Dynamic Intestinal Obstruction – Study Of Fifty Cases

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Abstracts: Background: Acute intestinal obstruction is one of the commonest surgical emergencies accounting for nearly 30% of all acute abdominal emergencies. It is vital to distinguish strangulated from non-strangulated intestinal obstruction because former is associated with increase morbidity and mortality and is a surgical emergency. Success in the treatment of dynamic intestinal obstruction depends largely upon early diagnosis and skillful management of both the patho physiological effects of dynamic intestinal obstruction and the cause itself. Methodology: The present study includes fifty operated cases of dynamic intestinal obstruction of varied etiology admitted at our institution during the period of July 2008 to October 2010. Patients below the age of 10 years and Patients who were treated conservatively were not included in this study. The patients were followed up for a period varying from 3 months to 1 year postoperatively. Results**:** In present study post operative adhesions and bands were the commonest causes (40%) of dynamic intestinal obstruction. The most commonly performed surgery was adhesiolysis which consisted of division of band or adhesion causing obstruction. The majority of patients in the present study were in their third, fifth and sixth decades of life. The percentage of patients developing complications were much higher in strangulated obstruction. The overall mortality of 12% in the present series compares favourably with other series conducted in recent years. Conclusion: Both morbidity and mortality were higher in cases of strangulated obstruction when compared with simple luminal obstruction. Hence, an aggressive policy should be adopted to reach at an early diagnosis and treat accordingly, thereby preventing the potential complication of strangulation. [Bhadreshwara K et al NJIRM 2015; 6(3): 54-57]

Key Words: Dynamic intestinal obstruction, Strangulation, Mortality.

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Introduction: Acute intestinal obstruction is one of the commonest surgical emergencies accounting for nearly 30% of all acute abdominal emergencies.[1] 'Dynamic intestinal obstruction' term is used to define intestinal obstruction which is caused by a physical blockage of the intestinal lumen. This blockage to the intestine may be due to intestinal contents either intrinsic (luminal or *within wall of bowel*) or extrinsic. While luminal intestinal blockage may be due to Gall stone, Enterolith, phytobezoar, Tricobezoar,parasite infection, Swallowed foreign body,fecal impaction,meconium,food bolus , the lesion within the wall may be due to stricture,tumor etc. The blockage extrinsic to wall of intestine may be because of Adhesions,Hernia,Annular pancreas, Extra intestinal neoplasm,intraabdominal abscess, starch peritonitis, superior mesenteric artery syndrome,Hemetoma.

Dynamic intestinal obstruction produces different patho physiological effects depending on the site of the obstruction, onset of obstruction, presence of strangulation which in turn depends on the duration and severity of mechanical blockage, length of strangulated loop, and specific type of obstruction. Ultimate clinical decisions regarding the management of these patients requires a thorough history, examination (may be repeated examination by same person), workup and a high index of suspicion of potential complications. The diagnosis of dynamic intestinal obstruction is based on the classic quartet of abdominal pain, abdominal distension, vomiting and absolute constipation. Clinical presentation varies according to the Location of obstruction, Duration of obstruction, Underlying pathology, Presence or absence of strangulation. It is vital to distinguish strangulated from non-strangulated intestinal obstruction because former is associated with increase morbidity and mortality, and is a surgical emergency.[2]

The early recognition and treatment of strangulation continues to be a major problem for the surgeon today due to delay in diagnosis in the absence of reliable diagnostic criteria for strangulation.[3] If untreated, vascular changes can lead to toxaemia and peritonitis associated with bowel wall necrosis. Success in the treatment of dynamic intestinal obstruction depends largely upon early diagnosis and skillful management of

both the pathophysiologic effect of dynamic intestinal obstruction and the cause itself.

Material and Methods: Permission of IRB was not taken. Ethical clearance was not taken. The present study includes fifty operated cases of dynamic intestinal obstruction of varied etiology admitted at our institution during the period of July 2008 to October 2010. An attempt has been made to understand the intricacies of diagnosis and management of dynamic intestinal obstruction view at its various aetiopathology, nature of obstruction, age and sex, incidence and clinical presentation. The factors increasing the morbidity and mortality in a cases of dynamic intestinal obstruction were also studied and analyzed.

