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CLINICOPATHOLOGICAL STUDY OF ACUTE LARGE GUT OBSTRUCTION IN ADULTS.

THESIS

SUBMITTED TO THE FACULTY OF MEDICINE

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By

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CHAPTER I

INTRODUCTION

INTRODUCTION

Acute large gut obstruction is one of the common acute surgical emergencies. Approximately 25% of all intestinal obstructions in adults occur in the large gut(Turell 1969; and Walter Birnbaum,1975).

The mortality and morbidity rates accompanying large gut obstruction are high, and in most series is more than 30%, (Marshall,L.Michel Jr. et al,1950;Byrne,1960 and Becker,1953). This high mortality is attributed to old age, early dormant symptoms of the disease and prevalence of carcinoma as an etiological factor.

It was found that more than 75% of cases of colonic obstruction occurs in patients over 50 years of age(Turell, 1969),and 90% of fatalities occur in people over 50 years (Marshall,1950,and Turell,1969).

However, age is not the only contributing factor to the high mortality; one of the difficulties is in the prompt recognition of the often surprisingly dormant symptoms especially in elderly patients (Turell,1969).
This delays the diagnosis, and results in greater intestinal distension and possible strangulation which contributes more to the high mortality.

Carcinoma of the colon being the most common cause of obstruction, augments more the mortality from this disease (Davis C. Sabiston,1972 and Zlatarski,1973).

In view of this prevalent high mortality, it is evident that acute large gut obstruction remains one of the serious problems in abdominal surgery.

However, the mortality rate from large gut obstruction declined appreciably nowadays. This significant decrease is attributed to several factors (Leon F. Nadroski,1974):

- Introduction of gastrointestinal decompression.
- Fluid, electrolytes and blood replacements.
- Antibiotics.
- Improvement in surgical techniques.
- Early interference in simple mechanical obstruction before strangulation occurs.
- Wide utilization of C.V.P. monitoring.
- Improved knowledge and correction of the hypercoagulable state.
- Great appreciation of pulmonary physiology with particular attention to the "yawn manoever".
- The use of intravenous feeding "hyperalimentation"for anabolic maintenance.

AIM OF THE WORK

Acute large gut obstruction is one of the serious problems in abdominal surgery and by study of this problem we may be able to improve the survival rate .

Our study includes the following :

a- Statistical study of cases of acute large gut obstruction in adults recieved and managed in Alexandria University Hospital during the period starting January I97I to June I976 .

b- Detailed clinicopathological study of cases of acute large gut obstruction in adults encountered during the period starting January to June I976 .

c- Comparative study with world literature .

CHAPTER II

MATERIAL AND METHODS

MATERIAL AND METHODS

A- A five-year statistical survey was carried out in the Alexandria University Hospital for the period 1971 - 1975 on acute large gut obstruction in adults.

B- Our cases which we managed during six months from January to June 1976.

In every case the obstruction was diagnosed on the basis of clinical examination, radiological findings and findings during laparotomy.

CHAPTER III

RESULTS AND DISCUSSION

RESULTS AND DISCUSSION.

Out of 563 cases of intestinal obstruction in adults treated in Alexandria University Hospital during the period starting January 1971 to June 1976, 106 cases were due to acute large gut obstruction (18.8%), Table 1.

Table 1: Percent of acute large gut obstruction in adults compared to total cases of intestinal obstruction for the period starting January 1971 to June 1976 in Alexandria University Hospital.

Period	Total	Large gut		Small gut	
		No	%	No	%
1971 - 1975 (A)	500	90	18.0	410	82.0
January-June 1976 (B)	63	16	25.4	47	74.6
Total	563	106	18.8	457	81.2

Michel (1950) found a percentage of (16.5%), John A.Shephered (1960) (21.6%), Turell(1969)and Walter Birnbaum (1975) (25%).

However, Paul Nemir Jr (1951) had found a percentage of 5.73% which is considered to be a too low percentage compared to other series.

The over-all mortality for cases of acute large gut obstruction in adults admitted to Alexandria University Hospital during our period was 40 cases (37.7%), as shown in table 2.

Table 2: Mortality in the 106 cases of acute large gut obstruction in adults treated in Alexandria University Hospital for the period starting January,1971 to June, 1976.

Period	Total	Deaths		Living	
		No	%	No.	%
1971 - 1975 (A)	90	35	38.9	55	61.1
January-June 1976 (B)	16	5	31.3	11	68.7
Total	106	40	37.7	66	62.3

As shown in Table 2 there is significant decrease in the mortality during January-June 1976 (31.3%) than that during the period 1971 -1975 (38.9%) due to the better understanding and correction of the pathophysiological changes resulting from large gut obstruction.

