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Characteristics of intestinal obstruction seen at a Tertiary Hospital in North-Central, Nigeria

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Abstract

Introduction: Intestinal obstruction is a very common clinical condition encountered by the General surgeon with a very high morbidity and mortality. While adhesions were considered the commonest cause in the developed countries and external hernias in most developing countries of the world, there has been global variation in aetiology across regions and even within regions. Our aim is to study the aetiology, clinical presentation and treatment in our centre and compare to other studies locally and internationally.

Materials and methods: This is a retrospective study carried out at the Federal Medical Centre Makurdi, a Tertiary hospital in Benue state, north central, Nigeria between 2010 and 2014. We retrospectively retrieved and analysed the data of all patients, of all age groups who had laparotomy for intestinal obstruction at the Surgery department.

Results: Of a total of 69 patients who had laparotomy for intestinal obstruction, males were 42(60.9%) and females 27(39.1%). The peak ages were 1-10 years (21.7%) and 21-30 years (23.2%). The commonest complaints were abdominal pain 65(94.2%), abdominal swelling 43(62.3%), vomiting 40(58%) constipation 25(36.2%) and fever 24(34.8%). Only 13(18.8%) presented within 72 hours, 17(24.6%) within 4-6 days while majority 32(46.3%) presented between 1-3 weeks. Previous abdominal scar was seen in 22 (31.9%), while 47 (68.1%) had no evidence of a previous scar. The commonest causes of intestinal obstruction were adhesions 24 (34.8%), Typhoid ileal perforation 17 (24.6%), intussusception 9 (13.0%) and colonic tumour 7 (10.1%). There was only 1 (1.4%) case of strangulated hernia.

Conclusion: Adhesions and Typhoid ileal perforations are leading causes of intestinal obstruction in our environment with late presentation of case, a common feature. Preventive measures should be encouraged.

Keywords: Characteristics; Aetiology; Intestinal Obstruction; Clinical Presentation; Laparotomy

1. Introduction

Intestinal obstruction is any impediment in the propulsion and passage of faeces, fliud or gas from proximal part of the gastrointestinal tract to the distal part of it, leading to stasis and bowel distension with consequent derangements in fluid and electrolyte imbalances. It is one of the commonest intra-abdominal problems confronting the general surgeon in his/her surgical practice.

It can be classified as dynamic (mechanical) or adynamic (pseudo-obstruction). Dynamic obstruction is characterized by blockage of bowel (luminal, mural, extra-luminal), resulting to increase intestinal contractility as a physiologic response to relieve obstruction. Pseudo obstruction is characterized by absence of intestinal contractility (1).

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Globally prevalence and incident rates increased by 56.9% and 86.67% from 1990-2019 respectively (2). About 3.2 million cases of bowel obstruction occurred in 2015 with 264,000 deaths (3).

Its aetiology varies widely between and within geographic regions, with gender, age and time (4). In most countries of Africa, it accounts for a significant proportion of morbidity which varies from region to region (5). The cost of treatment is also enormous, ranging from 16,305 Euros to over 200 Euros for operative and non-operative admissions (6), which is beyond many in limited-resource settings of sub-Saharan Africa.

The aim of this study is to review the aetiology, patterns of presentation and treatment to compare with other centres locally and internationally.

2. Materials and Methods

This was a retrospective study in which we retrospectively reviewed the medical records of patients who were admitted and treated with the diagnosis of intestinal obstruction at Federal Medical Centre, Makurdi, Nigeria between 2010 and 2014.

2.1. Inclusion criteria

All patients, of all age groups who were admitted with a diagnosis of Intestinal obstruction and operated at the hospital within the study period.

2.2. Exclusion criteria

- Patients who were admitted with acute abdominal pain of Medical or Gynaecological origin.
- Data was analyzed using Microsoft excel and SPSS version 26.