Patients below the age of 10 years were not included in the study as the aetiology and presentation of intestinal obstruction in the paediatric age group is quite different from that of the adults. Patients who were treated conservatively were not included in this study as it is not always possible to arrive at an accurate diagnosis regarding the level and type of obstruction. Each patient was evaluated clinically, investigated by means of blood and radiological investigations, analyzed and data was collected on a planned Pro forma accordingly. The patients were followed up for a period varying from 3 months to 1 year postoperatively.

Table 1: Comparision Of Various Aetiologies Of Dynamic Intestinal Obstruction. [4,5,6,7, 8,10]

Cases	Bhansali 1970	Ramachandran 1982	Present Series (n=50) 2010 (%)
Adhesion/Band	12.6	23.1	40.0
Malignancy	4.0	9.3	12.0
Hernia	48.0	13.6	8.0
Tuberculosis	15.5	8.6	20.0
Volvulus	10.6	13.6	16.0
Meckel's Diverticulum	-	-	8.0
Stricture	-	-	4.0
SMA syndrome	-	-	4.0
Intussusception	2.8	7.4	2.0
Other	3.0	-	8.0

Table 2: Operative Techniques Used And Management

Operative Procedure	No
Adhesiolysis	17
Resection with end to end anastomosis - Small bowel - Large bowel	 10 1
Hernia - Simple - Reduction + Herniorrhaphy - Strangulated - Local resection with anastomosis with gangrene + herniorrhaphy	 3 1
Rt. hemicolectomy + ileotransverse anastomosis	5
Lt. Hemicolectomy + loop transverse colostomy	3
Deodeno - jejunal anastomosis	2
Detorsion of volvulus with caecopexy	1
Marsupialisation of chocolate cyst	1
Caecal mass biopsy and bypass procedure (ileo ascending anastomosis) (irrescectable caecal mass)	1
Resection and anastomosis for intussusceptions	1
Tricobezoar removal + gastrostomy + duodeno jejunal anastomosis	1
Meckel's diverticulectomy + Appendicectomy	1
Resection of strangulated sigmoid volvulus + colostomy	1
Jejuno transverse anastomosis	1

Table 3: Post Operative Complications

Complications	Simple (n=41)	Strangulation (n=9)	Total (50)
Wound infection	6 (14.63%)	2 (22.2%)	7
Pulmonary complications	2 (4.87%)	1 (11.1%)	3
Paralytic ileus	1 (2.43)	1 (11.1%)	2
Faecal fistula	1 (2.43%)		1
Septicemia	1 (2.43%)	1 (11.1%)	2
Burst abdomen	-	-	
UTI	-	1 (11.1%)	1
Thrombophlebitis	-	2 (22.2%)	2
Electrolyte imbalance	3 (7.3%)	1 (11.1%)	4
Bed sore	-	1 (11.1%)	1
Oral ulceration	-	-	-
Subacute intestinal	1 (2.43%)	-	1

obstruction			
Steroid withdrawal syndrome	1 (2.43%)	-	1
Short bowel syndrome	- (2.43%)	1 (11.1%)	1

Results: In present study, adhesions and bands were the commonest cause (40%) of dynamic intestinal obstruction comparable to other studies. The second to it was malignant mass lesion (12%). Hernia and tuberculosis is third most common cause of dynamic intestinal obstruction. There were 2 cases of Meckel's diverticulum with stricture and superior mesenteric artery syndrome.

The most commonly performed surgery was adhesiolysis which consisted of division of band or adhesion causing obstruction. Resection with end to end anastomosis was performed in 9 patients with small bowel obstruction and 1 patient with large bowel obstruction.

