

# Managing Small Intestinal Obstruction: A Sheikh Zayed Hospital Experience

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## SUMMARY

Managing intestinal obstruction continuous to challenge surgeons allover the World. Between January 2001 to December, 2004, 54 patients with maw to female ratio of 1.8:1 and mean age of 51 presented with small bowel obstruction. They were divided in to two groups, group A and B. Group A comprised of 30 patients (55%) and were managed conservatively. Whereas group B had 24 patients (44%) who required surgery. Conservative management was observed for 12 to 36 hours and beyond this time patients were explored in the face of deterioration. In group A, 83% patients had history of previous surgery whereas 17% patients had no prior surgical intervention. In group B 38% patients had abdominal surgery in the past whereas 62% had no previous surgical intervention. Predominant symptoms of bowel obstruction were abdominal pain, (100%) constipation (60%) and vomiting (48%). Common causes of obstruction were post-operative adhesions 38% (n=7) obstructed hernias 25% (n=6) ileocecal tuberculosis 21% (n=3) intestinal ischemia 8% (n=2) and ceacal carcinoma 8% (n=2). Two patients died to septicemia, subsequent to anastomotic leak. We conclude that adhesive bowel disease and obstructive external hernias are the commonest causes of small bowel obstruction. A good clinical acumen and repeated clinical examinations are necessary to avoid the stage of bowel gangrene while managing small intestinal obstruction.

## INTRODUCTION

Obstruction of the small intestine continues to be a major health problem in Pakistan. The complexities of modern day surgical management of intestinal obstruction are focused on avoiding operative delay, and in turn, the always dreaded consequence of perforation and strangulation. Despite advances in diagnostic modalities many forms of intestinal obstruction remain a dilemma from a diagnostic as well as therapeutic vantage point.

## OBJECTIVE

Objective of this study was to analyze the causes of small bowel obstruction and indications for surgical intervention and the outcome of the management at a tertiary care center and hence streamlining a management protocol.

## MATERIAL AND METHODS

This is a retrospective study comprising of 54 patients managed at Surgical Unit I, Sheikh Zayed Postgraduate Medical Complex, Lahore from January 2001 to December 2004. There were 35 male and 19 female patients (ratio 1.8:1). Mean age was 51 years (range 15-85 years).

The cases were divided into two groups A & B. Group A had 30 (55%) patients who were managed conservatively and resolved. Group B comprised of 24 patients (44%) who were operated subsequent to failure of conservative management. All patient were kept nil by mouth with naso gastric decompression and vigilant correction and maintenance of fluid and electrolyte balance. Vigorous isotonic hydration was established and in high risk cases it was guided by central venous pressure. Antibiotics used were in a combination of intravenous ampicillin, gentamycin and

metronidazole or a third generation cephalosporin and metronidazole. Main diagnostic tools, alongwith routine laboratory work up, were total and differential leucocyte count, supine and erect x-ray abdomen, abdominopelvic ultrasound and occasionally C.T. abdomen.

Conservative management was observed for a period of 12 to 36 hours as dictated by clinical assessment of the case. Beyond this time patients were explored in the face of deterioration. However, all external hernias (inguinal, incisional/paraumbilical) with features of bowel obstruction were explored primarily after a short period of resuscitation. Criteria for failure of conservative management included, a rising pulse, increasing abdominal rigidity and tenderness continuous feculent nasogastric aspirate, persistent pyrexia and unrelieving obstruction beyond 12-36 hours. Radiological criteria were pneumoperitoneum, intestinal wall edema, progressive bowel distension and increasing air fluid levels. Only occasionally in patients with previous abdominal surgery and stable parameters conservative treatment was continued beyond 36 hours.

Explorations was carried out through a generous midline incision. Peritoneal collection / soiling were sucked out mopped, and a sample collected for culture and sensitivity followed by a formal laparotomy and relevant procedure e.g. adhenolysis resection anastomosis, diversion etc. Prior to closure copious lavage was done in patients with peritonitis. In high risk group DVT prophylaxis was started. A vigorous post operative monitoring was instituted and where indicated patients were shifted to Intensive Care Unit.

