



كلية الطب
جامعة النهرين
تأسست عام ١٩٨٧

OVERVIEW OF INTESTINAL OBSTRUCTION IN AL IMAMAIN AL KADHMAI MEDICAL CITY

Done by :

Jaafar Kamala Ali

6th grade

Supervised by :

Dr. Dr Rawaa A. Sattar A.wahhab

Department of surgery

College of medicine

Al-Nahrain University

2019

Acknowledgement

**To whom God have sent as a light in darkness and messenger
to guide us ...**

To my supervisor Dr Rawaa A. Sattar A.wahhab

To my father and mother ...

With my great love...

To my brothers ...

With respect...

To all my friends ...

List of content:

Subject	page no.
Introduction	1
Patients and method	6
Results	7
Discussion	11
Conclusion & recommendations	13
References	14

INTRODUCTION

Intestinal obstruction is the partial or total interruption of transit of the alimentary bolus through the intestinal tract . It is a one of the common life threatening emergencies all over the world .^(1,2,3)

It is second to abdominal trauma as a cause of surgical emergency^(4,5)

The description of patients presenting with bowel obstruction dates back to the fourth century before Christmas, when Praxagores created an entero-cutaneous fistula to relieve a bowel obstruction . Despite this success with operative therapy ,the non-operative management of these patients was attempted with reduction of hernias and using laxatives.

Later with the introduction of antisepsis surgical techniques , the operative intervention became safer and more acceptable⁽⁶⁾

Intestinal obstruction may be classified into two types :

1. Dynamic : where peristalsis is working against a mechanical obstruction.
2. Adynamic : where a mechanical element is absent .

For clinical purposes , intestinal obstruction divided into :

- 1.Obstruction of the small bowel ,
- 2.Obstruction of the large bowel .⁽⁷⁾

The common causes of dynamic intestinal obstruction has been varied by adhesions in 40%, inflammatory and malignancy 15% for both , obstructed hernia in 12%,faecal impaction in 8 %,pseudo-obstruction in 5 % and miscellaneous in 5%.⁽⁷⁾

Small bowel obstruction (SBO) is more common and a challenging clinical problem, Large bowel obstruction (LBO) is most often the result of colorectal malignancies and the lesions usually arise in the sigmoid or recto-sigmoid area.⁽⁸⁾

Acute intestinal obstruction is an urgent disease to be diagnosed and treated promptly.⁽⁹⁾ And as a cause of acute abdomen it is five times more common in the older as compared to younger patients .⁽¹⁾

Acute intestinal obstruction in older age patients may be due to intestinal malignancies , sigmoid colon volvulus , or fecal impaction .⁽¹⁾

Intestinal obstruction can be classified according to the etio-pathogenesis (organic or functional obstruction), time of presentation , and duration of obstruction (acute or chronic obstruction , sub-acute and acute on chronic obstruction) , and there are three types of obstruction (simple , closed loop , and strangulation).⁽¹⁰⁾

A simple obstruction is blocked in one place , whereas a closed loop is blocked in two places . With strangulation obstruction , there is decrease blood flow to the bowel that , if not relieved , gangrenous of bowel will occur and the bowel will become necrotic .⁽¹¹⁾

The obstruction mechanism can be mechanical (dynamic) or non mechanical (adynamic) , mechanical factors can be intraluminal : anything that causes a narrowing of the intestinal lumen (e.g., fecal impaction, foreign bodies, and bezoar) , or intramural (e.g., stricture and malignancy) , or extramural (a compression from outside the intestinal tract by band / adhesion , hernia, and volvulus)⁽⁷⁾

non mechanical factors include those that interfere with the muscle action or innervation of the bowel : pseudo obstruction which is due to either shock as in burns, myocardial infarction, stroke and septicemia or retroperitoneal irritation or trauma as lumbar and pelvic fractures or metabolic causes like diabetes, uremia and hypokalemia which are the most contributory factors .⁽⁷⁾

the diagnosis of dynamic intestinal obstruction is based on the classic quarter of pain, vomiting, absolute constipation and distension. ⁽⁷⁾ in high small bowel obstruction , vomiting occurs early and is profuse with rapid dehydration while distention is minimal.in low small bowel obstruction ,pain is predominant with central distention , vomiting is delayed . in large bowel obstruction , distention is early and pronounced, pain is mild and vomiting and dehydration are late.⁽⁷⁾

It should be emphasized that in simple obstruction, laboratory studies do not play a direct role in a diagnosis, but aid in understanding the extent of complications such as dehydration, strangulation, and sepsis.⁽¹²⁾

