Management of 100 Patients with Acute Intestinal Obstruction: Surgical Department Experience.

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Abstract:
This work is aimed to study 100 patients with a diagnosis of acute intestinal obstruction. The etiology and management were analyzed, looking to set-up criteria for conservative and early operative intervention.
Material and methods: 100 cases, admitted to the surgical department I in Tripoli Medical Center between Jan 2005 and Jan 2006. Age, sex, clinical presentation, investigations, cause of obstruction and management were reviewed. According to the management, patients were divided into two groups I Conservative, and II surgical.
Results: The age ranged from 16 to 85 years. 65 patients were male and 35 female. Group I was 54 cases. In 44 the cause was post operative adhesions In 10 cases conservative treatment was failed. In group II 46 cases; 16 of them were colonic tumors, 12 closed loop secondary to adhesions, 8 obstructed hernia and 10 miscellaneous.
Conclusion: Postoperative adhesions are the most common cause of intestinal obstruction. Efforts must be directed to minimize such condition. Recent incarcerated paraumbilical and diaphragmatic herniae should be treated surgically on urgent basis.
Key words: Intestinal obstruction; Post operative adhesions; Non operative management

Introduction:
Intestinal obstruction is a common cause of admission in surgical departments and needs prompt management in order to prevent devastating outcome.
Post operative adhesions are still the commonest cause of intestinal obstruction and in the last decades there were many efforts to prevent such problem with no satisfactory results. Developing practice of laparoscopy should carry a smaller risk of adhesions
The decision for surgical intervention in patients with intestinal obstruction remains a challenge to surgeons.
This study is aimed to revise the management of patients admitted due to intestinal obstruction. The etiology and management were analyzed. This would allow us to setup criteria for conservative and early operative intervention to lower the morbidity and mortality

Material and Methods:
Retrospective study of 100 cases, admitted to the surgical department I in Tripoli Medical Center in one year duration (from Jan 2005 to Jan 2006). The files of the patients were reviewed and the information regarding age, sex, clinical presentation, investigations, the cause of obstruction and management were analyzed. The patients were divided in to two groups according the management, (Conservative, or surgical intervention).

Results:
All 100 patients were diagnosed as intestinal obstruction; the age ranging from16 to 85 years. 65 patients were male and 35 female (table1).

Table 1: the distribution of the patients according to their age and gender

	Male	*Female*
Group I	**32**	**22**
Group II	**33**	**13**
Total	**65**	**35**

In group I there were 54 cases managed conservative aged from 35 – 85 years, 32 male and 22 female patients.
In group II 46 patients diagnosed as acute intestinal obstruction aged from 16 – 85 years, 33 of them were males and 13 females (table 1).
Conservative management (54 CASES) -------- 54%
Surgical intervention (46 CASES) -------- 46%

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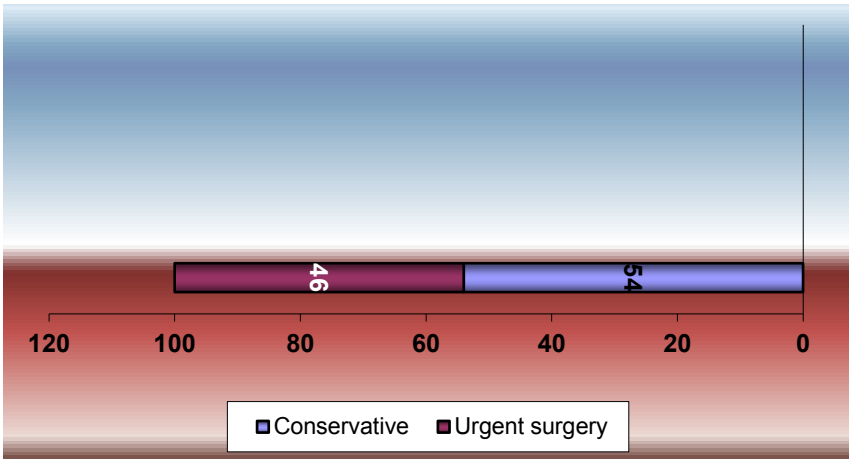


Fig. 1: Represents the type of management.