## RESULTS

Out of 54 patients admitted during the study period with diagnosis of small intestinal obstruction. 30 patients of group A were managed conservatively and resolved without any intervention. 25 patients (83%) had history of previous surgeries, whereas 05 (17%) patients had no history of previous surgical intervention. Patients in this groups were followed for variable period in outpatient clinic till December 2004. Group B comprised of 24 patients who required surgical

intervention based of the protocol (as given earlier). In this group, 09 (38%) patients had history of previous surgery whereas 15 patients (62%) had no abdominal surgical procedure prior to this presentation.

Presenting symptoms of small bowel obstruction are shown in Table-1.

Presentation and outcome of 09 patients of Group B who had history of previous surgery and were explored during this admission is given in Table-2.

**Table 1: Presenting symptoms of small bowel obstruction.**

Symptoms	Number	Percent
Abdominal pain	54	100
Constipation	32	60
Nausea / Vomiting	26	48
Fever	22	41
Abdominal Mass	03	06

**Table 2: Presentation and outcome of patients with history of previous surgery.**

Previous Surgery	Presentation	Procedure	No.
Right hemicolectomy for CA Cecum	Recurrence with bowel obstruction	Ileocolic bypass	1
Right hemicolectomy for TB (Ileocecal Tuberculosis)	Obstructing band with gangrene of small bowel	Ileal resection	2
Right hemicolectomy for Ischemic Colitis	Adhesion / obstruction	Ileal resection	1
Repaired Paraumbilical	Incisional hernia	Repair (Viable Gut)	1
Abdominal hysterectomy	Adhesive bowel	Adhenolysis	3
Gynecological procedure	Fibrous bands	Division of bands	1

The operative findings and the procedure undertaken in 15 patients of Group B with no previous history of surgery is shown in Table-3. The predominant procedure done was intestinal resection 53% (n=8).



**Table 3: Presentation and outcome of patients with history of surgery.**

Operative Findings	Procedures	No.
Ileocecal Tuberculosis	R. Hemicolectomy	3
Obstructing Congenital Band with (Gangrene)	Ileal Resection Diversion	1
Obstructed Inguinal Hernia	Repair (Viable Intestine)	2
Obstructed Inguinal Hernia	Repair ETE & Resection with Reanastomosis	1
Carcinoma Cecum	Right Hemicolectomy	2
Adhesions	Adheniolysis	1
Mesenteric Ischemia	Resection Duodenocolic Anastomosis	1
Ischemic Colitis	Right Hemicolectomy & Ileostomy	1
Obstructed Paraumbilical Hernia	Repair	2
Negative Laparotomy	Open and Closed	1

**Table 4. Common causes of small bowel obstruction (n=24)**

Causes	Number	Percent
Post operative adhesions	07	36
Obstructed hernia	06	25
Ileocecal Tuberculosis	03	21
Intestinal ischemia	02	8.3
Carcinoma cecum	02	8.3

Bowel resections were required in 12 patients (22%). 6 patients had gangrene subsequent to obstruction due to fibrous bands, adhesion and ischemia. In further 6 patients resection was undertaken due to stenotic ileocecal tuberculosis (n=5) or carcinoma caecum (n=2). Bowel resections for gangrene were done in 3 patients (6%) which was failure of clinical judgment specially in those who were explored after period clinical observations.

In 12 cases no resection was done and obstruction was relieved by adhenolysis (n=7) reduction and repair of hernia (n=4) and bypass

(n=1). These were the cases which were generally observed for longer time.

A total of 55% of cases of small bowel obstruction (n=30) were managed conservatively and 45% (n=24) were operated. 17% (n=9) patients had undergone, major abdominal surgery and had to be operated to relieve of obstruction and the common causes of small bowel obstruction are given in Table-4. Post operative adhesions (n=7) was most common pathology in those with previous history of surgery. Resectional surgery was the most common (n=12) procedures done to overcome obstruction followed by adhenolysis (n=07). Primary anastomosis was done where patients condition and condition of the intestine was satisfactory for reconstruction otherwise fecal \*diversion was done as ileostomy. This approach was followed in all cases with gross dilatation and intestinal wall edema of proximal segment and haemodynamically unstable patients and with comorbid conditions.