The over-all mortality in our series(37.7%) is still higher than other series: Becker (1953)"32.7%"; Byrne(1960) "31.9%"; Marshall (1950)"30% "; Eliason (1947)"16%" and Brindley (1945)"21%". This is due to the better facilities and equipment within their centers that help early diagnosis and proper management of their patients.

The sex incidence in our series showed that males were commonly affected than females with a ratio of 2.2 : 1.

The etiology and mortality rate accompanying the 106 cases of acute large gut obstruction are shown in table 3.

Table 3: Etiology and mortality in the 106 cases of acute large gut obstruction in our period.

Etiology	Total		Deaths	
	No.	%	No.	%
Cancer	31	29.3	16	51.6
External Hernia	29	27.4	6	20.7
Volvulus sigmoid	19	17.9	8	42.1
Intussusception	8	7.6	2	25.0
Bands	5	4.7	3	60.0
Faecal Impaction	5	4.7	1	20.0
Mesenteric Occlusion	3	2.8	3	100.0
Pressure from outside (Fibroid uterus, ovarian cyst)	2	1.9	1	50.0
Obstruction of colostomy, By stool By band	2 1	2.8	-	Zero
Ileocaecal stones	1	0.9	-	Zero
Total	106		40	37.7

As shown in Table 3, malignancy, external hernia and volvulus sigmoid are the most common etiological factors as they represent 74.6% of causes of acute large gut obstruction, also, the deaths from these three causes contribute more to the mortality as they represent 75% of total deaths.

We encountered three cases of acute large gut obstruction due to mesenteric occlusion (2.8%).
Compared to nine cases of mesenteric occlusion affecting the small intestine during the same period in Alexandria University Hospital, mesenteric occlusion affecting the large gut represent 25% of cases of mesenteric occlusion.

However, reviewing the literature, mesenteric occlusion of the large gut is extremely rare and very infrequent as a cause of acute large gut obstruction, and when it does occur it carries an extremely high mortality (John A. Shephered, 1960; Turell,1969 and Wangensteen,1955).

All our three cases died.

Through out our series, and after reviewing the literature, we noticed that obstruction of the large bowel occurs more frequently in the left colon as shown in (Fig.1) and (Table 4).

Table 4: Location of the 106 cases of acute large gut obstruction in adults in our series in Alexandria University Hospital.

Etiology	Left colon				Right colon			
	Total		Mortality		Total		Mortality	
	No	%	No	%	No	%	No	%
Cancer	25	80.6	12	48.0	6	19.4	4	66.7
External hernia	9	31.0	1	11.1	20	69.0	5	25.0
Volvulus sigmoid	19	100.0	8	42.1	-	0	-	0
Intussusception	1	12.5	-	0	7	87.5	2	28.6
Bands	1	20.0	1	100.0	4	80.0	2	50.0
Faecal impaction	5	100.0	1	20.0	-	0	-	0
Mesenteric occlusion	1	33.3	1	100.0	2	66.7	2	100.0
Pressure from outside (Fibroid uterus, Ovarian cyst).	2	100.0	1	50.0	-	0	-	0
Obstruction of colostomy by stool or band	3	100.0	-	0	-	0	-	0
Ileocaecal stones	-	0	-	0	1	100.0	-	0
Total	66	62.3	25	37.9	40	37.7	15	37.5

