

## Pattern of Colorectal Polyps among Sudanese Patients: a Single Centre Experience

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**Abstract: Background:** Polyps are masses projecting into the bowel lumen beyond the surface of the epithelium with or without a pedicle/stalk and it can be taken to mean a protuberant growth which can be either benign or malignant. The objective of the study was to study the pattern of colorectal polyps among Sudanese patients at Soba university hospital. **Patients and methods:** The study was a prospective, descriptive, cross sectional hospital based study. Conducted at Soba University Hospital department of endoscopy, in a period from Oct 2017 to August 2018. The study was conducted on Patients with colorectal polyps finding in colonoscopy or flexible Sigmoidoscopy. All the patients have been followed for duration not less than 3 months to assess the outcome. The main objective was to study the pattern of colorectal polyps among Sudanese population. **Results:** A total of (120) patients with colorectal polyps out of (626) patients underwent lower GI endoscopy during the period of the study, with male to female ratio of 1.8:1.0. The age ranged between (4) to (94) years. The incidence of polyp at the study was (19%). Thirty nine patient (32.5%) are smoker, while (6.7%) of the patients were alcohol consumers. NSAIDs consumptions were found in (40%) of the patients. Considering the consumption of fiber diet the study showed most of the patients were using the moderate fiber diet (53%). Schistosomiasis found in 4 patients (3.3%) and these patients had polyps showing inflammatory polyps of schistosomiasis origin. Presenting complains includes bleeding per rectum, altered bowel habit, mucus per rectum, abdominal pain, weight loss, abdominal distension, anorexia and anaemic symptoms. The most common co-morbidities were DM in (17.5%), IBD in (11.7%), FAP (6.7.4%) and diverticular diseases in (1.7%). The mode of the diagnosis was either through sigmoidoscopy or colonoscopy, and the NBI was used in (7.5%). The most common type was sessile polyps (67.5%) followed by pedunculated polyps (29.2%). Most of the polyps are within the left side, mainly at the rectum, anal canal and sigmoid colon. The size of the polyps lies between (1 mm to 50mm). The most common modes intervention was snare polypectomy (66.7%), followed by excision via biopsy forceps (62.7), while other treatment options are less frequent. Histopathology showed that most of the polyps were benign polyps (74.2%). (10.8%) were of high degree dysplasia and the rest was less frequent. Thirty three patients showed inflammatory polyps (27.5%) followed by tubulovillous adenomatous polyps (20.8%), tubuloadenomatous polyp (11.7%), juvenile polyp (10.8%), hyperplastic polyps (9.2%), villous adenomatous polyp (5%), tubular adenomatous polyp (4.2%), schistosomal polyp (3.3%), hammatomatous polyp (2.5%), fibroepithelial polyp (2.5%), invasive adenocarcinoma (1.7%) and granulomatous polyp (8%). **Conclusion:** The pattern of Colorectal polyps among Sudanese patients at our study was in line with international pattern in age, gender, common presentation, risk factors, types, shape and histopathology and most of them were of benign nature.

**Keywords:** Colorectal polyps, bleeding per rectum, colonoscopy, snar polypectomy.

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### INTRODUCTION

Polyps are a nonspecific clinical term that describes any projection from the surface of the intestinal mucosa regardless of its histological nature

and in its broadest sense can be taken to mean a protuberant growth which can be either benign or malignant. Another definition is a mass projecting into the bowel lumen beyond the surface of the epithelium

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with a pedicle/stalk. Colorectal polyps may be classified by their macroscopic appearance as sessile (flat, arising directly from the mucosal layer) or pedunculated (extending from the mucosa through a fibrovascular stalk). Colorectal polyps may also histologically be classified as neoplastic and non neoplastic polyps [1].

Most of these are of no clinical significance but, due to their high prevalence, the minority of such polyps that bear a malignant potential. Early identification and removal of these lesions is a highly effective method of preventing morbidity and mortality from colorectal carcinoma. The diagnosis of a colorectal polyposis syndrome is initially suggested, based on colonoscopy findings and polyp histology. Because different syndromes can resemble each other phenotypically, molecular genetic studies are essential for final diagnosis, cancer risk assessment, and decision-making regarding a surveillance program and treatment. In addition, identification of the familial mutation in an affected patient is a prerequisite for future testing of asymptomatic relatives [2].

Systematic Review and Meta-analysis about the risk factors for serrated colorectal Polyps (SP) has revealed statistically significant increases in risk of SP with smoking, alcohol intake, high body fatness, red meat and direct associations for smoking and alcohol, there were significant decreased risks of (SP) with use of aspirin and NSAIDs and dietary folate [3].