3. Results

This retrospective review involved 69 patients of all age groups diagnosed with intestinal obstruction and had laparotomy during the study period. There was a male predominance, 42(60.9%). The age range was from 1 month to 90 years, with two peaks at 1-10 years 15(21.7%) and 21-30 years 16(23.2%) respectively. Students were the predominant social class involved 31(51.7%), followed by farmers 13(21.7%).

Table 1 Socio-demographic data (age, gender, occupation)

Age	**Frequency**	**Percent**
1-11 months	4	5.8
1-10 years	15	21.7
11-20 years	9	13.0
21-30 years	16	23.2
31-40 years	9	13.0
41-50 years	3	4.3
51-60 years	4	5.8
61-70 years	6	8.7
71-80 years	2	2.9
81-90 years	1	1.4
Total	69	100
Gender	**Frequency**	**Percent**
male	42	60.9
Female	27	39.1
Total	69	100

Occupation	Frequency	Percent
Students	31	44.9
Farmers	13	18.8
Traders	5	7.2
House Wives	4	5.8
Civil Servants	4	5.8
Armed forces	2	2.9
Others	10	14.5
Total	69	100

The commonest presenting complaints were abdominal pain 65(94.2%), abdominal swelling 43 (62.3%), vomiting 40 (58.0%), constipation 25(36.2%) and fever 24(34.8%) and left inguinal swelling 1(1.4%).

Table 2 Presenting complaints in descending order

Complaint	Frequency	Percent
Abdominal Pain	65	94.2
Abdominal swelling	43	62.3
Vomiting	40	58.0
Constipation	25	36.2
Fever	24	34.8
Bloody Stool	7	10.1
Jelly Stool	1	1.4
Headache	1	1.4
Left Inguinal swelling	1	1.4

Only 13(18.8%) presented within 72 hours, 17 (24.6%) presented within 4-6 days, while majority 32 (46.3%) presented between 1-3 weeks.

Table 3 Duration of symptoms before presentation

Duration of symptoms	Frequency	Percent
1-3 days	13	18.8
4-6 days	17	24.6
1 week	15	21.7
2 weeks	13	18.8
3 weeks	4	5.8
1 month	3	4.3
2 months	1	1.4
3 months	1	1.4
>3 Months	2	2.9
Total	69	100

On examination of the abdomen, 22 (31.9%) had an abdominal scar from previous surgery, while 47(68.1%) had no scar from previous abdominal surgery.

Table 4 Intra-Operative Findings and rate of Resection and Anastomosis

Intra-Operative Finding	Frequency	Percent
Adhesions	14	41.2
Colonic tumour	7	20.6
Sigmoid Volvulus	5	14.7
Typhoid Ileal Perforation	5	14.7
Intussusception	3	8.8
Total	34	100

The commonest cause of intestinal obstruction was adhesions 24 (34.8%), followed by peritonitis secondary to ileal perforation 17 (24.6%), intussusception 9 (13.0%) and colonic tumour 7 (10.1%). There was only 1 (1.4%) case of strangulated hernia.

Table 5 Intra-operative Findings and frequency of resection and anastomosis

Cause	Frequency	Percent
Adhesions	24	34.8
Typhoid ileal perforations	17	24.6
Intussusception	9	13.0
Colonic tumours	7	10.1
Sigmoid Volvulus	6	8.7
Stenotic intestines	2	2.8
Ruptured appendix	1	1.4
Perforate Stomach ulcer	1	1.4
Strangulated hernia	1	1.4
Blunt Trauma	1	1.4
Total	69	100

4. Discussion

In our review of 69 cases within the study period, it was found that intestinal obstruction occurred predominantly in males (60.9%). This finding is in conformity with those of ([7, 8, 9).

Our patients at risk of intestinal obstructions demonstrated two age peaks, 1-10 years with a mean of 5.5 and 21-30 years with a mean of 25.5 years. The peak age of 21-30 years agrees with similar findings by (10). This finding reflects the predominantly younger age of the Nigerian population.