Patients who were managed conservatively were discharged on successful management and followed in out patient clinics for a variable time till December 2004. One patient was readmitted 3 months later and required resection of a tuberculous stricture of small bowel.

The major operative morbidity were wound infection (n=4) (07%), intra abdominal abscess developed in one patient (02%) and it was managed by ultrasound guided aspiration and antibiotic cover. Three patients died with an overall mortality rate of 5.5%. Out of these 2 patients died of septicemia subsequent to anastomotic leak, 1 patient of Ca. Cecum with perforation and fecal peritonitis developed post operative septicemia and died.

## DISCUSSION

*"When called upon to deal with a case of acute intestinal obstruction, the surgeon is confronted with one of the gravest and most disastrous emergencies".* (Barkley Moynihan, 1928)

Intestinal obstruction accounts for bulk of surgical emergencies and is a major health problem with fatal consequences. Obstructed hernia is the major cause of intestinal obstruction in developing



countries whereas adhesive bowel disease and malignancies are the common causes in developed world.

In a similar study at our centre in 1988-91, we observed that the commonest cause of small bowel obstruction was ileocecal tuberculosis accounting for 30% of all the cases<sup>1</sup>. However, according to the statistics of world health organization, tuberculosis is rampant killing disease in the developing countries taking three million lives per year<sup>2</sup>. Gastrointestinal tract is reported to be the sixth most common site of extrapulmonary tuberculosis<sup>3</sup>. Various studies conducted in Pakistan, India and other countries of the region support surgical management of intestinal tuberculosis because the obstructing lesion is usually hypertrophic and responds poorly to medical therapy<sup>4</sup>. In comparison to our previous study, we observed that postoperative adhesions were, now, a more common (36%) cause leading to intestinal obstructions than ileocecal tuberculosis (30% in previous study).

In our series, three etiologies accounted for majority of cases requiring surgeries these included, adhesions (n=9) 36%, hernias (n=6) 25%, ileocecal masses (Ca. caecum n=2 ileocecal tuberculosis n=5). Collectively these entities account for 80% of all small bowel obstruction in various studies<sup>5</sup>. Nearly 50% of surgical cases are due to postoperative adhesions as is true in other studies<sup>6</sup>. 50% of the postoperative adhesions are subsequent to operations undertaken for appendicitis, colonic resections and gynecologic or obstetrics procedures. Three types of adhesions are commonly encountered these are multiple matted, single band obstructing intestine or a combination of two. Keeping in line with modern day small intestinal obstruction we were focused towards avoiding undue delay and hence strangulation and or perforation and this is the most critical determining factor affecting the outcome<sup>7,8</sup>. We generally observed the patients on conservative lines from 12 to 36 hours repeatedly assessing the clinical status of the patient. However in most studies a delay of more than 12 hours in surgical intervention is considered detrimental in managing small bowel obstruction, range of observation period varied from 12 hours to 5 days<sup>9</sup>. Our policy is to exteriorize and

divert in cases where the proximal segment is grossly dilated, the gut is severely diseased or the patient condition is such that primary anastomosis is deemed dangerous. Antibiotic prophylaxis is strongly recommended by most investigators on account of presence of resistant residual microflora and proliferation of bacteria in proximal segment (to obstruction)<sup>10</sup>.

## CONCLUSION

From this small series of patients and review of literature we conclude that common causes of small intestinal obstruction in our part of world are adhesive bowel diseases, obstructed hernia and ileocecal tuberculosis. Undue delays in managing intestinal obstruction must be avoided and early recognition of strangulation requires repeated examination and good clinical assessment. Primary anastomosis may be undertaken for small bowel obstruction provided the presentation is early and the condition of the intestine is good, otherwise there should be no hesitation in fecal diversion.

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