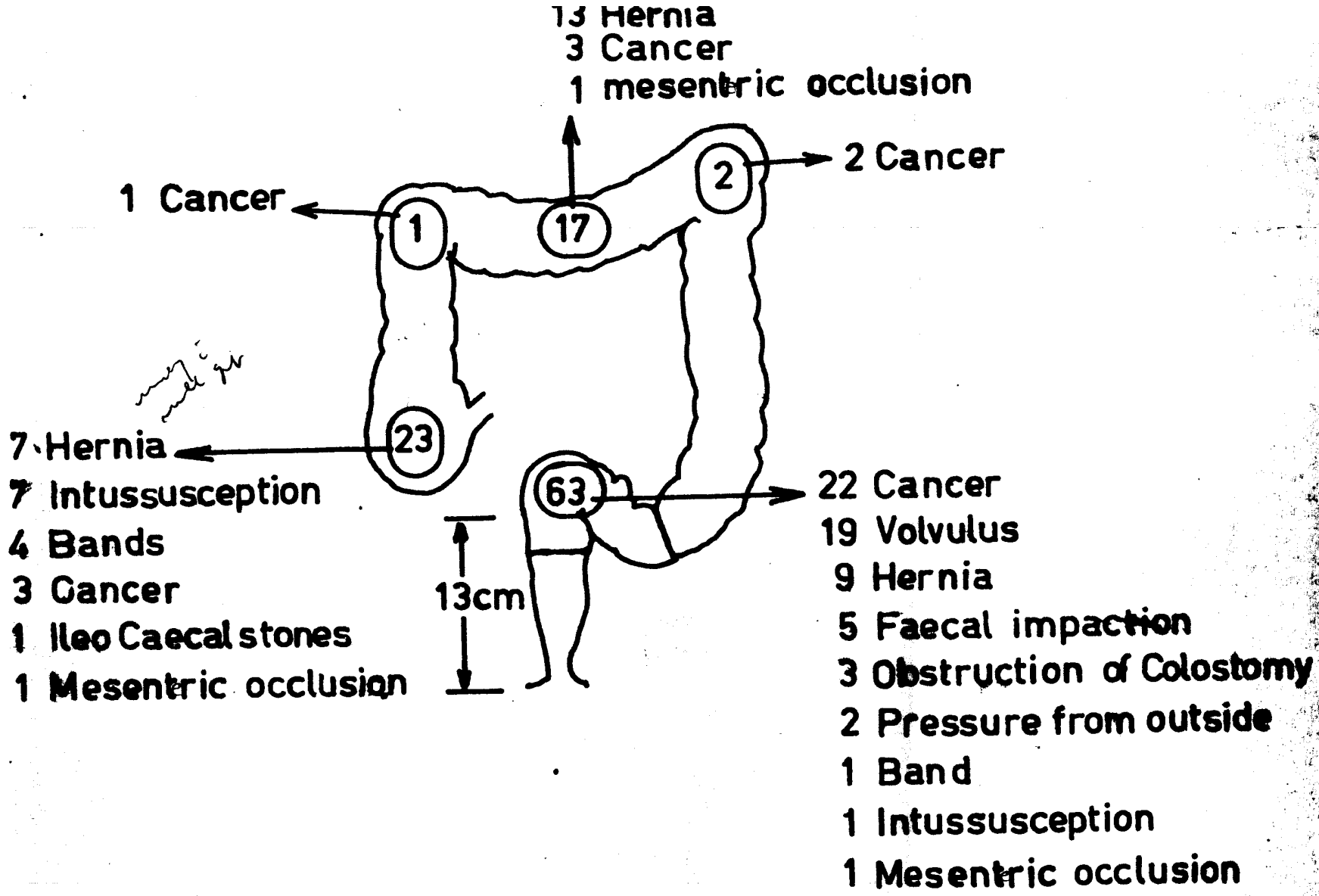

Fig. (1) Distribution of the 106 cases of acute large gut obstruction in our series.

Out of 106 cases, 66 cases (62.3%) occurred in the left colon.

OBSTRUCTION DUE TO MALIGNANCY:

Carcinoma of the colon is by far the most common cause of obstruction of the large bowel. The prognosis of patients with this complication is bad (Davis C. Sabiston,1972 and Zlatarski,1973).

Between January,1971 to June,1976, 31 cases of acute large gut obstruction due to cancer were seen at Alexandria University Hospital (29.3%).
This percentage is smaller than that reviewed from the world literature, (John A. Shephered,1960 "38.3%"; TUrell,1969 "60-70%"; and Love L.,1973 "48-86%").

Of the 31 patients, 23 were males (74.2%), and 8 were females (25.8%), representing a ratio of approximately 3 males to one female. However, the world literature showed preponderance of females over males (Zlatarski,1973 "males:females,is, 3 : 4"; and John P. Welch,1974 "Through his series 52 were males and 72 were females").

The average age in our series was 47.1 years, and this is considered a rather younger age compared to other parts of the world:

John P. Welch (1974)" 71.1 years",
Gerard (1971)"70.6 years",
Zlatarski (1973)" 62.5 years",
and Turell (1969)" more than 75% of patients were over 50 years".

In our series the highest age was encountered in carcinoma of the rectum (66 years), and the lowest was in carcinoma of the rectosigmoid junction (18 years).
Of the 31 patients, 25 cases (80.6%) were located in the left colon, while only 6 cases (19.4%) were located in the right colon. Also, the majority of cases of left colonic obstruction due to cancer were located in the region of sigmoid and upper rectum (22 cases) (71%) as shown in table 5.

Table 5: 31 cases of acute large gut obstruction in adults due to cancer with 16 deaths in our series in Alexandria University Hospital.

Site	Total		Sex		Mortality		Mean age
	No	%	Male	Female	No	%	
Sigmoid	8	25.8	6	2	5	62.5	
Rectosigmoid	8	25.8	6	2	2	25.0	
Rectum	6	19.4	5	1	2	33.3	47.1
Splenic flexure	2	6.4	1	1	2	100.0	years
Caecum	3	9.7	3	-	2	66.7	
Transverse colon	3	9.7	1	2	3	100.0	
Hepatic flexure	1	3.2	1	-	-	-	
Total	31		23	8	16		

The preponderance of obstructing carcinoma in the region of sigmoid and upper rectum was reviewed in the literature and was found to constitute:65.7% by Dennis (1945);"64.2%"by Wangensteen (1955), 48.4% by Campbell (1956), "56.9%"by Muir (1956), "62.1%"by Goligher (1967), "34% " by Floyd and Cohn (1967), " 70%" by Turell (1969) and "50.9%" by Kronborg(1975).