In group I the patients admitted in a stable general condition, their main complain was colicky abdominal pain, nausea, vomiting, leukocytic count was within normal. The abdomen was soft lax with slight distension.

X –ray abdomen revealed small bowel obstruction in most of the cases. Conservative treatment was started to all the 54 patients, using nasogastric decompression, intravenous fluid, improvement of the patient's condition in 44 cases (81.5%). All of these patients had a history of previous abdominal surgery more than two years back. 10 cases had a history of open cholecystectomy, 4 patients post abdominal hernia repair, 6 female patients were post Cesarean sections, 8 post laparotomy due to colonic tumor, 8 patients were post appendicectomy and the last 8 patients were post laparotomy 4 of them due to trauma, the remaining 4 had perforated duodenal ulcer.

Conservative treatment failed in ten patients, the cause of obstruction in three of them was adhesions, one patient post appendectomy, the second was post-open-cholecystectomy and the last patient was post laparotomy due to perforated duodenal ulcer.

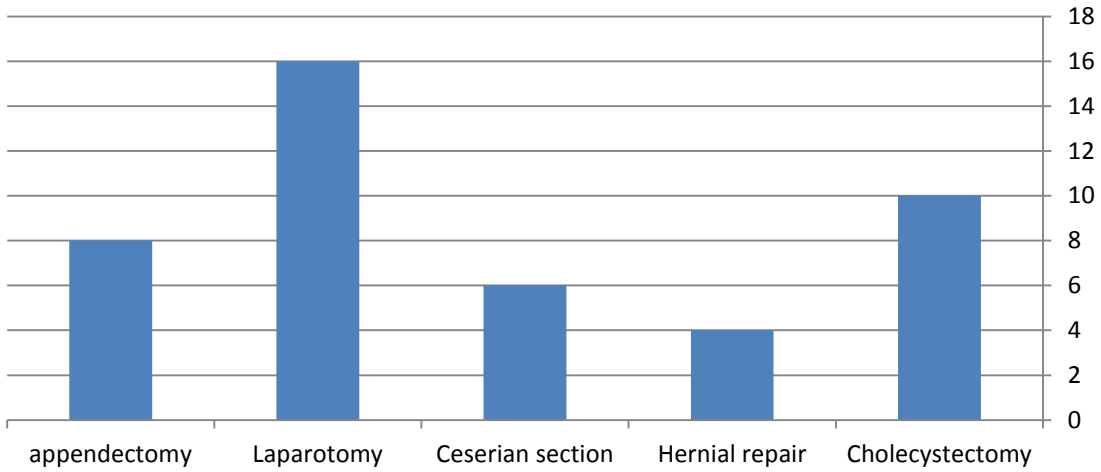


Fig. 2: Relation between the type of surgery and adhesions.

In the remaining 3 patients, 2 of them had obstructed paraumbilical hernia 1 patients had obstructed inguinal hernia.

In the remaining four patients the cause of obstruction was malignancy, 3 cases had colonic tumor, which was in the cecum in one case, right hemicolectomy done to relief the obstruction, one patient with recto sigmoid tumor, Hartmann procedure was done and the other patient had inoperable left colonic tumor, transverse colostomy as palliative procedure to release the obstruction was performed.

In one female the cause of obstruction was cancer uterus with frozen pelvis, terminal ileostomy was performed.

Table 2: Causes of intestinal obstruction in each group.

	Adhesions	Hernia	Tumor	Other conditions	Total
Group I	**47**	**3**	**4**	**0**	**54**
Group II	**12**	**8**	**16**	**10**	**46**
Total	**59**	**11**	**20**	**10**	**100**

Group II: Patients managed by urgent surgical intervention.