Snare polypectomy is safe and effective method of resection for small sessile polyps, while endoscopic mucosal resection has become the widely adopted technique for resection of larger lesions. Recently for suspicious and large lesions endoscopic sub mucosal dissection (ESD) provides complete en bloc resection, which facilitates the accurate histopathological assessment of sub mucosal invasion, and has a significantly lower recurrence rate [4, 5].

In light of this vast ethnicity variation and lack of reports from Sudan regarding pattern of the disease, we conducted this study to evaluate the pattern of DD in the Sudanese population.

## PATIENTS AND METHODS

The study was a prospective, descriptive, cross sectional hospital based study. Conducted in the endoscopy department at Soba University Hospital, in a period from Oct 2017 to August 2018. Soba University Hospital is considered as tertiary centre for colorectal surgery and endoscopy. Endoscopy lists run by consultant physicians and surgeons, and most of the people who required colonoscopy in Khartoum state are referred to Soba.

### Inclusion and exclusion criteria

We include all Patients attending the endoscopy units in the above-mentioned hospitals

during the study period and had a colonoscopy to investigate gastrointestinal symptoms such as; changes in bowel habits, rectal bleeding and anaemia unexplained weight loss. Exclusion criteria were; Patients with inadequate bowel preparations, an incomplete examination of the colon and patients who are unwilling to participate in the study.

Clinical data were recorded in constructed structure pre test questionnaire. This included age, sex, residence, presenting complaints, co morbidities, family history, endoscopic finding, mode of intervention and histopathology. All the patients have been followed for duration not less than 3 months to assess the outcome.

Data were analysed with Statistical Package for the Social Sciences (SPSS) version 23. Qualitative data were analysed using correlation test and simple linear regression, and the P-value was considered significant if less than 0.05. Written informed consent obtained from each participant, and ethical clearance was obtained from the ethical committee of Sudan Medical Specialization Board, as well as hospital administration approval.

## RESULTS

Total of (120) patients with colorectal polyps out of 626 patients underwent lower GI endoscopy during the period of the study, which satisfy the inclusion criteria were studied. There were 75 (62.5) male and 45 (37.5) females, with male to female ratio of 1.8:1.0. The age ranged between 4 to 94 years with mean age of 46.6+ 22.2SD. The incidence of polyp at the study was:  $120/626 \times 100 = (19 \%)$ . The weight of the patients ranged from 14kg to 98kg, with mean of 70.1+ 14.6SD, most of the patients were between (50- 60)kg.

Thirty nine patients (32.5%) are smokers, while 81 patients were non smokers, 8 (6.7%) of the patients were alcohol consumers, while 112 (93.3) were non alcohol consumers. NSAIDs consumption was found in (40%) of the patients, while (60%) were not regular users. Considering the consumption of fiber diet the study showed most of patients were on moderate fiber diet 53% (n=64), high fiber diet in 6.7% and low fiber diet in 1.7%. Schistosomiasis found in 4 patients (3.3%) and these patients had polyps showing inflammatory polyps of schistosomiasis origin, while the rest 115 patients (95.8%) had no schistosomiasis. The most common co-morbidities were DM in 21(17.5%) patients, IBD in 14 (11.7%) patients, FAP in 8 (6.7.4%) patients, diverticular diseases in 2 patients (1.7) and the rest of the patients 69 (57.5%) had no comorbidities (Table 1).

Most patients presented complaints of bleeding per rectum, altered bowel habit, mucus per rectum, abdominal pain, weight loss, abdominal distension, anorexia and anemic symptoms (Table 2).

The mode of the diagnosis was either through flexible sigmoidoscopy or colonoscopy, and the NBI was used in 9 patients (7.5). The most common type was sessile polyps 67.5% (n=81) followed by pedunculated polyps 29.2% (n=35), the other types were showed in the (Figure 1). The site of the polyps ranged between 3cm to 150cm from the anal verge, with the mean of 32.2+ 34.1SD, most of the polyps are within the left side, mainly at the rectum,anal canal and sigmoid colon.The size of the polyps lies between 1 mm to 50mm, with the mean of 8.3+10.3SD.

The most common modes intervention was snare polypectomy 66.7% (n=80), followed by excision via biopsy forceps 62.7 (n=32), while other treatment

options are less frequent (Figure 2). Histopathology showed that most of the polyps were benign polyps 74.2% (n=89), 10.8% (n=13) were of high degree dysplasia and the rest was less frequent (Table 3). Thirty three patients showed inflammatory polyps 27.5% followed by tubulovillous adenomatous polyps 20.8% (n=25), tubuloadenomatus polyp 11.7 (n=14), juvenile polyp 10.8 (n=13), hyperplastic polyps 9.2% (n=11), villous adenomatus polyp 5% (n=6), tubularadenomatus polyp 4.2% (n=5), schistosomal polyp 3.3% (n=4), hamratomatus polyp 2.5% (n=3), fibroepithelial polyp 2.5% (n= 3), invasive adenocarcinoma 1.7% (n=2) and granulomatus polyp .8% (n=1) (Figure 3).