Table-4 Comparison Of Mortality With Other Series [7,8,11,12,13,14]

Overall Mortality		
Vicks	1932	26%
Becker	1955	18.70%
Gill and Egglestera	1965	16%
Waldron and Hamptom	1961	14%
Ramchandran	1982	11%
Present series	(n=50)	12%
Mortality in strangulated obstruction		
Becher	1955	30.50%
Savage	1960	21.00%
Waldran and Hampton	1961	28.80%
Barundt	1975	23%
Present study	(n=50)	33.30%

Reduction of hernia with herniorrhaphy was performed in 3 patients and In 1 patient with strangulated hernia, gangrenous bowel resection and anastomosis followed by herniorrhaphy was carried out.
Transverse loop colostomy was performed in 3 patients with malignant obstruction. 1 patient with malignant obstruction found to be irresectable, so ileo ascending anastomosis was performed bypassing the tumour. In Rest of the 2 patients with malignant obstruction, resection with anastomosis was performed. For 3 patients with tuberculosis obstruction, ileotransverse anastomosis following local resection was performed. Two patients were operated for Duodeno- Jejunal anastomosis for SMA syndrome.

Discussion: Depending upon the presenting symptoms and clinical examination findings patients were subjected to various radiological investigations. i. e -plain x-ray abdomen (erect),
USG Abdomen, Barium enema, CT scan of abdomen to diagnose the obstruction[9].In present study, adhesions and bands were the commonest cause (40%) of dynamic intestinal obstruction comparable to other studies. (Bhansali (12.6%) and Ramachandran (23.1%).[6, 7]

The majority of patients in the present study were in their third, fifth and sixth decades. This could be due to the higher incidence of adhesions Associated with either malignancy or tuberculosis or postoperative sequel, which commonly occur in these age group.

The distribution of intestinal obstruction was almost equal in males and females (29.2%) with slight increase incidence in males, because of increased incidence of malignancy of colon in males. Adhesion was the most common cause of dynamic intestinal obstruction both in males and females. Malignancy and volvulus is more common among males and incidence of tuberculosis was higher in females. Incidence of Meckel's diverticulum and SMA syndrome was higher in males. Intussusception was more common in females.

Hernia, adhesion and volvulus were the commoner causes of gangrene. The percentage of patients in whom strangulation was present, was highest in volvulus (75%), three out of four obstructed hernias were strangulated. There was no evident of gangrene among patient with tuberculosis and malignancy. Though it is not a cause of dynamic obstruction, among other cause mesenteric ischemia was also associated gangrene. Out of 20 patients with adhesions, 9 patients (45%) gave a history of previous abdominal operation and 3 patients (15%) gave a history of intra-abdominal

inflammatory process. The most commonly performed surgery was adhesiolysis which consisted of division of band or adhesion causing obstruction.

The percentage of patients developing complication was much higher in strangulated obstruction with 22.2% of them developing wound infection and 11.1% pulmonary complication as opposed to 14.6% and 4.87% respectively in patients with simple obstruction. The incidence of septicemia was also higher (11.1%) in strangulated obstruction. There is higher morbidity in patient with strangulated obstruction as compared with simple obstruction.

The overall mortality in the present series was 12%. The percentage of mortality was much higher in cases of strangulated obstruction (33.3%) when compared with simple obstruction (7.3%) (Table 4).

The overall mortality of 12% in the present series compares favorably with other series conducted in recent years[7, 8,11,12,13,14]. An interesting feature which can observed is that though there is a gradual decrease in overall mortality over years, mortality due to strangulated obstruction has more or less remained static. This can be explained due to difficulty in differentiating simple and strangulated obstruction clinically and laboratory methods, thus causing a delay in surgery and due to the more complex set of problems associated with strangulated obstruction.

Conclusion: After the analysis of various parameters in all the 50 cases studied, differentiation between simple and strangulated obstruction based on clinical ground remains a daunting task. Signs of peritonitis and leucocytosis are more indicative of strangulated obstruction. Both morbidity and mortality are higher in cases of strangulated obstruction when compared with simple obstruction. Hence, an aggressive policy should be adopted to reach at an early diagnosis and treat accordingly, thereby preventing the potential complications of strangulation. The overall mortality in the present series compares favorably with those of other studies conducted in the recent years. Mortality in dynamic intestinal obstruction was higher in older age, hence more vigilance is required in treating elderly patients and effort should be made to arrive at an early diagnosis, treat concomitant medical condition and operate at the most appropriate time.

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