A complete blood cell count and differential, electrolyte panel, blood urea nitrogen, creatinine, and urinalysis should be obtained to evaluate fluid and electrolyte imbalance and to rule out sepsis. Arterial blood pH, serum lactate concentrations, and amylase and lactic dehydrogenase activity are useful (but not sensitive) tests in the evaluation of bowel obstruction, especially when trying to rule out bowel necrosis.⁽¹³⁾

In most cases, supine, upright, or lateral decubitus films of the abdomen can distinguish the type of obstruction present (mechanical or non-mechanical, partial or complete) and establish the location of the obstruction. ⁽¹⁴⁾

Erect abdominal films are no longer routinely obtained and the radiological diagnosis is based on supine abdominal films (in intestinal obstruction, fluid levels appear later than gas shadows as it takes time for gas and fluid to separate these are most prominent on an erect film). ⁽⁷⁾

Low colonic obstruction does not commonly give rise to small bowel fluid levels unless advanced, whereas high colonic obstruction may do so in the presence of an incompetent ileo-caecal valve. Colonic obstruction is usually associated with a large amount of gas in the caecum. ⁽⁷⁾

Radiological features of obstruction (on plain x-ray)

- 1- The obstructed small bowel is characterized by straight segments that are generally central and lie transversely. No gas is seen in the colon

- 2- The jejunum is characterized by its valvulae conniventes, which completely pass across the width of the bowel and are regularly spaced, giving a concertina or ladder effect
- 3- Ileum- the distal ileum has been piquantly described by wangensteen as featureless
- 4- Caecum – a distended caecum is shown by rounded gas shadow in the right iliac fossa .
- 5- Large bowel . except for the caecum, shows haustral folds, which unlike valvulae conniventes, are spaced irregularly, don't cross the whole diameter of the bowel and do not have indentations placed opposite one another. ⁽⁷⁾

Treatment of acute abdominal obstruction :

- 1- Gastrointestinal drainage
- 2- Fluid and electrolyte replacement
- 3- Relief of obstruction
- 4- Surgical treatment is necessary for most cases of intestinal obstruction but should delayed until resuscitation is complete, provided there is no sign of strangulation or evidence of closed loop obstruction. ⁽⁷⁾

Indications for early surgical intervention:

- 1-obstructed or strangulated external hernia
- 2-internal intestinal strangulation
- 3-acute obstruction. ⁽⁷⁾

Aim of the study:

- 1- To study the most common causes of intestinal obstruction.
- 2- To evaluate various different presentation of intestinal obstruction.
- 3- To highlight management of intestinal obstruction whether conservative or operative.
- 4- To define the prognosis of patients presented with intestinal obstruction according to the etiology.

Patient and method

A prospective study conducted on 40 patients admitted in surgical emergency department of Al-Imamain Alkadhmain medical city from the first of October 2018 to the first of march 2019

Inclusion criteria:

- 1- All cases with different causes of intestinal obstruction
- 2- Patients admitted and managed by different surgical teams.

Exclusion criteria:

- 1-Pediatric age group

Patient were admitted in general surgical unit by different teams,

After resuscitation with intravenous fluids ; gastrointestinal decompression with nasogastric tube ,Foleys catheter insertion , close follow up electrolyte status and antibiotic cover , diagnosis of intestinal obstruction was done clinically depending on good history and through physical examination , x-ray examination in supine and erect position . Some patients can tolerate investigations and were sent for CT scan , barium enema and colonoscopy.

Statistical analysis:

Descriptive statistics: In form of numbers and percentage (tables)

Analytic statistics : The data were admit and analyzed by using Microsoft Excel

Ethical consideration :

After brief explanation of general purpose of the study and its objectives, oral consent was obtained from each participant.

Results

Table 1 : distribution of patients according to the gender

Patients	Number	Percentage (%)
Male	27	67.5
Female	13	32.5

Table 2 : distribution of patients according to the age

Age	Number	Percentage
18-28	4	10%
29-39	6	15%
40-50	11	27.5%
51-61	10	25%
>61	9	22.5%
Total	40	100%

Table 3 : PRESENTING SYMPTOMS AND SIGNS

Clinical features	Number	Percentage
Abdominal pain	40	100
Vomiting	33	82.5
Abdominal distension	32	80
Constipation	15	37.5
Dehydration	15	37.5
Fever	4	10
Tenderness	30	75
Palpable mass	8	20
Increased bowel sounds	25	62.5
absent bowel sounds	3	7.5

