**Insight on colonoscopy findings in South of Iraq. An experience from a tertiary center**

Zeinab Kamil Dhahi 1, Loma Almansori 2

1 Basrah Health Directorate Basrah, Iraq. 2 Department of internal medicine, college of medicine, university of Basrah, Basrah, Iraq.



**Corresponding author**: Zeinab Kamil Dhahi. E-mail: zeinabdhahikamil@gmail.com

**Disclaimer:** The authors have no conflict of interest.

**Copyright** © 2024 The Authors. Published by Iraqi Association for Medical Research and Studies. This is an open-access article distributed under the terms of the Creative Commons Attribution, Non-Commercial License 4.0 (CCBY-NC), where it is permissible to download and share the work, provided it is properly cited.

**DOI**: <https://doi.org/10.37319/iqnjm.6.1.2>

Received: Accepted: Published online:

**INTRODUCTION**

# Colorectal cancer being the third most commonly diagnosed cancer as well as it is the third most frequent cause of cancer-related mortality,1 The lifetime risk of developing invasive colorectal cancer is approximately 6% for both men and women,2 Colon cancer in the Arab world are relatively low, although in some of the affluent countries it ranks two after breast cancer.3,4

# Iraq had a 25% to 50% increase in the incidence of colorectal cancer between 1965 and 1994, according to a comparative study conducted in the Iraqi Cancer Registry.5 The incidence of colorectal cancer in Iraq is 2.6% compared to 6-13% in the developed countries and 17-51.1% in the industrialized nations.6

# The invention of the colonoscope has revolutionized the way we evaluate luminal diseases of the colon, colonoscopy offers an advantage of detecting cancer and the ability to remove precancerous lesions,1 so the primary goal of colonoscopy in most instances is the prevention of colorectal cancer-related death.7

# The adenoma detection rate (ADR), which is the proportion of average-risk patients undergoing screening colonoscopy in whom an adenoma or colorectal cancer is found, is regarded as a strong measure of colonoscopy performance quality that correlates with subsequent cancer risk.8-10 It has been suggested that adenomas should be detected in 25 % or more of men and 15 % or more of women who were 50 years of age and older.7 Cecal intubation, defined as the process where the colonoscope reaches a point proximal to the ileocecal valve with complete visualization of the entire cecum, should be achieved in ≥ 90 % of all colonoscopies and in ≥ 95 % of cases for screening colonoscopies. Documentation of reaching this landmark should be confirmed with photography of the cecal landmarks (i.e., appendiceal orifice and ileocecal valve).7 This quality indicator has been proposed due to the well-known findings that a large portion of colorectal neoplasms is located in the proximal colon, including the cecum.7 An additional measure that has now been added is the quality of the bowel preparation.8 A poor bowel preparation is associated with a prolonged cecal intubation time and withdrawal time, as well as a decrease in the detection of polyps overall.11,12 The ASGE(American Society for Gastrointestinal Endoscopy)/ACG(American Cancer of Gastroenterology) Task Force recommends that a colonoscopy be considered adequate if it allows detection of polyps 5 mm or larger.12 If inadequate, the colonoscopy should be repeated at a shorter interval, which is left to the discretion of the endoscopist. Recommendations for subsequent care, particularly surveillance interval for post polypectomy and post cancer resection, should also be implemented for optimal outcomes in colonoscopy.12

# In this study, we aimed to present the results of colonoscopic procedures performed in a Liver and Digestive system center in Basra governorate.

# MATERIALS AND METHODS

This is a retrospective study.

**Study Population**

The study population consisted of 698 consecutive subjects who underwent screening or diagnostic colonoscopy at Basra Center for liver disease and digestive system, between 2014, to February 2020. Subjects were scheduled for colonoscopy during a previous visit to the gastroenterology clinic.

Inaccuracy were unavoidable during data collection; those errors were due to deficient data recording mainly in 2014-2015 when the center was in its early establishment.

**Study Procedures**

Board-certified gastroenterologists, all of whom had dedicated, hands-on colonoscopic instruction as part of their fellowship training in gastroenterology, performed the procedures. Endoscopists used adult or pediatric variable-stiffness video colonoscopies

We used the endoscopic evaluation of lesion detection.

Patients were started on fluid diet 48h prior to the process and were given 1:1 diluted, 45 mL of sodium phosphate (Fleet phospho soda) orally, at 22:00 the day before the procedure and at 06:00 on the day of the procedure. Bowel cleansing was completed with a sodium phosphate enema, which was applied in the morning of colonoscopy. One to five mg midazolam was given during the process for sedation and 20-50 mg Hyoscine-N-butyl bromide (scopolamine butyl bromide) i.v was preferred as a spasmolytic. The investigations were performed by the Fujinon colonoscopy device.