**Table 1: Demographic characteristics of included population and risk factors**

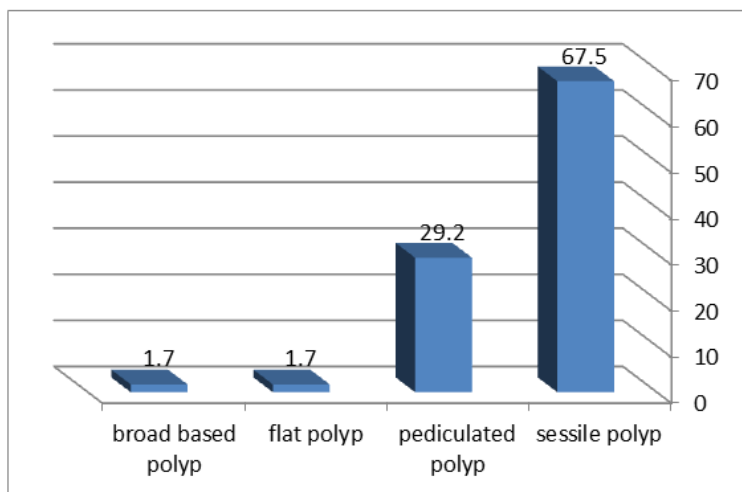
| Outcome        |                       | Number of patients (n=104) | Percentage |
|----------------|-----------------------|----------------------------|------------|
| Age group      | 0 – 19                | 15                         | 12.5%      |
|                | 20 – 39               | 26                         | 21.6%      |
|                | 40 -59                | 48                         | 40%        |
|                | 60 - 79               | 21                         | 17.5%      |
|                | 80 - 100              | 10                         | 8.3%       |
| Gender         | Male                  | 75                         | 62.5%      |
|                | Female                | 45                         | 37.5%      |
| Co-morbidities | FAP                   | 8                          | 6.7%       |
|                | HTN                   | 6                          | 5.0%       |
|                | IBD                   | 14                         | 11.7%      |
|                | Diverticular diseases | 2                          | 1.7%       |
|                | DM                    | 21                         | 17.5%      |
| Risk Factors   | NONE                  | 69                         | 57.5%      |
|                | Smoking               | 39                         | 32.5%      |
|                | NSAIDS                | 48                         | 40%        |
|                | Low fibre diet        | 2                          | 1.7%       |
|                | Alcoholics            | 8                          | 6.7%       |
|                | schistosomasis        | 4                          | 3.3%       |

**Table 2: Clinical presentation of included population**

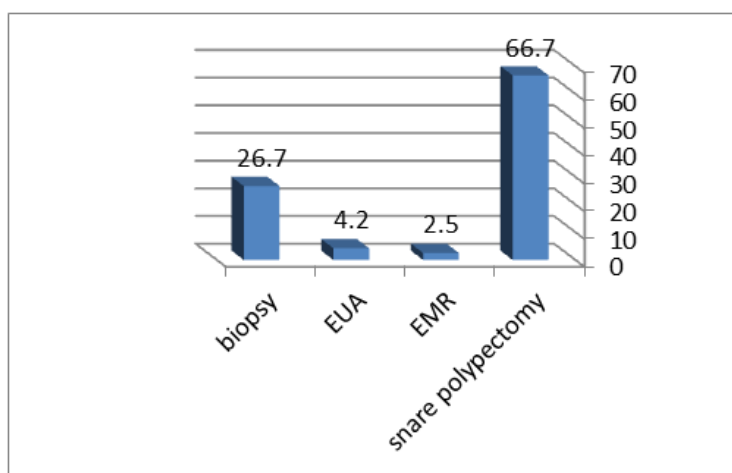
| Presenting Symptom    | Number of patients (N=120) | Percentage |
|-----------------------|----------------------------|------------|
| Abdominal pain        | 69                         | 58%        |
| Rectal bleeding       | 73                         | 61%        |
| Anaemia               | 63                         | 53%        |
| change in bowel habit | 95                         | 79%        |
| abdominal distension  | 10                         | 8%         |
| mucus per rectum      | 80                         | 67%        |
| Anorexia              | 47                         | 39%        |
| Weight loss           | 42                         | 35%        |

