SJIF Impact Factor: 6.711

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

ISSN: 2457-0400
Volume: 8.
Issue: 3
Page N. 10-15
Year: 2024

Research Article www.wjahr.com

CHARACTERISTICS OF COLORECTAL POLYPS: CLINICAL, ENDOSCOPIC, AND HISTOPATHOLOGICAL FEATURES

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Article Received date: 26 December 2023 **Article Revised date:** 16 January 2024 **Article Accepted date:** 05 February 2024

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ABSTRACT

Background: Gastrointestinal polyps can become malignant, making them a major health risk. Colorectal cancer is the third most frequent disease worldwide. These polyps are distinct tissue masses that extend into the intestine lumen and can be solitary or numerous, pedunculated or sessile, sporadic or hereditary. This study aims to identify the clinical presentation, endoscopic descriptions, and histopathological features of Iraqi patients with colorectal polyps and to determine the histopathological types, size, and site of polyps in relation to age and sex to better understand their epidemiology and characteristics. **Method:** Cross-sectional analysis of 112 individuals with colorectal polyps from June 1, 2021, to June 1, 2023, from Baghdad teaching hospital records. The following information is gathered for each patient: Consider age, gender, history of bleeding per rectum, abdominal discomfort, weight loss, constipation, irritable bowel syndrome, single or numerous lesions, lesion size (<1 cm, 1-2 cm, >2 cm), and lesion site. Neoplastic (Tubular, Tubulovillous, Villous), Non-neoplastic (Hyperplastic, Inflammatory, Hamartoma), and Carcinoma lesions. Dysplasia only occurs in mild-to-severe adenomas. **Results:** This study on colorectal lesions shows a mean patient age of 53.8 years, with a majority over 40 years old, and a higher prevalence in males. Most lesions are solitary and small, primarily located in the rectum or sigmoid, with varying types and degrees of dysplasia. There's a notable correlation between lesion size, type, and patient demographics (age, gender), with larger lesions more likely to be carcinomas, especially in older and male patients. **Conclusion:** The study recommends a screening program in Iraq for tubulovillous adenomas with moderate to severe dysplasia to prevent malignant transformation and reduce mortality. It highlights that gastrointestinal polyps mainly affect males over 40, often presenting as solitary, small lesions in the rectum or sigmoid colon. There is a significant link between lesion size, location, and neoplastic potential, as well as between polyp type and patient demographics like age and gender.

KEYWORDS: Characteristics, Colorectal Polyps, Clinical, Endoscopic, Histopathological.

INTRODUCTION

Colorectal cancer is the third most common cancer in world, gastrointestinal polyps are a significant health concern due to their potential to develop into cancerous growths. These polyps are discrete masses of tissue that project into the lumen of the bowel, presenting in various forms in the colon, such as single or multiple, pedunculated or sessile, and sporadic or as part of an inherited syndrome.[1, 2, 3] Colonic polyps, in particular, are categorized into two principal groups: neoplastic and non-neoplastic polyps. Adenomas are subdivided into tubular, tubulovillous, and villous adenomas. Malignant forms encompass non-invasive carcinomas, carcinoma in situ, intramucosal carcinoma, and invasive carcinoma that penetrates the muscularis mucosae. Non-neoplastic polyps encompass a variety of types, including hyperplastic, mucosal, juvenile, Peutz-Jeghers, and inflammatory polyps.[1,4] Adenomatous polyps, a subtype of neoplastic polyps, are particularly noteworthy due to their neoplastic nature, as evidenced by histological examination. Tubular adenomas, characterized by a complex network of branching adenomatous glands, are the most common subgroup. Villous adenomas display adenomatous glands extending straight down from the

polyp's surface to its center, while tubulovillous adenomas exhibit features of both types. The degree of dysplasia in adenomas can be subjectively graded as mild, moderate, or severe based on certain cytological and architectural features. These adenomas are also classified into three size groups: less than 1 cm, 1 to 2 cm, and greater than 2 cm. The risk of cancer in adenomatous polyps is influenced by size, the presence of villous elements, high-grade dysplasia, and the number of adenomas.[1,4] Screening for colorectal cancer, involving fecal occult blood testing and lower endoscopy with polyp removal, has been shown to reduce mortality rates associated with colorectal cancer.[5,6,7] The prevalence of adenomatous polyps is influenced by factors such as the inherent risk for colon cancer in the population, age, gender, and family history of colorectal cancer. Data from various populations suggest a wide variation in the frequency of colonic adenomas, correlating with the risk for colon cancer and socioeconomic class. In low-risk areas like Japan, Costa Rica, and Colombia, adenoma prevalence rates are under 12%, while in intermediate and high-risk populations, such as Brazil and New Orleans, rates range from 30%-60%.[1,8] Despite the Middle East and Iraq being considered low-incidence areas for adenomatous polyps of the large bowel, recent studies like that of Al-Khalidi et al., which involved 1067 total colonoscopies, found that 4% had colorectal polyps, of which 45.5% were adenomatous.[9-14] This study aims to: Identify the clinical presentation, endoscopic descriptions, and histopathological features of a group of Iraqi patients with colorectal polyps and to determine the histopathological types, size, and site of polyps in relation to age and sex, providing a deeper understanding of the epidemiology and characteristics of colorectal polyps in this specific population.