**Statistical Analysis**

The primary outcome measure was the rate of adenoma detection, calculated alternately as the total number of neoplastic lesions detected divided by the number of subjects screened and as the proportion of subjects with at least one neoplastic lesion. The unit of analysis was the physician, not the subject, the demographic information, presentation and colonoscopic findings have been reported as frequencies and percentages.

Statistical tests were performed with the use of SPSS software, version 22.0.

# RESULTS

A total of 698patients were enrolled in this study,400 (57.3%) male and 298 (42.7%) female. The mean±SD age was 42.3±18.6 years, with age range between one year and 90 years (Figure 1).

#

**Figure 1:** Age to gender distribution of studied sample.

The rate of accessing the cecum was 86.8% (606/698) and the cause for not accessing the cecum in 92 patients were poor preparation, failure to tolerate the procedure or present of mass that interfere with the passage of colonoscope. The indication of colonoscope was shown in (Table 1)

The number of patients who proved to have CRC was 48out of 698 patients (6.9%). The adenoma detection rate was 12.3% (87 out of 698 patients) where from 6 subjects undergone the colonoscope, 2 subjects had adenoma. Other colonoscope finding according to predominant diagnosis was shown in (Table 2).

| **Table 1:** Classification of patients according to colonoscope indication. |
| --- |
| **Indication** | **Number** | **Percentage** |
| Bleeding per rectum | 306 | 43.8% |
| Chronic constipation | 126 | 18% |
| Melena | 19 | 2.7% |
| Bloody diarrhea | 38 | 5.4% |
| Iron deficiency anemia | 38 | 5.4% |
| Lower abdominal pain | 29 | 4.2% |
| For follow up | 18 | 2.6% |
| Screening | 6 | 0.9% |
| Mucus discharge | 12 | 1.7% |

| **Table 2:** Classification of patients according to colonoscope findings. |
| --- |
| **Colonoscope findings** | **Number** | **Percentage** |
| Normal | 208 | 29.8% |
| Adenoma | 87 | 12.3% |
| Cancer | 48 | 6.9% |
| Colitis | 149 | 21.3% |
| Hemorroidal disease | 166 | 23.8% |
| Diverticulosis | 10 | 1.4% |
| Solitary rectal ulcer | 20 | 2.9% |
| Finding secondary to previous pelvic radiation | 3 | 0.4 |
| Telangiectasia | 4 | 0.6% |
| Angiodysplasia | 1 | 0.1% |
| Segmental colonic neuromuscular disease | 2 | 0.3% |

# DISCUSSION

Colorectal neoplasm is an important health problem associated with high morbidity and mortality in Western countries. The incidence and prevalence of colorectal neoplasm in several Eastern countries have been increasing in recent decades and are now comparable to the rates seen in Western countries.13

According to Iraq cancer registry, the incidence of colorectal carcinoma was 6.49% of whole body malignancy in 2019.14

A recent study has confirmed a high rate of cecal intubation of their colonoscopies.15 The success rate in our study which was 86.7 percent, was higher than the rates from the other centers mentioned above. The inadequate bowel cleansing, the presence of a mass prevent the colonoscope from navigate through it, and patient compliance seem to be responsible for the low success rate in our study.

The most worrisome pathology among diseases that causes lower gastrointestinal symptoms is colorectal cancer. Mortality rates can be reduced by up to 30% with early diagnosis of colorectal cancer, which ranks second in cancer-related deaths.15,16 Colonoscopy is still the most trusted diagnostic tool in the screening and diagnosis of colorectal cancer. The studies within Turkey reported the incidence of colorectal cancer as 3% in Elazığ, and as 14.4% in Bursa,17 in our study, colorectal cancer rate was found as 6.9% with 48 patients. A full colon screening could not be performed for reasons pertaining to the tumor in six of our patients who were given a cancer diagnosis. Synchronous tumor incidence in colorectal cancer is known to range from 2% to 8%.18

It is assumed that colon cancers develop from neoplastic adenomatous polyps, therefore, even if a single polyp is detected during the test, it is recommended to view the entire colon and remove the polyp if appropriate.19 It has been reported that the incidence of colorectal cancer can be reduced by 76 to 90% by this approach.20 Studies indicate high rate of polyp detection as high as 20.7%.21,22 In our study, the percentage of polyp detection was determined as 12.3% in 87 patients. Bowles, et al.23 detected normal colonoscopic findings in 42.1% of their patients, our result identified normal finings in 29.8%.

