hundred and fifty-four patients with a solitary colorectal polyps were included in the analysis.

Data for anatomic distribution and size of solitary polyps are summarized in Table 2. Most of the patients with polyps presented in the 5th decade, this being significant in comparison with other age groups ($p=0.029$). Polyps measuring 6-10 mm were most common ($p=0.001$). All of the polyps measuring more than 20 mm were detected in patients older than 3th decade, and the smaller ones had almost uniform distribution between decades.

The rectosigmoid region was the most common segment involved ($p=0.01$). The distribution of the polyps by colonic segment and histology is given in Table 3. A mixed adenoma-hyperplastic type was seen in 12 (7.5%) patients, but these were classified as adenomas. Adenomatous polyps were significantly more frequent than other histologic types ($p=0.0004$). They were located more commonly in the rectosigmoid segment with comparing to transverse and ascending colon ($p=0.03$). This was also the case for hyperplastic (HP) and juvenile polyps ($p=0.02$). Coexisting (synchronous) carcinomas were detected in 16 cases with adenomatous polyps (10.9%).

Histologic types of adenomatous polyps were as follows: tubular, 61 (62.9%); villous, 13 (13.4%); and tubulovillous, 23 (23.7%). The tubular type was significantly most common ($p=0.00001$). Table 4 summarizes data for histologic types of polyps in different age and sex groups. The occurrence

Table 3. Anatomical Distribution of Polyps by Colonic Segment and Histopathology

Segment Histology	Rectum	Sigmoid	Descending colon and splenic flexure	Transverse colon	Ascending colon and hepatic flexure	Total (%)
Adenoma	24	29	21	14	8	97 (63)
Hyperplastic	10	7	3	1	-	21 (13.6)
Juvenile	18	11	4	-	-	33 (21.4)
Inflammatory	-	1	1	-	-	2 (1.3)
Leiomyoma	-	1	-	-	-	1 (0.7)
Total (%)	54(35)	48(31.2)	29(18.9)	15(9.7)	8(5.2)	154 (100)

Table 4. Histology of Solitary Polyps According to Age and Sex

Decade Histology		1	2	3	4	5	6	7	8	9	Total
Adenoma	M	-	2	1	8	21	7	13	2	-	54 (35.8)
	F	1	2	9	7	8	5	6	4	1	43 (28.5)
Hyperplastic	M	-	2	2	4	3	1	-	1	-	13 (8.6)
	F	-	2	1	1	2	-	2	-	-	8 (5.3)
Juvenile	M	16	8	1	3	-	-	-	-	-	28 (18.5)
	F	3	2	-	-	-	-	-	-	-	5 (3.3)
Total (%)		20 (13.2)	18 (11.9)	14 (9.3)	22 (14.7)	34 (22.5)	13 (8.6)	22 (14.7)	7 (4.6)	1 (0.7)	151 (100)

In addition, 2 cases of inflammatory polyp and one case of leiomyoma.

of adenomas was similar in males and females ($p > 0.05$), but hyperplastic and juvenile polyps were significantly more common in males ($p = 0.0001$). Adenomatous polyps were significantly more common in the 5th, 6th and 7th decades ($p = 0.00001$, 0.004, 0.00001, respectively), whereas juvenile polyps were common in 1th and 2th decades ($p = 0.00001$ and 0.02) and HP type with uniform distribution in 2th-5th decades ($p > 0.05$). The relationship between size and histologic types of polyps is shown in Table 5. Polyps measuring >5 mm and <20 mm were the most frequent adenomas ($p = 0.00001$ and 0.01).

Complications

No perforations occurred with the eradication of polyps or biopsies. Post-polypectomy hemorrhage was immediate in 4 and delayed for 1-6 days in 3 patients. For all of the patients, colonoscopy with heater probe coagulation of the bleeding polypectomy site resolved the bleeding.