The commonest cause of intestinal obstruction in our study was adhesions 24 (34.8%), followed by peritonitis secondary to typhoid ileal perforation 17 (24.6%), intussusception 9 (13.0%) and colonic tumour 7 (10.1%). The findings of adhesions as the commonest cause of intestinal obstruction is in conformity with other findings in our region and beyond, ([7, 11, 12, 9, 13, 14, 15, 16). The rising cases of adhesive intestinal obstruction in our region may reflect increasing health seeking behaviours and also increase in the number of laparotomies performed. However, it was noted that only 22 (31.9%) had an abdominal scar from previous surgeries while 47 (68.1%) had not. It therefore means that some of the adhesions would have been as a result of subclinical peritonitis from other infective causes, congenital

or repeated trauma. We noted that peritonitis secondary to typhoid ileal perforations was the second cause of bowel obstruction 17 (24.6%). This reflects the gap in the availability of portable water in many sub-Saharan African countries. Majority of the cases of intussusception occurred in children between the ages of 1-10 years. Some researchers have found a different aetiology for intestinal obstruction. Urgessa et al; (17) found intussusception as the leading cause in Adama hospital, Ethiopia (30.9%), Okeny et al; (8), reported Hernias (40.2%) as the commonest cause in a rural hospital in Uganda,Ntakiyiruta and mukarugwiro (18) also reported strangulated external hernias in a rural hospital in Rwanda as the commonest cause(39.0%) of intestinal obstruction. Similarly, Ahmad et al; (19) found strangulated hernias to be the commonest cause of intestinal obstruction (40%) in a district hospital, West Bengal, India, while Fekadu et al; (20), in a systematic review, found small bowel volvulus as the leading cause of intestinal obstruction in Ethiopia while sigmoid volvulus was the leading cause for large bowel obstruction. These findings demonstrate global variation across regions and within regions (4). Further studies may reveal variation between urban and rural areas within the same region.

This study also demonstrates the rarity of hernias in our environment constituting just 1.4% of the aetiological factors of intestinal obstruction. This may be due to several reasons, firstly, there are many missionary hospitals scattered across the rural areas with many of the experienced theartre technicians able to fix uncomplicated hernias at a very low cost. Secondly free medical outreaches by politicians have provided ample opportunities for many people to have their hernias fixed electively. The author has participated in many of such outreaches. Thirdly, it may be because of health education, increase awareness of the benefits of elective surgeries before complication develops, and lastly the efforts of various non-governmental organizations (NGOs) to increase access to surgery in rural areas.

It was also noted that majority of the patients presented late to the hospital. Only 13 (18.8%) of the patients presented within 72 hours of onset of symptoms, 17 (24.6%) presented within 4-6 days, while majority 32 (46.3%) presented between 1-3 weeks. This finding contrast to other researchers like (11), who found that average time of presentation was 2-4 days, while (8) reported duration of symptoms to be 1-14 days with mean of 4 days and (18) reported average duration of symptoms to be 3.5 days but agrees with that of Arlene et al; (21) where 50% presented after 72 hours and only 7.3% presented within 24 hours.

Most our patients had exploratory laparotomy as the main treatment option. Main intra-operative treatments were adhesiolysis, primary closure of perforations or wedge resections and intestinal resection and anastomosis, Ileostomies etc. 34 (49.3%) of the patients were treated by resection and primary anastomosis while 35 (50.7%) did not. This high rate of resection and anastomosis conforms to earlier reports by (18) who also reported a resection and anastomosis rate of (38.0%). This high rate of intestinal resection and anastomosis may reflect the late presentation of most of the patients.

5. Conclusion

Adhesions are noted as the commonest cause of intestinal obstruction in Makurdi, north-central Nigeria with peritonitis secondary to typhoid ileal perforation coming a close second and intussusception third. We note unusually late presentation and a high rate of intestinal resection and anastomosis and recommend preventive measures including avoidance of indiscriminate laparotomies and provision of safe drinking water.

Compliance with ethical standards

Disclosure of conflict of interest

None of the authors declared any conflict of interest

Statement of ethical approval

The study was conducted in compliance with the institution's ethical requirements.

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