All the patients of this group were presented with symptoms and signs of acute intestinal obstruction and abdominal x ray showed multiple fluid levels. In these patients urgent operation after resuscitation was performed. The number of the cases in this group was 46 patients (Fig. 1).

In 16 cases (34.7%), the cause of obstruction was colonic tumor as first presentation of the disease (Table 2; Fig. 2).

12 patients (26%) had a history of previous abdominal surgery, and the cause of obstruction was post operative adhesions, 9 cases were post Appendicectomy, 2 cases were post open cholecystectomy and one was post cesarean section (Fig. 3).

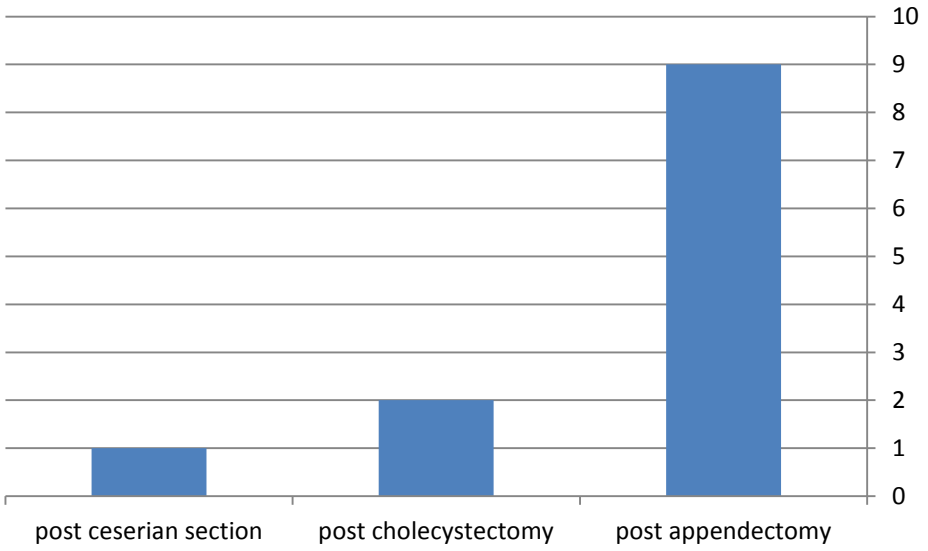


Fig. 3: Representing the type of operation leading to adhesions.

Obstructed hernia was the cause of obstruction in 8 cases (17.4%), obstructed para umbilical hernia was diagnosed in 4 cases, 2 patients with obstructed diaphragmatic hernia and the last 2 patients had incarcerated inguinal hernia (Fig. 4).

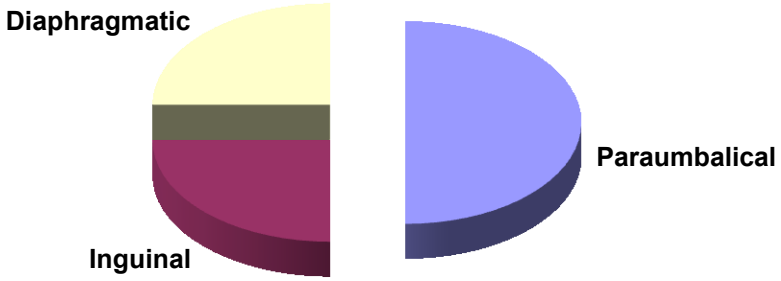


Fig. 4: Types of acutely obstructed hernias.

Para umbilical hernia was the cause of acute intestinal obstruction in 50% of the patients in whom hernia was the cause.

There were 10 patients in whom the cause of obstruction was uncommon and they classified into a miscellaneous group, which included 2 patients with ischemic bowel, resection and anastomosis was performed. In another two cases the cause of obstruction was sigmoid volvulus, one patient had laparotomy with sigmoidopexy, (The sigmoid was viable), in the other patient, the sigmoid colon was gangrenous and resection with Hartmann's procedure was performed.