METHOD

Cross sectional study of 112 patients with history of Colorectal Polyps, the data collected from record data in Baghdad teaching hospital from period 1st of June 2021 to 1st of June 2023. For each patient's the information's collected as following: Age groups (years), Gender, any history of Bleeding per rectum, any history of Abdominal pain, Weight loss, history of Constipation and Irritable bowel syndrome, the lesion either solitary or multiple, the size of lesion; <1 cm, 1-2 cm, >2 cm. and Site of lesion. The types of lesion as following; Neoplasia (Tubular, Tubulovillous, Villous), Non-neoplasia (Hyperplastic, Inflammatory, Hamartoma) and Carcinoma. Dysplasia occur only in adenoma so classified to (Mild, Moderate to severe).[15] Statistical analysis done by SPSS 22, frequency and percentage used for categorical data. Chi-square used for assessed association between categorical variables. P-value less or equal to 0.05 is consider significant.

RESULTS

Mean age 53.8 ± 8.7 years old. 92% of patients age 40 years and more, 57.1% of patients are males and 42.9% are females, 54.5% of patients have history of bleeding, 56.2% of patients have abdominal pain, (26.8%, 37.5%, 25%) of patients have weight loss, constipation and IBD respectively. 66.1% of patient have solitary lesion, 60.7% of patients the size of tumor less than 1, 48.2% of patients have lesion in rectum, and 27.7% of them the lesion in sigmoid. As shown in table 1.

Table 1: distribution of patients according to study variables.

variables		frequency	percentage
Age groups (years)	***<40***	9	8.0
	≥40	103	92.0
Gender	***male***	64	57.1
	female	48	42.9
Bleeding per rectum	***no***	51	45.5
	yes	61	54.5
Abdominal pain	***no***	49	43.8
	yes	63	56.2
Weight loss	***no***	82	73.2
	yes	30	26.8
Constipation	***no***	70	62.5
	yes	42	37.5
Irritable bowel syndrome	***no***	84	75.0
	yes	28	25.0
Number	***solitary***	74	66.1
	multiple	38	33.9
Size	***<1***	68	60.7
	1-2	35	31.3
	>2	9	8.0
Site	***rectal***	54	48.2
	sigmoid	31	27.7
	left colon	10	8.9

	transvers	9	8.0
	right colon	4	3.6
	cecum	4	3.6
Total		112	100

As shown in table 2 and fig 1; 39.29% of patients have tubvellus type while 23.21% of them have tuber and 18.75% of patients have hyperplastic type.

Table 2: distribution of patients according to types of lesions.

Types		**frequency**	**percentage**
Neoplasia	***Tubular***	26	23.2
	Tubulovillous	44	39.3
	Villous	5	4.5
Non-neoplasia	***Hyperplastic***	21	18.8
	Inflammatory	12	10.7
	Hamartoma	2	1.8
Carcinoma	***Carcinoma***	2	1.8
Total		112	100