It was estimated that complete intestinal obstruction occurs in 9-23% of patients with colo-rectal cancer (John.P. Welch,1974).

The results of the operative management of the 31 cases of cancer in our series are shown in table (6).

Table 6: Management of the 31 cases of acute large gut obstruction in adults due to cancer in our period in Alexandria University Hospital.

	(A) Colostomy 26			(B) By-pass 3	(C)Exterio-risation 1	(D)Primary resection 1
	Transverse colostomy	Pelvic colostomy	Caeco-stomy			
First stage	19	5	2	3	1	1
Second stage	3	4	-	-	1	-
Third stage	2	-	-	-	-	-
Mortality	9 47.4%	2 40%	2 100%	2 66.7%	0	1 100%

The management of the 31 cases of acute large gut obstruction due to cancer was as follows (Table,6).

A- Proximal Colostomy:

Was done to 26 cases:

1- Transverse Colostomy: was done in 19 cases:

- 17 Cases in the period 1971 - 1975:

. Seven cases of cancer sigmoid colon: one had later on anterior resection and survived, one was very advanced and discharged living with the colostomy, and the remaining five cases died before a second operation due to peritonitis, septic shock and pulmonary complication.

. Four cases of cancer recto sigmoid: in one patient on reopening the abdomen the mass was fixed and unresectable and closed again, another case discharged after the colostomy, and the remaining two cases died before a second operation from coronary occlusion and pulmonary oedema.

. Four cases of cancer rectum: two patients discharged after the colostomy as they were very late, and the other two refused further operation.

. One case of cancer splenic flexure and died of cerebrovascular accident.

. One case of cancer transverse colon and died of pulmonary complication.

- 2 cases in the period starting January to June 1976:

. The first had cancer rectosigmoid and was a young female (18 years), four weeks after the colostomy anterior resection was performed.

The patient passed a smooth post-operative period. One and half months later, the colostomy was closed extraperitoneally and the continuity of the large gut resumed again (Fig. a - d).

Fig.2,a: X-ray film in the erect position to a case of obstructing rectosigmoid carcinoma which shows marked distension especially in the flanks,also,multiple fluid levels are seen.

Fig.2,b: The same patient. The specimen is the lower sigmoid and upper rectum showing the site of obstruction by the carcinoma. Also,it is very clear that there is proximal dilatation and distal collapse.

Fig.2,c: Site of normal mucosa uninvaded by the malignancy.

Fig.2,d: Site of mucosal destruction and invasion by the tumour.

. The second case was cancer sigmoid colon which was presented by a picture of acute large gut obstruction. A transverse colostomy was done.

Three weeks later, exploration was carried out, a loop of small intestine was closely adherent to the mass. Anterior resection was carried out with safety margin and the adherent loop of small intestine was resected and anastomosis was performed.

The patient survived the procedure well.

Pathological examination of the specimen proved an (adenocarcinoma),Fig.3.

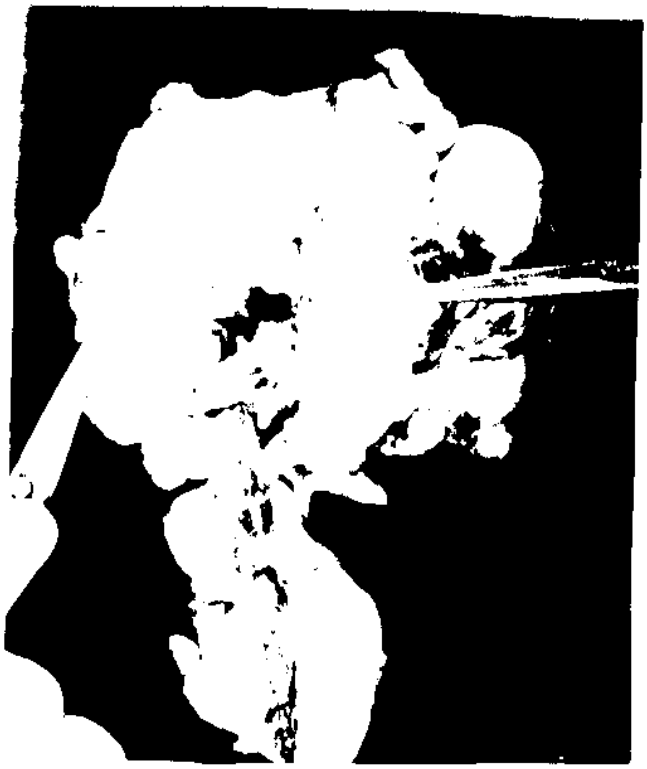

Fig. 5: Specimen removed from a patient with obstructing carcinoma of sigmoid removed by anterior resection. As shown, the lesion was bulky and nearly completely occluding the colon with proximal dilatation and distal collapse.