In addition, it has been reported the finding of 22.5% polyps, 22% diverticuli, and 13.9% inflammatory disease.24 In our study, 1.4% had diverticulum, 12.3% inflammatory bowel disease, and 0.1% angiodysplasia. An additional pathology with unexplained pathophysiology and requiring surgical treatment is solitary rectal ulcer, which is characterized by single or multiple rectal mucosal ulcerations.25 In our series, twenty patients (2.9%) had a solitary rectal ulcer. The most frequent pathologies among colonoscopy findings are anorectal disorders. Within the group of anorectal diseases, hemorrhoids are most frequently detected. The accurate incidence of hemorrhoids is hard to ascertain due to the limited number of patients who seek medical attention for this issue. Riss et al, reported incidence as high as 38.93%.26 In our study, the rate of hemorrhoids was determined as 23.8%.

CONCLUSIONS

 We found that the success rate which is determined by the rate of accessing the cecum, was relatively lower than the approved standard due to causes related to patients , even so it is higher than the studies referred to in the study, the adenoma detection rate was low, our explanation is the small sample size as the centre is in its early inception.

**Limitations and recommendations**

Standardization and calibrations (in lesion detection and categorization) among different colonoscopists is always challenging, however, this need to be minimized in future prospective studies. Additionally, Larger sample size required to reflect the real situation in big city like Basra. Implication of the national colorectal cancer screening program is recommended.