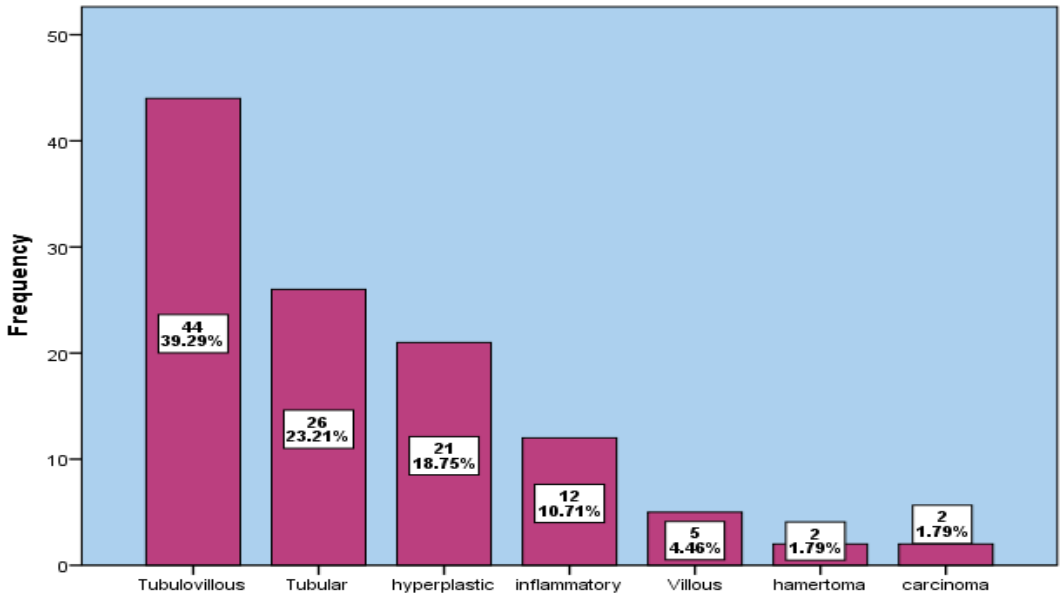

Fig 1: distribution of patients according to types of lesions.

As shown in fig 2; 44% of them have moderate to severe dysplasia and 56% of patients have mild dysplasia.

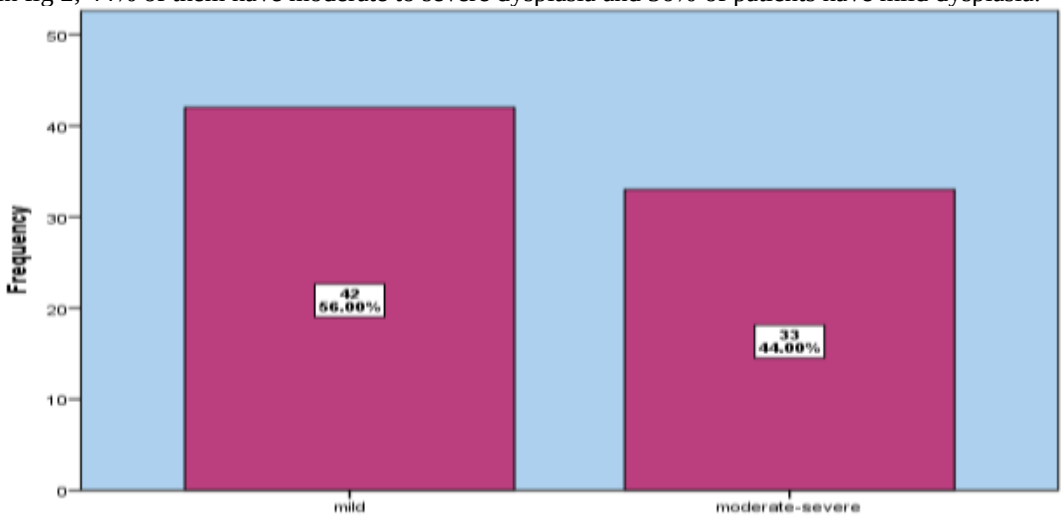

Fig 2: distribution of patients according to dysplasia.

Table 3 show; no significant association between dysplasia and types.

Table 3: association between dysplasia and types.

Variables		Dysplasia		P-value
		Mild	Moderate to severe	
Types	Tubular	18 (69.2%)	8 (30.8%)	0.22
	Tubulovillous	22 (50%)	22 (50%)	
	Villous	2 (40%)	3 (60%)	

P-value ≤ 0.05 (significant).

Table 4 show; significant association between size and site, 100% of patients have carcinoma with size more than 2 mm, while 71.4% of patients with non-neoplastic have size less than 1mm.

Table 4: association between size and Type.

Variables		Size (mm)			P-value
		<1	1-2	>2	
Types	Neoplastic	43 (57.3%)	25 (33.3%)	7 (9.4%)	**0.0001**
	Non neoplastic	25 (71.4%)	10 (28.6%)	0 (0%)	
	Carcinoma	0 (0%)	0 (0%)	2 (100%)	

Table 5 show there is significant association between type and (age groups, gender); 88.9% of patients with age less than 40 years' have non-neoplastic colorectal type, while 71.8% of patients with age more than 40 years' have neoplastic colorectal type. 75% of males have neoplastic colorectal type while 56.3% of females have neoplastic colorectal type.