2- Pelvic Colostomy: was done to five cases:

. Four cases in the period 1971-1975: two cases of cancer rectosigmoid to whom-later on-abdominoperineal resection was done and they survived.

One case of cancer rectum to which-later on-pelvic excentration and uretrocutaneous implantation was done but the patient died of septic shock.

The last case was a very advanced cancer rectum and the patient died of acute heart failure and pulmonary oedema before a second operation.

. One case in the period starting January 197[illegible] who had cancer rectosigmoid. The lesion was annular and presented with acute large gut obstruction.

Pelvic loop colostomy was done. Five weeks later an abdominoperineal resection was done and the patient passed a very smooth post-operative period and discharged well three weeks later, Fig. 4, a & b.

Pathologically, it was an adenocarcinoma.

(Although the patient had a barium enema done two months before presenting with intestinal obstruction showing filling defects "Fig.4", yet, the patient refused surgical intervention at that time).

Fig.4,a: Barium enema to the patient who had annular carcinoma of the rectosigmoid. We can readily see the very marked colonic distension and the tapering lower end of the column of barium.

Fig. 4, a: The same patient. The specim, (removed by abdomino perineal resection) shows the lower part of the sigmoid colon till the anal verge. The annular carcinomatous stricture is very well seen occluding the lumen completely and bulging into the lumen.

In this case, although carcinoma was high, anterior resection would have been feasible if the patient had transverse colostomy. This is one of the drawbacks of pelvic colostomy, as it hinders mobilization of the colon for a sphincter-saving procedure.

3- Caecostomy: Although condemned by most surgeons, It was done to two cases:

. One case of cancer splenic flexure in the period 1971 - 1975 which was very late and the patient died of cardiogenic shock three days later.

. One case of cancer transverse colon in the period starting January 1976. The mass was cauliflower and completely occluding the lumen. A tube caecostomy was done. The patient developed-later on-partial burst of the exploratory wound with excoriation of the skin around the caecostomy. Five weeks later, the patient was re-opend but the condition was very advanced and closed again.

Ten days later, the patient died of peritonitis and liver failure. A post-mortem was done and the abdominal contents were nearly one mass with invasion of the tumour to most of the abdominal contents with ascites, Fig. 5 (a-c).

Pathologically, it was an "adenocarcinoma".

Fig. 5,a: X-ray film in the erect position to the patient who had obstructing carcinoma of the transverse colon. The marked abdominal distension is readily seen. (Only large gut is distended).
In such case, there is a threatening danger of perforation of the caecum;(thinnest and widest part of the large gut), according to the low of Laplace.

Fig. 5 : A post mortem picture to the same patient.
We can see that all the abdominal contents are nearly one mass with poor differentiation of the organs.
The greater omentum is seen amalgamated with colon at the site of obstruction.

Fig.5,c: The same patient. After dissection of the large gut from the ileocaecal valve to the anus. The black arrow points to the site of obstruction (Large gut is opened). The proximal dilatation and the distal collapse is clearly seen.

B- By-Pass:

- Ileotransverse anastomosis was done to two cases of cancer caecum in the period 1971 -1975, the first escaped before a second sitting, and the second died of peritonitis.
- Ileodescending anastomosis was done to one case of very late cancer transverse colon in the period starting January,1976.

  The case showed massive dissimination to all surrounding structures with liver and small intestinal affection, together with about eight litres of malignant ascites. The patient was harbouring multiple stone kidney and had had past history of Jaundice.
  She died three days later of hepatorenal failure and electrolyte imbalance.

C- Exteriorization:

Was done in one case of annular carcinoma of the hepatic flexure in the period 1971 - 1975. Two days later, excision of the mass was done with creation of a double-barrel colostomy. One and half months later, the colostomy was closed extrapeitoneally and the patient survived.

D- Primary Resection:

Was done to one case of cancer caecum in the period starting January,1976. The lesion was cauliflower mass encroaching on the ileocaecal valve and nearly completely occluding the beginning of the ascending colon.

The mass was felt preoperatively.

To this patient, primary right hemicolectomy was done with end-to-end ileotransverse anastomosis, but the patient developed uraemia and died of pneumonia two weeks after the operation.