Four patients presented with intestinal obstruction associated with signs of toxemia, the cause of obstruction was late appendicitis, with peritonitis, appendectomy and peritoneal lavage performed.

In one patient the cause of obstruction was intestinal lymphoma, palliative ileostomy was carried out.

The cause of obstruction was intestinal tuberculosis with small bowel perforation in the last patient who underwent resection and anastomosis.

Discussion:

Intestinal obstruction is a common medical problem and accounts for a large percentage of surgical admissions for acute abdominal pain.

Morbidity and mortality from intestinal obstruction vary significantly and depend primarily on the presence of strangulation and subsequent infection. Strangulation obstruction occurs in approximately 10 percent of all patients with small intestinal obstruction. It carries a mortality of 10 to 37 percent, whereas simple obstruction carries a mortality of less than five percent.[1,4,12,14,15] Observation from this study correlates etiological factors of intestinal obstruction with clinical features. The optimal time for surgical intervention and findings at operation. One of the most difficult tasks in general surgery is deciding when to operate on a patient with intestinal obstruction, the combination of a thorough history, a carefully performed physical examination and correctly interpreted abdominal radiographs usually allow to identify the type of bowel obstruction present and to decide whether a patient requires immediate, urgent, or delayed operation or can safely be treated initially with non operative measures.

In this study most of the patients were diagnosed according to the above mentioned criteria, and divided in two groups (Those who were conservatively managed and who were operated immediately).

Generally, postoperative adhesions were the commonest cause of intestinal obstruction 59%, but adhesions were higher in patients who have been managed conservatively intestinal obstruction (81.5%) than with acute obstruction (26%). It was only preceded by colonic tumors as a cause of acute intestinal obstruction. This is attributed to the large number of population undergoing abdominal or pelvic surgery for common conditions such as cholecystectomy, appendectomy, caesarian sections and others. Most of the patients in this study who had intestinal obstruction due to adhesions had a history of laparotomy, cholecystectomy appendecectomy and ceserian section.

It is agreed that certain surgical procedures tend to be particularly associated with the formation of adhesions such as cholecystectomies, appendectomies, colon surgery and pelvic surgery.

The incidence of adhesions following abdominal and pelvic surgical procedures ranges from 55-94% with adhesions forming in an average of 80-85% of all patients

undergoing these surgical procedures,[7] a high percent of them are asymptomatic and cannot be discovered without surgical intervention.

- 55-94% of patients having abdominal or pelvic surgery will develop post-operative surgical adhesions.[17]
- certain surgical procedures have a higher incidence of adhesion formation.[5,6,8,14]
- cholecystectomy
- appendectomy
- colonic surgery (large colon and small bowel)
- Pelvic surgery (surgery on uterus, fallopian tubes and ovaries)

Although there are many trails to prevent the formation of postoperative adhesions using many intra peritoneal solutions but the results are not optimizing. All authors agree that minimum manipulation of the viscera and avoidance of foreign body materials as gloves powder (talc) decrease the formation of adhesions.[12,13,16-18,21]

In the last two decades and with the introduction of minimal invasive surgery (Laparoscopic surgery), there is an increase belief that adhesions should be decreased, this is attributed to the minimum manipulation and lesser peritoneal insults.[10,19]

In spite of the response to conservative treatment in 75% of the patients admitted with the diagnosis of adhesions induced intestinal obstruction there was 5% in whom conservative treatment failed and 20% admitted with signs and symptoms of acute intestinal obstruction.

There is a constant debate regarding how long patients with sub-acute adhesive obstruction should be treated conservatively and it is agreed by many authors that after 48 hours of non-operative management, the risk of complications increases substantially, and the probability that the obstruction will resolve diminishes. The above obtained results necessitate close observation of any patient with intestinal obstruction due to adhesions, and if there is no response to conservative treatment or the condition deteriorates immediate surgery within 12 to 24 hours should be the rule. Non operative therapy leads to resolution of adhesive partial obstruction in as many as 90%[5,22,23] in this study the incidence was 81.5%.

