

# Spectrum of causes of intestinal obstruction in adult Nigerian patients

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## Summary

**Objective.** To present changes in the cause of intestinal obstruction in an African setting.

**Design.** Consecutive cases of acute intestinal obstruction from 1985 to 1994.

**Setting.** Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria.

**Subjects.** Adult patients with clinical and radiological evidence of intestinal obstruction.

**Results.** There were 99 patients (60 males) aged 15 - 101 years (mean age 45 years). The majority of patients were young and middle-aged adults. Main causes of obstruction included adhesion (N = 44), volvulus (N = 15), external hernias (N = 11), colorectal carcinoma (N = 10) and intussusception (N = 8). Approximately two-thirds of patients (28/44) with adhesion had had previous abdominal operations. The overall mortality was 14%, mainly owing to strangulation obstruction and colonic malignancy.

**Conclusions.** The increasing role of adhesions as a cause of acute intestinal obstruction demands greater need for routine preventive measures against adhesion formation.

The aetiology of intestinal obstruction varies remarkably from country to country. In Nigeria, external hernias were previously the main cause of intestinal obstruction.<sup>1,2</sup> Some recent reports<sup>3,4</sup> have shown a rising frequency of adhesive obstruction in our environment.

This prompted the present study of acute intestinal obstruction in adult patients in our hospital at Ile-Ife, Nigeria with a view to identifying any changes in the pattern of the aetiological factors, and the clinical management.

## Patients and methods

The study included all consecutive adult patients seen with clinical and radiological features suggestive of intestinal obstruction between January 1985 and December 1994 at the Ife Hospital Unit, part of the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, south-western Nigeria.

## Results

There were 99 patients aged 15 - 101 years (mean age 45 years  $\pm$  standard deviation (SD) 19.6), with bimodal age peaks of 15 - 29 years and 45 - 59 years. There were more male (N = 60) than female patients (N = 39). Table I shows the causes of intestinal obstruction.

Fibrous adhesion (N = 44) was the commonest cause. Most cases (N = 30) followed previous operations

TABLE I. CAUSES OF INTESTINAL OBSTRUCTION

Conditions	N	Proportion strangulated	Mortality (%)
<b>Adhesions</b>	<b>44</b>	<b>6/44</b>	<b>3</b>
<b>Volvulus</b>	<b>15</b>	<b>6/15</b>	<b>4</b>
<b>Hernias</b>	<b>11</b>	<b>8/11</b>	<b>1</b>
<b>Colorectal cancer</b>	<b>10</b>	<b>1/10</b>	<b>3</b>
<b>Intussusception</b>	<b>8</b>	<b>3/8</b>	<b>1</b>
<b>Idiopathic</b>	<b>6</b>	<b>-</b>	<b>1</b>
<b>Inflammatory mass</b>	<b>1</b>	<b>-</b>	<b>-</b>
<b>Small bowel tumours</b>	<b>2</b>	<b>-</b>	<b>-</b>
<b>Worm impaction</b>	<b>2</b>	<b>-</b>	<b>-</b>

TABLE II. CAUSES OF ADHESION (N = 44)

Predisposing factors	Patients (N)
<b>Previous operations</b>	<b>30</b>
<b>Laparotomy</b>	<b>20</b>
<b>Exploratory</b>	<b>13</b>
<b>Splenectomy</b>	<b>3</b>
<b>Previous adhesion</b>	<b>2</b>
<b>Intussusception</b>	<b>2</b>
<b>Appendectomy</b>	<b>4</b>
<b>Herniorrhaphy</b>	<b>2</b>
<b>Pelvic operation</b>	<b>1</b>
<b>Caesarean section</b>	<b>3</b>
<b>General peritonitis</b>	<b>6</b>
<b>Pelvic inflammatory diseases</b>	<b>2</b>
<b>Undetermined</b>	<b>6</b>

(Table II). The small bowel was most frequently involved (39 of 44 cases). There were 15 cases of volvulus (Table III).

Herniation was inguinal in 9 of the 11 cases. There was only 1 femoral hernia. Colorectal cancer affected 10 patients, including 2 cases each of sigmoid and caecal neoplasms, and 1 each of hepatic flexure and rectal carcinoma. The locations of the remaining cases could not be determined from the records.

Of the 8 patients with intussusception, 4 had the ileocolic variety while 1 each had the jejunal and caecocolic type. The remaining 2 were not classified.

## Management and outcome

Initial management of all patients included intravenous fluid and electrolyte correction and resuscitation. Only 7/44 patients in the adhesive obstructive group responded to conservative treatment; 37/44 required surgery. Of these, 12 had bowel resection and anastomosis for strangulation. There were 3 deaths in the adhesive obstruction group; 2 preoperatively from late presentation complicated by acute renal failure and septic shock, while the third death resulted from postoperative septic shock.

All the patients with sigmoid volvulus ( $N = 7$ ) were operated on. Of 5 patients who had resection and primary anastomosis, the only morbidity was a case of minor wound infection. One of the 2 patients treated with resection and colostomy developed a pelvic abscess (Table IV). One patient died from an anastomotic leak after surgery for compound strangulating volvulus.

Of the patients with obstructed hernia, 7 required emergency operations while 3 others were electively repaired following spontaneous reduction. The remaining patient died before surgery from acute renal failure.