Resection of complicated carcinoma of the right side of the colon in the first sitting is accepted by many authors, (Balslev,1971 and Herrington,1967). While complicated carcinoma of left side of the colon should be managed in stages, as primary resection anastomosis in the left side is followed usually by leakage from the anastomotic line and gram-negative septic shock, (Gerber,1962).

The deaths in the 31 cases of acute large gut obstruction due to cancer were 16 cases (51.6%) and represent 40% of total deaths from acute large gut obstruction.
Of these, 12 deaths occurred with left sided cancer, and four with right sided cancer.
Out of the 25 cases of left sided cancer, 12 cases died representing a mortality of 48% which is lower than that of right sided cancer, where we find that, out of the six cases, four cases died (66.7%), this coincides with the series of "John P Welch,1974" who reported 21% and 11% mortality with right colon and left colon obstruction respectively.
Caecostomy was done in two cases and died, transverse colostomy was associated with 47.4% mortality and pelvic colostomy had the lowest mortality(40%).
Reviewing the literature, it was found that:
"Albert and Smith 1952" recorded a mortality of 56% and 23% with caecostomy and transverse colostomy respectively.
(Rack & Clement,1954 and Campbell,1956) find the mortality after caecostomy slightly higher than transverse colostomy.

Caecostomy is condemned by most surgeons even for obstructions proximal to the hepatic flexure. In cases of more distal obstructions caecostomy may not provide adequate decompression when there is faecal impaction and mucosal ulceration, in addition to the fact that the stoma tends to dry up in 2-3

days. Inadequate drainage leads to persistence of oedema, hyperaemia and tension specially for left sided growths with persistent risk of gangrene and perforation in the presence of faecal impaction.

Among the minority who recommend caecostomy we find (Rack & Clement,1954 and Mynard & Turell,1955) who prefer caecostomy to any obstruction at any level as the vulnerable thinned out caecum is directly deflated, handling of distended bowel is avoided, contamination of peritoneal cavity is reduced to minimal and colon can be adequately prepared through caecostomy. Also the caecostomy often closes spontaneously when it is no longer required.

On the other hand, transverse colostomy is recommended by us and the majority of other writers for growths beyond the hepatic flexure and it provides adequate decompression, does not need mobilization and does not interfere with second sitting and the probable limit of resection.

For more proximal obstruction, a "By-Pass" operation is recommended after complete deflation of the distended colon.

With a competent ileocaecal valve perforation of the colon in cases of large gut obstruction is a threat and prompt surgical decompression is mandatory.

The caecum carries the highest incidence of perforation as it has the widest and thinnest wall of all parts of the large gut, (according to the law of Laplace).
It was estimated that there is a critical diameter of 9 cm.above which there is a threatening danger of its perforation during the course of distal obstruction specially with a competent ileocaecal valve,(Wangensteen,1955).

Reviewing the literature, it was found that the mortality increases with obstructing than with nonobstructing colorectal carcinoma: (John P. Welch,1974,Glenn,1971 and Gerber A.Thompson, 1962).
In most references the mortality rate from obstructing colorectal carcinoma lies between 24% and 42%, (Campbell,1956; Becker,1953; Byrne,1960 and Zlatarski,1973).

OBSTRUCTION DUE TO EXTERNAL HERNIA:

There were 29 cases of acute large gut obstruction due to external hernia for the period starting January,1971 to June, 1976 (27.4%).

Obstruction due to external hernia was the second common cause after carcinoma in our series and in the series of (Paul Nemir, 1951) at the Hospital of the University of Pennsylvania(38.6%). However, reviewing the literature, external hernia as a cause of acute large gut obstruction is rare;(Turell,1969"6%";Byrne, 1960"1.1%; and Becker,1953 "12.2%").

Males were commonly affected than females. In our series the ratio is approximately 3 : 2.

There were six deaths (20.7%) mortality, Table (3).

This mortality rate compares favourably with other series; mortality was 16% by Becker(1953) and 50% by Byrne(1960).

The sites of external hernia encountered were the inguinal, umbilical and epigastric regions:

- 16 cases in the inguinal region and all were males:
  - Fourteen cases in the period 1971 - 1975. No frank gangrene was detected requiring exteriorization or resection, but different grades of ischaemia. The contents were the sigmoid colon in eight cases of

left inguinal hernias, and caecum in six cases of right inguinal hernias without deaths.

. Two cases in the period starting January 1976:
One case of strangulated left inguinal hernia showed frank gangrene and multiple perforations in the strangulated sigmoid colon and exteriorization was done. Following operation the patient passed a state of shock, and the hypotension persisted inspite of the intensive treatment.
An E.C.G. was done which showed marked ischaemia of the heart with subendocardial infarction, left axis deviation and left ventricular hypertrophy.
The patient died 18 hours after operation.
The second case was right inguinal hernia whose content was the caecum which showed severe ischaemia and which regained its normal colour after dividing the constricting agent, and the patient survived.