**Table 3: Different types of histological grades**

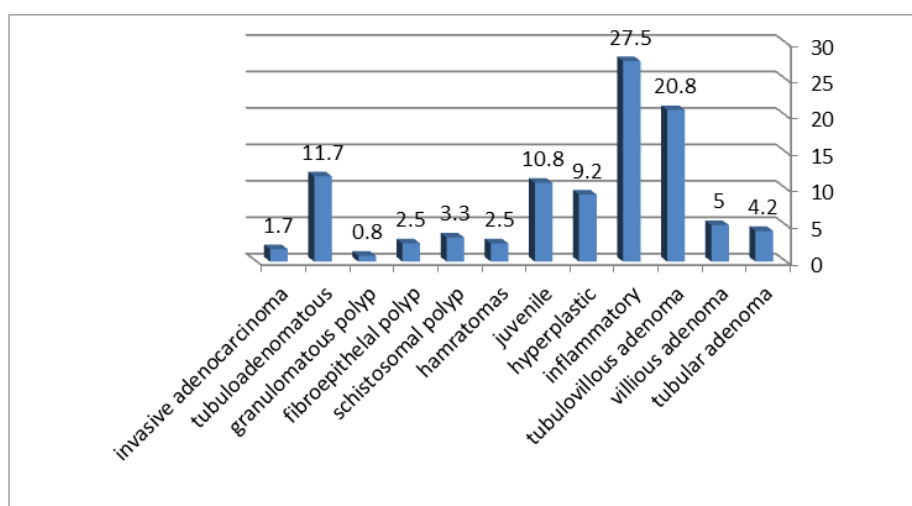
|                    | Frequency | Percent |
|--------------------|-----------|---------|
| Benign             | 89        | 74.2    |
| low dysplasia      | 11        | 9.2     |
| moderate dysplasia | 3         | 2.5     |
| high dysplasia     | 13        | 10.8    |
| carcinoma in situ  | 1         | .8      |
| invasive carcinoma | 3         | 2.5     |
| Total              | 120       | 100.0   |



**Figure 1: Different shapes of polyps**



**Figure 2: Different modalities of intervention**



**Figure 3: Different types of histopathological**

**DISCUSSION**

Colorectal polyps are a common finding in patients according to gastroenterology reports from Cleveland clinic [2]. In Sudan this situation is quite similar and it present in patients of different gender,

ages and variable degree of weight. Most of these polyps are of no clinical significance, but the minority of such polyp’s bear a malignant potential about (2.5%) still represents a major issue and needs management. Appropriateness and diagnostic yield of colonoscopy

referrals in an Africa was studied in Sudan and they found that part of the symptomatic patients (per rectal bleeding) have polyps. This study found that 50% of polyps presented with rectal bleeding [6].

Risk factors for development of colorectal polyps include: low fiber diets, smoking, NSAIDs, Schistosomiasis and to a lesser extent alcohol consumption. These findings are in line with Systematic Review and Meta-analysis about the risk factors for development of serrated colorectal Polyps has revealed statistically significant increases in risk of SP with smoking, alcohol intake, high body fatness, red meat and fat intakes and direct associations for smoking and alcohol [7].

In this study we found that those with Schistosomiasis, all of them were having schistosomal polyps with benign nature in histopathology [3, 8-12].

In this study the most common presenting complain were per rectal bleeding, mucus per rectum, alter in bowel habits and abdominal pain and to a lesser extent presented with symptoms of anemia, anorexia, weight loss and abdominal distension respectively. Studies have described that most common presentation and they found that per rectal bleeding and mucus per rectum are the most common presenting symptoms, while abdominal pain and distension were founded less frequent [8, 9, 6].

Many of the patients have no co morbidity about 57.5% (n=69), but the most common co-morbidity is DM in 21 patients (17.5%) followed by IBD 11.7% (n=14) , FAP 6.7% (n=8) and diverticular disease in 1.7% (n=2), which is in agreement with most literatures, mention that FAP and IBD are the common co- morbidity. This might be due to the fact that they didn't assess the other co-morbidity.

The most common type of polyps among those patients with FAP was tubulovillous adenoma, tubular adenoma and villous adenoma, and all of them showed degrees of dysplasia from low to high [2, 3].