Abdominal wall hernias represented 11% of the patients, and the most common type was paraumbilical hernia forming 55% of all the patients with incarcerated or obstructed hernias, although in two female patients, conservative management was applied but the results was not good with a gangrenous bowel in one patient, the treatment succeeded in another one. All surgeons are well oriented with the high incidence of obstruction and gangrene of the contents of paraumbilical hernia and most of them advise immediate surgical intervention to prevent the sequels of gangrene.

Many authors believe that reducible paraumbilical hernia should be operated electively as soon as possible, minimizing the high incidence of incarceration and obstruction.

It is interesting that there were two male patients with acute intestinal obstruction due to post-traumatic obstructed diaphragmatic hernia, generally it is a rare condition but in this society and due to the high rate of road traffic accidents, the condition seems to be not uncommon. In both cases the bowel was viable, so immediate operation for these patients is advised avoiding the serious complications of gangrenous bowel in the chest.

The patients who had incarcerated inguinal hernia, conservative treatment failed but there are many studies advise conservative management to treat irreducible inguinal hernia if there are no signs of gangrene and they advice the trial of reduction under analgesia but if this fails the patient should be operated. Here, again it is wise to manage patients with incarcerated inguinal hernias conservatively under close observation taking in mind the fatal out come of the reduction of gangrenous bowel.

Colonic tumor is still an important cause of intestinal obstruction, especially in patients above the age of 50 years. In this study the majority of the patients were aged above 55years, and most of them were males. The tumor usually involving the recto-sigmoid region obstructing the lumen of the large bowel. It is important to mention that all patients with colonic tumor presented with intestinal obstruction as the first complaint. 80% presented with absolute obstruction and

they were operated immediately after resuscitation, most of them had Hartmann's procedure, 70% and 20% had transverse colostomy and 10% had right hemicolectomy or ileostomy.

In literature there are many studies that advise sigmoidoscopy for any person above the age of 45 years as a screening tool that provides early detection of recto-sigmoid tumors

This program is not used here, and the patients usually come late unless there is a complication as obstruction, bleeding or perforation. Also it is important to mention that recto-sigmoid tumors usually present with intestinal obstruction.

20% were stable and treated conservatively, but here again the conservative treatment was ineffective and all of them were operated.

In the literature there are many uncommon and rare causes of intestinal obstruction, in this study there were 10% of the patients classified as miscellaneous the causes of obstruction as mentioned previously in the results were bowel ischemia intestinal lymphoma, abdominal tuberculosis with small bowel perforation and obstruction due to late appendicitis.

It is quite strange to get bowel obstruction induced by severely inflamed appendix but this is explained by the delay in diagnosis and treatment of appendicitis, this should alarm the first contact doctors to the importance of early referring patients with right iliac fossa pain to a surgical center for proper assessment than to send the patient home without exclusion of appendicitis.

It seems to be that this cause of intestinal obstruction can be prevented.

It is quite clear that the incidence of intestinal obstruction can be decreased by early detection and treatment of colon, also recently, there are many trials to reduce post operative adhesions especially after the introduction of minimal invasive surgery.

Finally the surgeon managing the patient with intestinal obstruction should be well oriented by the events of any delay in surgical intervention and should perform the proper management in the optimal time.

Conclusion:

Post-operative adhesions, abdominal wall hernias and colonic tumors are still the commonest causes of intestinal obstruction. It is commonly related to appendectomies, open cholecystectomy, caesarian section, and laparotomy due to colonic tumors. Moreover, incarcerated hernias especially paraumblical, should be operated urgently to minimize the risk of strangulation.

Conservative treatment can be tried in patients with a history of abdominal or pelvic operation unless there are signs of gangrene or closed loop obstruction. However, early recognition and immediate operative treatment of strangulation obstruction are the only means of decreasing strangulation related mortality.

Finally, new studies should be conducted to evaluate the effects of minimal invasive surgery on adhesion formation.

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