- 10 cases in the umbilical region and all were females:

. Seven cases in the period 1971 -1975. No frank gangrene was detected in any case.
The contents were the transverse colon in all cases.
Four cases died in this group (two cases were above

50 years of age and died of coronary occlusion and cerebrovascular accident, one died of pulmonary complication and the last died of irreversable shock and renal failure).

. Three cases in the period starting January,1976. In all cases ischaemia was detected, but no resection was needed as the colon was viable after cutting the constricting agent.

In one case who wore a truss for 13 years, presented by a picture of strangulated umbilical hernia with multiple overlying skin ulcerations and profuse bleeding that required blood transfusion. No deaths were encountered in this group.

- 3 cases in the epigastric region in the period 1971-1975. One case was a male and the other two were females. The male patient died, he had frank gangrene of the middle segment of the transverse colon. To this patient exteriorization was done, but he died of septic shock three days later.

The other two cases had just severe ischaemia of the affected colonic segment and responded well to hot towels and oxygen, and they survived.

As a conclusion we had only two cases who showed frank gangrene of the affected colonic segment and to them exteriorization was done, but the two cases died.

On the other hand, out of the 27 cases who showed different grades of ischaemia, only we encountered four deaths which represent a mortality of 14.8% as shown in table (7).

Table 7: 29 cases of acute large gut obstruction in adults due to external hernia with 6 deaths for the period starting January 1971 to June 1976.

		No.	Mortality		Contents	Sex	
			No.	%		M.	F.
Site	Inguinal	16	1	6.3	Nine: Sigmoid Seven: Caecum	16	-
	Umbilical	10	4	40.0	All are transverse colon	-	10
	Epigastric	3	1	33.3	All are transverse colon.	1	2
Management	Reduction + Repair	27	4	14.8		15	12
	Exteriorization	2	2	100		2	-

OBSTRUCTION DUE TO VOLVULUS OF SIGMOID COLON:

This was the third cause in its order of frequency after malignancy and external hernia as a cause of acute large gut obstruction in adults in our series as shown in table (3). Sigmoid volvulus is a closed loop intestinal obstruction, most common in the geriatric population who tend to have high residue diets and neglect regular bowel habits:,"Ralphs Greco et al, 1974".

Also, it was proved that there was an association between Psychiatric disease and sigmoid volvulus(String and Decosse,1971), they found in their patients that there are evidences of psychiatric disease in 48% of patients.

Also, in the series of "Dean,& Murray,1952", volvulus sigmoid was common in mental patients (more than 75%), and this is most probably due to the increased carbohydrate diets, violent purgation, bulky indigestable residue and chronic constipation. (Kohn,1944),had concluded that volvulus of the sigmoid is most likely to occur with pregnancy and parturition.

We encountered 19 cases of volvulus of sigmoid colon, (17.9%). Out of these, 17 cases were males and only two cases were females.

The mean age in our series was 55 years (Table, 8).

Table 8: 19 cases of acute large gut obstruction in adults due to volvulus of sigmoid colon with 8 deaths for the period starting January 1971 to June 1976.

Number	Mean age	Sex		Management		
		M	F	Untwisting	Resection	Exteriorization
19	55 years	17	2	12	6	1
Mortality		7	1	6	2	0

Out of the 19 cases of volvulus of sigmoid colon in our series, 17 cases were encountered in the period 1971-1975, of these only three patients had past history of abdominal operations (Hysterectomy,appendicectomy and previous untwist of volvulus sigmoid).

Definite gangrene was encountered in six cases, and immediate resection was done to them with end-to-end anastomosis, with two deaths (33.3%).

Severe colour changes were encountered in eleven cases, to them untwisting, peritoneal fixation and application of rectal tube were done with five deaths.

In the period starting January to June (1976), two cases were encountered. The first was 65 years old, hypertensive with coronary artery disease, and died on the operating table of cardiac arrest during the simple untwisting of the volvulus which showed just colour changes.

The second case was 45 years old, showed also just colour changes, untwisting and exteriorization was done after deflation of the colon,(Fig.,6).

Oral feeding was resumed three days later after creating an opening in the sumit of the sigmoid loop, two weeks later, the second operation was exision of the redundant sigmoid loop and restoration of the colonic continuity, and the patient survived.

The recurrence rate with conservative management is very high,(55% by Gary J.Arnold,1973, and 89% by Shepard J.J.,1968).

We recomend untwisting, deflation, then exteriorization of the sigmoid colon even if viable, as the first emergency measure to any case of volvulus of sigmoid colon,followed by resection as a second stage operation.