Lower GI endoscopies in form of colonoscopy and flexible sigmoidoscopy for symptomatic patients was the gold standard method for diagnosis [6]. In our study Narrow band imaging (NBI) was used in 7.5% (n=9) and in these patients the type of polyps was found to be invasive carcinoma 2.5% (n=3), carcinoma in situ 0.8% (n=1) and high dysplasia 10.8% (n=13). Use of Narrow band imaging (NBI) with magnification for the characterization of small and diminutive colonic polyps was proposed by several authors and they founded it to be very useful, The NBI pit pattern and VPI are both highly accurate in characterizing neoplastic colonic polyps of < 10 mm [13].

Sessile polyps was the most common shape of polyps among our patients 67.5 % (n=81), while the rest were pedunculated polyps 29.2% (n=35.5) and to a lesser extend the flat polyps 1.7% (n=2) along with broad base polyps 1.7% (n=2). These figures are similar to many studies from India and China about classification system of polyps [14].

In UK use of cold snare polypectomy, was studied and considered as safe and effective method for resection of small serrated polyps. In our study most polyps were retrieved via Snare polypectomy in 66.5% (n=80) safely and without complications, while 27.6% (n=32) was retrieved via biopsy forceps and their histopathology showed that they are of benign origin [15].

Endoscopic mucosal resection (EMR) was done in 2.5% of the patients (n=3), and the polyps was found to be large and pedunculated more than (25 mm), the histopathology showed that there is a degree of dysplasia and the polyps were completely excised, this technique is not frequently used in Sudan. Studies from UK, evaluated the long-term outcomes of the different modalities used in colonic endoscopic mucosal resection and they found that EMR has become the widely adopted technique for resection of large laterally spreading lesions greater than 20 mm in size [9]. Also our result is similar to an article review conducted at Royal Liverpool University Hospital about the Endoscopic mucosal resection (EMR) for the removal of precancerous lesions [4].

In our study 4.2% of patients (n=5) underwent EUA for excision of polyps and all of them were found to be of large size and pedunculated polyps and at the anal canal, all of them were found to be of juvenile type. From the previous figures about the method of resection using EMR comparing to surgery we notice that both methods were used for the same types of polyps with the same size and the different is in the site, In USA studies about the outcome of EMR as an alternative to surgery, they found that EMR can be used instead of surgery for complex colon polyps in 75% [16].

Studies suggested that use of antibiotics after EMR of colon polyps to prevent infection did not affect the prognosis of the patients, none of our patient used oral antibiotics with no effect in the complication and prognosis [17].

Thirty three patients showed inflammatory polyps (27.5%), IBD was in 11.7% (n=14), and they were of benign nature. Followed by tubulovillous adenomatous polyps 20.8% (n=25), tubuloadenomatous polyp 11.7 (n=14), and in these types (6.7%) had FAP and (1.7%) had diverticular disease and they showed degrees of dysplasias. juvenile polyp 10.8 (n=13), hyperplastic polyps 9.2% (n=11), villous adenoma 5%

(n=6), tubular adenoma polyp 4.2% (n=5), schistosomal polyp 3.3% (n=4), hamratomapoyp 2.5% (n= 3), fibroepithelial polyp 2.5% (n= 3), invasive adenocarcinoma 1.7% (n=2) and granulomatus polyp .8% (n=1), and these figures are in consensus with reports from Middle East, Europe, Asia and USA [1, 18-22].

## CONCLUSION

The incidence of polyps among our patients was 19%. The most common types of polyps at our study are inflammatory polyps, tubulovillous polyps, tubular polyps, villous polyps. Per rectal bleeding, and mucus per rectum and alter bowel habits are the most common presentation among our patients. Low dietary fibers, smoking, NSAIDs, IBD and schistosomiasis are considered as risk factors in the study. Colonoscopy and sigmoidoscopy are the modes of diagnosis while Snare polypectomy and excision of polyps via biopsy forceps are the most common modes of treatment. Most of the polyps among Sudanese patients at the study are of benign nature and patients with FAP showed dysplastic changes. Genetic studies and screening program for early detection and management of colorectal polyps.

### What is already known on this topic?

- No published research about pattern of colorectal polyps among Sudanese populations.
- Prevalence of colorectal polyps is rising in Africa.

### What this study adds

- The incidence of the colorectal polyps in the included population is 19 %.
- Most common presentations are per rectal bleeding, mucus per rectum; alter in bowel habits and abdominal pain.
- Most common types of polyps in the study are inflammatory polyps, tubulovillous polyps, tubular polyps, villous polyps
- The most common histopathology of polyps in our study are of benign nature and patients with FAP showed dysplastic changes

**Competing interests:** None

### Authors' Contributions

YAA, OES conceived the idea of the study. YAA AYM, AAA, EE contributed equally to data collection, data analysis. YAA, AYM, AAA, EE, OES contributed to manuscript writing and review of the manuscript. All authors' approved the manuscript.

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