Table 4 : distribution of patients according to the etiology

Cause	Number	Percentage
Adhesions and bands	5	12.5
Hernia	3	7.5
Carcinoma	15	37.5
Mesenteric ischemia	5	12.5
Sigmoid volvulus	2	5
Intussusception	1	2.5
Pseudo-obstruction	3	7.5
Fecal impaction	5	12.5
Diverticular disease	1	2.5
Total	40	100

Table 5 : distribution of patients according to the tumor site

Tumor site	Number	Percentage
Small intestine	2	13.3
Ovarian tumor with local spread to the rectum	1	6.7
Large intestine	12	80
Total	15	100

Table 6 : distribution of patients according to the management

Etiology	Number	Conservative		Surgery	
		No.	%	No.	%
Adhesions and bands	5	4	80	1	20
Hernia	3	0	0	3	100
Carcinoma	15	0	0	15	100
Mesenteric ischemia	5	0	0	5	100
Sigmoid volvulus	2	0	0	2	100
Intussusception	1	0	0	1	100
Pseudo-obstruction	3	3	100	0	0
Fecal impaction	5	4	80	1	20
Diverticular disease	1	0	0	1	100
Total	40	11	27.5	29	72.5

Table 7 : : distribution of patients according to the complications

Complication	Number	Percentage
Wound infection	15	37.5
Wound dehiscence	2	5
Fistula	2	5
Stoma complications	1	2.5
Recurrent	4	10
Deep vein thrombosis	2	5
Urinary Cx	3	7.5
Respiratory Cx	5	12.5
Cardiac Cx	1	2.5

Regarding to mortality , one case died following surgery for acute intestinal obstruction due to mesenteric ischemia , so the mortality rate is 2.5%.The potential reasons for lower mortality rate in our study may be due to early intervention of the obstruction before complications occur and adequate preoperative resuscitation which might be expected to decrease mortality.

Discussion

Worldwide, bowel obstruction causes significant surgical admissions and adversely affects the lives of millions of individuals, cutting across all ages with considerable healthcare systems cost and burden.⁽¹⁵⁾

Age incidence

Intestinal obstruction although occurs in all age groups, the age spectrum in our clinical study was above 18 years. The study showed peak incidence in the age group 40-50 of 27.5% and 51-61 years of 25% which is comparable with the previous studies by Adhikari S et al.⁽¹⁷⁾

Sex Incidence

In Adhikari S et al, study male to female ratio was 4:1. In Osuigwe AN et al, study male to female ratio was 2:1.⁽¹⁸⁾ In current study the gender distribution was more in male 27 patients (67.5%) while in females were 13 patients (32.5%) which is like that of other studies.

Etiology

The cause of intestinal obstruction differs in different geographical locations. In present study of 40 cases of intestinal obstruction, 37.5 % of the cases were due to malignancy, In this study, malignancy was the commonest cause of intestinal obstruction, which is consistent with Souvik Adhikari⁽¹⁷⁾ which is 20 % while different with Brooks and Butler⁽¹⁹⁾ and Arshad Malik⁽²⁰⁾ which were 5 % .

Clinical features

In our study , abdominal pain was present 100% of cases which consistent with Adhikari Set al, and Khan JS⁽²¹⁾ but differ with Souvik Adhikari⁽¹⁷⁾ which is 72% .

Table 9: Comparison of clinical features with other studies

Study	Pain abdomen	Vomiting	Distention	constipation
Our study	100%	82.5%	80%	37.5%
Souvik Adhikari	72%	91%	93%	82%
Jahangir- Sarwar Khan	100%	92%	97%	97%

Complications

Wound infection occur in 15 patients (37.5%) as the most common complication in post operative patients followed by chest infection , this consistent to shashia⁽²²⁾,

Mortality rate was 2.5% due to one case to mesenteric ischemia, other studies show increased in mortality in surgically treated patient as in chen⁽²⁴⁾ , sebastiano⁽¹⁶⁾ 18.5%.From another view the overall mortality were better than shashia⁽²²⁾ 14%. Mortality related factor are emergency surgery, anesthetic risk, presence of malignancy, old age, delay presentation and associated medical illness.

Management

All patients with tumors, volvulus and hernia managed surgically while all patients with pseudo-obstruction and almost all cases of fecal impaction and adhesion managed conservatively, so 72.5%of all patients managed surgically and only 27.5% treated conservatively, our result consistent with research conducted in Nigeria⁽²³⁾ and USA⁽¹⁸⁾ .

Conclusion

Success in the treatment of intestinal obstruction depends largely upon early diagnosis, skillful management and treating the pathological effects of the obstruction just as much as the cause itself.

Early recognition and aggressive treatment are crucial in preventing irreversible ischemia and trans-mural necrosis and thereby in decreasing mortality and long-term morbidity.