**Ethical Clearance:** The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq.

**Conflict of Interest:** The authors declare that they have no conflict of interest.

**Source of Funding:** Self-funding

# REFERENCES

1. 1.Siegel RL, Wagle NS, Cercek A, Smith RA, Jemal A. Colorectal cancer statistics, 2023. CA: a cancer journal for clinicians. 2023 May;73(3):233-54.
2. 2.Rawla P, Sunkara T, Barsouk A. Epidemiology of colorectal cancer: incidence, mortality, survival, and risk factors. Gastroenterology Review/Przegląd Gastroenterologiczny. 2019 Jan 6;14(2):89-103.
3. 3. Al Zaabi A, Al Shehhi A, Sayed S, Al Adawi H, Al Faris F, Al Alyani O, Al Asmi M, Al-Mirza A, Panchatcharam S, Al-Shaibi M. Early Onset Colorectal Cancer in Arabs, Are We Dealing with a Distinct Disease?. Cancers. 2023 Jan 31;15(3):889.
4. 4. Elwali NE, Jarrah O, Alzahrani SG, Alharbi MB, Alhejaily AG, Alsharm AA, Elhassan MM. Colorectal Cancer in Saudi Arabia: The Way Forward. Asian Pacific Journal of Cancer Prevention: APJCP. 2023;24(1):13.
5. 5. Al-Bahrani ZR, Al-Bahrani AZ. The changes in the incidence of gastric versus colorectal cancer in Iraq during the period between 1965-2006. TOFIQ Journal of Medical Sciences. 2013 Sep 4;1(1):1-6.
6. 6. Ibrahem S, Ahmed H, Zangana S. Trends in colorectal cancer in Iraq over two decades: incidence, mortality, topography and morphology. Annals of Saudi Medicine. 2022 Jul;42(4):252-61.
7. 7. Cai W, Zhang X, Luo Y, Ye M, Guo Y, Ruan W. Quality indicators of colonoscopy care: a qualitative study from the perspectives of colonoscopy participants and nurses. BMC health services research. 2022 Aug 19;22(1):1064.
8. 8. John AK, Varughese B, Abushaikha SS, Hamdan AM, Pillai V, Ayash AM, Vincent PK, Sultan K, Al Ejji KM, Singh R, Alabdulla S. High Adenoma Detection Rates in Fecal Immunochemical Test-Based Colorectal Cancer Screening: Interim Results of the National Bowel Cancer Screening Program in Qatar. Cureus. 2022 Dec 6;14(12).
9. 9. Corley DA, Jensen CD, Marks AR. Can we improve adenoma detection rates? A systematic review of intervention studies. Gastrointestinal Endoscopy. 2011;74(3):656–65.
10. 10. Koïvogui A, Vincelet C, Abihsera G, Ait-Hadad H, Delattre H, Le Trung T, Bernoux A, Carroll R, Nicolet J. Supply and quality of colonoscopy according to the characteristics of gastroenterologists in the French population-based colorectal-cancer screening program. World Journal of Gastroenterology. 2023 Mar 3;29(9):1492.
11. 11. Theunissen F, Lantinga MA, Ter Borg PC, Ouwendijk RJ, Siersema PD, Bruno MJ, Trans. IT foundation study group. Efficacy of different bowel preparation regimen volumes for colorectal cancer screening and compliance with European Society of Gastrointestinal Endoscopy performance measures. United European Gastroenterology Journal. 2023 Jun.
12. 12. Clark BT, Protiva P, Nagar A, Imaeda A, Ciarleglio MM, Deng Y, Laine L. Quantification of adequate bowel preparation for screening or surveillance colonoscopy in men. Gastroenterology. 2016 Feb 1;150(2):396-405.
13. 13. Rajappa S, Singh M, Uehara R, Schachterle SE, Setia S. Cancer incidence and mortality trends in Asia based on regions and human development index levels: an analyses from GLOBOCAN 2020. Current Medical Research and Opinion. 2023 Aug 3;39(8):1127-37.
14. 14. Result of Iraqi Cancer Registry 2019, Iraqi Cancer Board, Ministry of health, Baghdad-Iraq.
15. 15. Hsu WF, Chiu HM. Optimization of colonoscopy quality: Comprehensive review of the literature and future perspectives. Digestive Endoscopy. 2023 Nov;35(7):822-34.
16. 16. Winawer S, Fletcher R, Rex D, Bond J, Burt R, Ferrucci J, Ganiats T, Levin T, Woolf S, Johnson D, Kirk L. Colorectal cancer screening and surveillance: clinical guidelines and rationale—update based on new evidence. Gastroenterology. 2003 Feb 1;124(2):544-60.
17. 17. Ra S. Cancer Screening in the United States, 2010: A review of current American cancer society guidelines and issues in cancer screening. Ca Cancer J Clin. 2010;60:99-119.
18. 18. Tamer A, Korkut E, Korkmaz U, Akcan Y. Alt gastrointestinal endoskopi sonuçlarımız: Düzce bölgesi. Kocatepe Tıp Dergisi. 2005 Jan 4;6(1):29-31.
19. 19.Sano Y, Hotta K, Matsuda T, Murakami Y, Fujii T, Kudo SE, Oda Y, Ishikawa H, Saito Y, Kobayashi N, Sekiguchi M. Endoscopic removal of premalignant lesions reduces long-term colorectal cancer risk: results from the Japan Polyp Study. Clinical Gastroenterology and Hepatology. 2023 Aug 6.
20. 20. Mulder SA, Kranse R, Damhuis RA, de Wilt JH, Rob J, Kuipers EJ, van Leerdam ME. Prevalence and prognosis of synchronous colorectal cancer: a Dutch population-based study. Cancer epidemiology. 2011 Oct 1;35(5):442-7.
21. 21. Calderwood AH, Tosteson TD, Wang Q, Onega T, Walter LC. Association of Life Expectancy With Surveillance Colonoscopy Findings and Follow-up Recommendations in Older Adults. JAMA Internal Medicine. 2023 May 1;183(5):426-34.
22. 22. Rex DK, Sullivan AW, Perkins AJ, Vemulapalli KC. Colorectal polyp prevalence and aspirational detection targets determined using high definition colonoscopy and a high level detector in 2017. Digestive and Liver Disease. 2020 Jan 1;52(1):72-8.
23. 23. Li K, Fathan MI, Patel K, Zhang T, Zhong C, Bansal A, Rastogi A, Wang JS, Wang G. Colonoscopy polyp detection and classification: Dataset creation and comparative evaluations. Plos one. 2021 Aug 17;16(8):e0255809.
24. 24. Bowles CJ, Leicester R, Romaya C, Swarbrick E, Williams CB, Epstein O. A prospective study of colonoscopy practice in the UK today: Are we adequately prepared for national colorectal cancer screening tomorrow? Gut 2004; 53: 277-283.
25. 25. Kang YS, Kamm MA, Engel AF, Talbot IC. Pathology of the rectal wall in solitary rectal ulcer syndrome and complete rectal prolapse. Gut 1996; 38: 587-590.
26. 26. Qari Y, Mosli M. A systematic review and meta-analysis of the efficacy of medical treatments for the management of solitary rectal ulcer syndrome. Saudi Journal of Gastroenterology: Official Journal of the Saudi Gastroenterology Association. 2020 Jan;26(1):4.