Discussion

Colorectal polyps are classified histologically as neoplastic and non-neoplastic. Most CRCs arise from neoplastic adenomatous polyps (Bond, 2000). Men have a greater risk of polyps (OR=1.5) and tumors (OR =1.4) than

Table 5. Size and Histologic Types of Polyps

Size(mm) Histology	<5	6-10	11-20	>21	Total
Adenoma	31	37	20	9	97
Hyperplastic	5	15	1	-	21
Juvenile	1	20	11	1	33
Inflammatory	-	1	1	-	2
Leiomyoma	-	-	1	-	1
Total (%)	37(24)	73(47.4)	34(22)	10(6.5)	154(100)

women (Goh et al., 2005). In our series there was a male preponderance (71%). The risk of finding polyps and tumors at colonoscopy increases with age (McCashland et al., 2001) and the most common age of finding a polyp (especially adenoma) in our study was 5th decade (39%).

Colonic evaluation is generally prompted by a search for a cause of symptoms referable to the colon, the most common of diarrhea, and abdominal pain (Lorn et al., 2002). Presenting symptoms in our study were: hematochezia (64.2%), change in bowel habits, and abdominal pain. Nearly all of patients in the first and second decade with colorectal polyps sought physician assistance because of hematochezia.

The commonly used methods of screening for colonic neoplasia include fecal occult blood test, FS, DCBE, and colonoscopy (Lorn et al., 2002). Although screening by sigmoidoscopy can reduce mortality from cancer of the rectum and distal colon (Seley et al., 1992), colonoscopy is the method of choice for screening colon cancer (Ali et al., 2001). In practice, the combination of DCBE and FS is considered an acceptable alternative to colonoscopy. Distal hyperplastic polyps are not a strong predictor of risk for proximal adenomas and therefore do not warrant a full colonoscopy (Farraye and Wallace, 2002). Because rectosigmoid adenomas are associated with proximal adenomas, however, small polyps seen during sigmoidoscopy should be biopsied, and colonoscopy should be recommended for patients who are proved to have adenomas (Provenzale et al., 1990).

Incidence and anatomic distribution of colorectal polyps in high and low risk areas for CRCs are different (Viner et al., 2002; Muller and Sonnenberg, 1995; McCashland et al., 2001; Ali et al., 2001; Provenzale et al., 1990). In the McCashland and et al series from Portland only 57.4% of polyps were accessible for FS. This is in contrast to the pattern seen in Asian populations. In a recent study of 93

Thai children 88.2% of polyps were detected in the rectosigmoid region (Waitayakul et al., 2004). There was a similar rate (88%) in another study of 207 children in Pakistan (Mandhan, 2004). In our study 87.6% of polyps were accessible for FS, 68.8% of them located in the rectosigmoid region.

Persons at an increased risk of subsequent CRC include those with multiple adenomas or with polyps having the following characteristics : size greater than 1 cm, villous architecture ,or high grade dysplasia (Lorn et al., 2002). In our study 28.5% of polyps measured more than 1 cm (Table 2), and the most frequent type was adenoma (63%), with villous component in 37.1% of them. A study by Jerome et al from USA revealed 61% neoplastic and 38% of non-neoplastic type polyps in the colon (Wage et al., 1988). In other series, 70 % of resected polyps were adenomatous, including 70-80% tubular, 10-25% tubulo- villous, and less than 5% of villous types. In our series tubular adenoma was the most frequent type, this having the lowest risk of malignant transformation (Bond, 2000). All of the larger polyps (> 20 mm) in our study were located in the rectosigmoid segment.

The adenomatous polyp itself is regarded as a marker of a neoplastic-prone colon (Steven, 2002). Based on studies on Western populations, 30-50% of colons with one adenoma will contain at least one other synchronous adenoma, especially in older age groups (Eide and Stalsberg, 1978; Gottlieb et al.,1984). Synchronous polyps in our series were detected in 17.2% of patients, and coexistent cancer in 10.9% of cases with adenomas. This is significantly lower than in Western populations (P<0.05).

In our study 35% of patients had HP (13.6%) and juvenile (21.4%) polyps in the lower left colon (in our series 85.5% in the rectosigmoid region), which are considered to have no malignant potential (Bond, 2000). In a study by Islam et al on 150 patients with colorectal polyps at the USA, 36% of the polyps of the left colon and 13% of polyps in the right colon were of hyperplastic type (Islam et al., 2001).

In our Iranian population, the majority of colorectal polyps were accessible by FS. Among polyps found during LGI endoscopy, the incidence of adenoma and its subtypes were comparable with data for Western populations but synchronous neoplasms were significantly fewer. However, in cases with a distal adenoma a full colonoscopy should still be considered.

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