Abbreviations

SBO, small bowel obstruction; LBO, large bowel obstruction;

References :

1. Lawal OO, Olayinka , Bankole JO. Spectrum of causes of intestinal obstruction in adult Nigerian patients. S Afr . J Surg. 2005; 43:34-6.
2. Mcentee G ,Pender D , Mulvin D ,McCullough M , Nawwder S , Farah S , et al . Current spectrum of intestibal obstruction . Br J Surg . 2005;74:976-80.
3. Madziga AG , Nuhu AI . Causes and treatment outcome of mechanical bowel obstruction on north eastern Nigeria . West Afr . J Med . 2008;27:101-5
4. Vakil Rakesh , Kalra Raul Subrat , Paljor Yoel , Sanjay role study in adhesive small bowel obstruction , Joseph Sudhir Indian journal of surgery , 2007, volume 69, issue 2.
5. J.G. Mosley and A . Shoaib operative versus conservative management of adhesinal intestinal obstruction British journal of surgery , Volume 87 , issue 3:362-373.2168.2004
6. Towensend CM , Beauchamp RD , Evers BM , et al (eds) : Sabiston Textbook of surgery : The biological basis of modern surgical practice , 18th . Saunders Philadelphia , 2008.
7. Russell R.C.G. Williams N.s , Bultstorde C.J.K.: Intestinal obstruction , Bailey and Love s Short practice of surgery , 25rd edition . 2008;1189
8. Khurana B, Ledbetter S, McTavish J, Wiesner W, Ros P. Bowel Obstruction Revealed by Multidetector CT.American Journal of Roentgenology.2002;178(5):1139-1144
9. Byun yh.park ys transient intestinal obstruction , Korean journal of gastroenterology taehan sohwagi chi 2005 sep. 46(3):211-7
10. Michael j.zinner , stanely w. Ashley bowel obstruction , maingots abdominal operation 11th 2007 . 479-505

- 11.. safioleas , Michael. Chtziconstantinou , constantinos clinical considerations and therapeutic strategy for sigmoid volvulus in elderly world lournal of gastroenterology 2007 feb 13(6) : 921-4
- 12.Mulholland, Michael w, ; lillemoe, keith d.; Doherty, gerard m,; maier v. ; upchurch, gilbert r. ;greenfields surgery : SCIENTIFIC PRINCIPLES AND PRACTICE , 4th edition 2006 pp. 768-77
- 13.. Michael j, zinner, Stanley w. Ashley : maingots abdominal operations 11th edition 2006, chapter 17. Bowel obstruction ; pp 479-509
- 14.. heilon ws : intestinal obstruction . in ACS surgery : principles and practice new york web MD professional publishing 2007 , pp 263-280
- 15.Ergul E, Korukluoglu B. Peritoneal adhesions: Facing the enemy. Int J Surg. 2008;6:253–260.
- 16.. Sebastiano Biondo : large bowel obstruction: predictive factors for post operative mortality. World journal of surgery , 2012, volume 36, number 1,page 179-185.
- 17.Adhikari S, Hossein M, Das A, Mitra N, Ray U.Etiology and outcome of acute intestinalobstruction: A review of 367 patients in Eastern India. Saudi J Gastroenterol. 2010;16(4):285
- 18.Osuigwe A, Anyanwu S. Acute intestinal-obstruction in Nnewi Nigeria: a five-year review. Nigerian Journal of Surgical Research. 2002;4(3): 14-16.
- 19.Brooks VLH, Butler A. Acute intestinal obstruction in Jamaica. Surg Gynaec Obstet 1996;122:261-264
- 20.David I Soybel. Ileus and small bowel obstruction.3rd ed. Chapter 26. In: Lazar J Greenfield, MichaelW Mulhihand, Veiyh J Oldham, Gerald B Zelenock,Keith D Lillinoe, eds. Scientific principles andpractice of surgery. Philadelphia. Lipincott Williamsand Wilkins; 2003:810
- 21.Jahangir Sarwar Khan, Junaid Alam, Hamid Hassan, Mohammed Iqbal. Pattern of intestinal obstruction ahospital based study. Pakistan Armed Forces Med J.2007;57(4):295-299
- 22.. kumar s. clinical study and surgical management of intestinal obstruction in adults. Quest journals. 2016;3(11):19-27 .
- 23.Ayalew T. Small intestinal volvulus in adults of Gondar region, N, W Ethiopia. Ethiop Med J. 2001;30:111–4.

24.. Chen X, wet T, Jiank K, et al. Etiological factors and mortality of acute intestinal obstruction : a review of 705 cases. Journal of chinese integrative medicine . 2008;(10):1010-1016