The overall mortality rate was 14%. The operative mortality of 11% included 7 cases of strangulating obstruction, 3 of advanced colorectal carcinomas and 1 of simple obstruction. The remaining deaths occurred before surgery from complications in patients presenting late with neglected obstruction.

**TABLE III. PATTERN OF VOLVULUS OBSTRUCTION IN 15 PATIENTS**

Type (N)		Strangulated (N)	Case fatality (N)
Small bowel	5	2	1
Sigmoid colon	7	2	2
Compound*	3	2	1

\*Twist of ileum with sigmoid colon.

**TABLE IV. MANAGEMENT OF SIGMOID VOLVULUS**

Treatment (N)		Complications (N)	
REEA and TC	1	Wound infection	1
REEA	5	Wound infection	1
R and C	2	Wound infection	1
Hartmann's operation	1	Pelvic abscess	1
Non-operative	1	Stump leakage	1
		Death	1

REEA = resection and end-to-end anastomosis; TC = temporary colostomy; R and C = resection and colostomy.

## Discussion

There is a wide geographical variation in the pattern of mechanical intestinal obstruction.<sup>4</sup> The present study, in which adhesion ranked the highest, underscores the changing pattern in Nigeria. The most common predisposition to adhesive obstruction is violation of the peritoneal cavity<sup>5,6</sup> and the majority of our cases followed laparotomy. It is possible that talc or starch of the surgical gloves in routine use in our environment played a role in adhesion formation in some of our patients.

It is of interest that cases of obstruction owing to hernias were not as common as in previous reports from Nigeria.<sup>1-3</sup> Increased awareness among patients with hernias who then seek elective hernial repair may account this.<sup>4</sup> There was no operative mortality in the hernia group despite the highest rate of associated strangulation in the study. This may be because strangulation in external hernias is diagnosed and managed more quickly before endotoxaemia becomes advanced. The strangulation rate of 40% for volvulus, together with the mortality rate in the compound type compared well with the high strangulation and mortality rates for the condition.<sup>7,8</sup> Although the number of intussusceptions was small,<sup>9</sup> the ileocolic type was more common than the caecocolic variety previously known in Nigeria.<sup>10</sup> In some series,<sup>11</sup> most cases of adhesive obstruction were managed conservatively, but only 7 (15%) of our cases responded to such treatment.

Sigmoid volvulus and ileo-sigmoid knotting may be treated by primary resection with anastomosis; this was found to be satisfactory in the majority of cases of sigmoid volvulus.<sup>12</sup> Although high, the postoperative mortality rate of 11% is comparable to that found by others.<sup>13</sup> The high rate of strangulation obstruction from delayed presentation with bowel gangrene, fluid and electrolyte imbalance and septic shock accounted for the mortality in most cases.

In conclusion, the pattern of causes of intestinal obstruction in our environment is changing, and the increasing prevalence of adhesion complicating abdominal operations may be a factor. It would be helpful if surgeons take preventive measures to reduce adhesion formation at laparotomy.

## REFERENCES

- Adekunle OO. Acute intestinal obstruction. A review of 100 cases treated at UCH Ibadan. *Niger Med J* 1977; **1**: 37-41.
- Otu AA. Tropical surgical abdominal emergencies: Acute intestinal obstruction. *Afr J Med Med Sci* 1991 **20**: 83-88.
- Naaeder SB, Archampong EQ. Changing pattern of intestinal obstruction in Accra. *West Afr J Med* 1993; **12**: 82-88.
- Adesunikanmi ARK, Agbakwuru EA. Changing pattern of acute intestinal obstruction in tropical African population. *East Afr Med J* 1996; **11**: 726-730.
- Thompson JN, Whawell SA. Pathogenesis and prevention of adhesion formation. *Br J Surg* 1995; **82**: 3-5.
- Holmdahl L, Risberg B, Beck DE, et al. Adhesions: pathogenesis and prevention-panel discussion and summary. *Eur J Surg Suppl* 1997; **577**: 56-62.
- Gurleyik E, Gurleyik G. Small bowel volvulus: a common cause of mechanical intestinal obstruction in our region. *Eur J of Surg* 1998; **164** (1): 51-55.
- Demissie M. Small intestinal volvulus in Southern Ethiopia. *East Afr Med J* 2001; **78**: 208-211.
- Ugwu BT, Mbah N, Dakum NK, Yiltok SJ, Legbo JN, Uba AF. Adult intussusception: the Jos experience. *West Afr J Med* 2001; **20**: 213-216.
- Nmadu PT. Changing pattern of intussusception in Northern Nigeria: an analysis of 85 consecutive cases. *East Afr Med J* 1992; **69**: 640-642.
- Tamijmarane A, Chandra S, Smile SR. Clinical aspects of adhesive intestinal obstruction. *Trop Gastroenterol* 2000; **21**: 141-143.
- Akgun Y. Management of ileo-sigmoid knotting. *Br J Surg* 1997; **84**: 672-673.
- Grinev MV, Kurygin AA, Khanevich MD. Acute intestinal obstruction as a problem in emergency surgery. *Vestn Khir Imlii Grek* 1992; **148**: 130-138.