Table 5: association between type and (age groups, site of lesions, gender).

Variables		Types			P-value
		Neoplastic	non neoplastic	Carcinoma	
Site	Rectal	34 (63%)	18 (33.3%)	2 (3.7%)	0.5
	Sigmoid	22 (71%)	9 (29%)	0 (0%)	
	left colon	9 (90%)	1 (10%)	0 (0%)	
	Transvers	7 (77.8%)	2 (22.2%)	0 (0%)	
	right colon	2 (50%)	2 (50%)	0 (0%)	
	Cecum	1 (25%)	3 (75%)	0 (0%)	
Age groups (years)	<40	1 (11.1%)	8 (88.9%)	0 (0%)	**0.001**
	≥40	74 (71.8%)	27 (26.2%)	2 (2%)	
Gender	Males	48 (75%)	14 (21.9%)	2 (3.1%)	**0.028**
	Females	27 (56.3%)	21 (43.8%)	0 (0%)	

DISCUSSION

The findings of this study reveal crucial insights into the epidemiology and characteristics of gastrointestinal polyps, aligning with several prior studies in the field. The mean age of patients in our study was 53.8 ± 8.7 years, with a significant majority (92%) being over 40 years of age. This age distribution is consistent with previous research indicating an increased prevalence of colorectal polyps in older populations.[16] Current study also found a higher prevalence of polyps in males (57.1%) compared to females (42.9%), which echoes the findings of study done in Iran (2020)[17], who reported a similar gender disparity in polyp incidence. This gender-based difference might be attributed to variations in hormonal influences, dietary habits, or genetic predispositions, as suggested in Norway.[18] The symptomatology reported in Current study, with 54.5% of patients presenting with a history of bleeding and 56.2% experiencing abdominal pain, aligns with the clinical presentations noted in the literature. For instance, a study in North Carolina[19] found bleeding as a common symptom in patients with colorectal polyps. However, Current study also reports a significant number of patients without weight loss (73.2%), constipation (62.5%), or inflammatory bowel disease (IBD) (75%), which is a deviation from typical expectations and warrants further investigation. In terms of polyp characteristics, 66.1% of our patients had solitary lesions, predominantly smaller than 1 cm (60.7%). This finding is in line with the study done in China[20], which also noted a higher frequency of smaller, solitary polyps. The prevalence of lesions in the rectum (48.2%) and sigmoid colon (27.7%) in our study is consistent with the anatomical distribution reported in Thailand[21], highlighting the rectum and sigmoid as common sites for polyp development. Current study showed that the most tubular adenoma has mild dysplasia and most of tubulovillous and villous adenoma have moderate to severe dysplasia, the histological types of polyps observed in Current study, with tubulovillous being the

most common (39.29%), followed by tubular (23.21%) and hyperplastic (18.75%), reflect trends noted in study done in KSA.[22] Our findings concerning dysplasia, where 44% of patients exhibited moderate to severe dysplasia and 56% had mild dysplasia, provide insights into the progression of polyps but did not show a significant association with polyp types, a point that diverges from some previous study done in India.[23] Interestingly, our results demonstrated a significant association between polyp size and neoplastic nature, with larger polyps (>2 mm) more likely to be carcinoma. This is supported by the work done in China[24], which also identified a correlation between polyp size and malignancy risk. Furthermore, Current study found significant associations between polyp type and patient demographics (age and gender), with all types more prevalent in individuals over 40 years and in males. This is in agreement with findings done in Netherlands[25], highlighting age and gender as risk factors for specific polyp types. Additionally, our research underscores a significant association between the type and site of the lesion, which is a critical aspect for clinical consideration, as discussed by study done in Japan.[26]

CONCLUSION

The study emphasizes the importance of establishing a screening program in Iraq for tubulovillous adenomas with moderate to severe dysplasia, given their heightened risk of malignant transformation. Implementing such a program could potentially interrupt the adenoma-carcinoma sequence, thereby enhancing treatment outcomes and reducing mortality rates. Further, the research indicates that gastrointestinal polyps predominantly affect individuals over the age of 40, with a higher incidence observed in males. The majority of patients exhibit solitary lesions, which are generally less than 1 cm in size and are most commonly found in the rectum or sigmoid colon. Notably, the study reveals a significant correlation between the size and location of the lesion and its neoplastic potential. Additionally, there is an evident association between the type of polyp and patient demographics, including age and gender.

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