The over-all mortality was 42.1%. Reviewing the literature, there is still high mortality from volvulus of sigmoid colon, (S.M.Gulati,1974"36.7%"; Gray J.Arnold,1973" 44%").

S.M.Gulati,1974) had concluded that the mortality rises steeply in the presence of gangrene of sigmoid colon irrespective of the surgical procedure used. However, in our series the mortality with gangrene in case of sigmoid volvulus was (33.3%) which is lower than the mortality in non gangrenous volvulus sigmoid (46.2%)due to variations in the general condition of different kinds of patients.

In analysing the management of our cases of volvulus of the sigmoid colon in the period 1971 -1975, resection anastomosis of gangrenous cases is not accepted by most surgeons. On the other hand, we can not explain the high mortality in cases in which simple untwisting was done. There is doubt that the gangrenous process of reduced pelvic colon has progressed,that is why we recommend exteriorization in all cases of sigmoid volvulus.

Fig. 7,a: X-ray in the erect position to a case of volvulus of the sigmoid colon, shows that there is marked colonic distension. Also, the sigmoid volvulus is well delineated and vertically placed in the abdomen.

Fig.3,bis: A case of volvulus of sigmoid to which exteriorization was done. The hugely distended colon, long loop and congestion is very well seen.
This photo was three days after the emergency operation.

Fig. 5,4: This photo was twelve days after the emergency operation. The marked diminution in size is very well seen.

N.B.: An opening was done at the sumit of the sigmoid loop nine days before.

OBSTRUCTION DUE TO INTUSSUSCEPTION:

Eight cases were encountered causing colonic obstruction due to intussusception (7.5%).
Reviewing the literature, intussusception as a cause of large gut obstruction in adults is among the rare causes.
It represented 5% by "Marshall,1950" and 5.8% by "Becker,1953".
There were two deaths which represent a mortality of 25%.
Three cases were males, and five were females, and the average age was 34 years.

Ileo-caeco-colic intussusception was encountered in six cases with two deaths (33.3% mortality): in four cases frank gangrene was present and to them right hemicolectomy was done with end-to-end ileotransverse anastomosis, but two patients died of leakage and peritonitis.
Successful operative manual reduction was done to the remaining two cases without deaths.

Caeco-colic intussusception was encountered in one patient, to him successful reduction by barium enema was done with recovery.

Colo-colic intussusception was encountered in one patient at the sigmoid region, to him successful reduction by barium enema was done and recovered (Table,9).

We can not tell if the cause is idiopathic or not in these eight cases of intussusception.

Reviewing the literature, "Pallin,1973" had reported a case of idiopathic sigmoidorectal intussusception.

However, usually there is an exciting cause either in the colon itself or outside it, "Cedermark,1973" had reported three cases of intussusception causing acute large gut obstruction in adults, the primary cause was a malignant intestinal tumour.

Table 9: 8 cases of acute large gut obstruction in adults due to intussusception with two deaths, in our period. (5.5 years)

		No.	Mortality		Mean age
			No.	%	
Site	Ileocolic	6	2	33.3	34 years
	Caecocolic	1	-	0	
	Colocolic (sigmoid).	1	-	0	
	Right hemicolectomy.	4	2	50	
	Operative reduction	2	-	0	
	Barium enema.	2	-	0	

Male : female

3 : 5

OBSTRUCTION DUE TO MESENTERIC OCCLUSION:

We encountered three cases of mesenteric occlusion of the large gut causing its acute obstruction in the period 1971 - 1975, (2.8%). They represent 25% from total cases of mesenteric occlusion as previously shown.

Reviewing the literature mesenteric occlusion of the large gut is extremely rare and has a very high mortality. In our series all three cases died.

One case had gangrene of part of the transverse colon, resection anastomosis was done, but the patient died of high blood urea and electrolyte imbalance.

The second case showed severe colour changes and disturbed viability of descending and part of pelvic colon together with gangrene of about four meters of ileum. Only resection of ileum was done, and for the colon oxygen and hot towels were applied, but the patient died on table from cardiac arrest.

The third case showed gangrene of the caecum, ascending colon, right part of transverse colon and terminal ileum. Multiple perforations were present in the gangrenous part with huge amount of pus in the peritoneal cavity. A right hemicolectomy was done with end to end ileotransverse anastomosis, but the patient died of peritonitis.

OTHER CAUSES:

Bands: We encountered five cases in the period 1971-1975 (4.7%). Three cases died (60%) mortality. One case was affecting the left colon, and the remaining four were affecting the right colon. Past history of previous abdominal operation was present in all cases: two appendicectomies, one cystolithotomy, one exploration for peritonitis and the last was for decongestion operation.

The management was right hemicolectomy in one case, and just cutting the bands in the other four cases. Cause of death was peritonitis in two cases, and coronary occlusion in one.

Faecal impaction: We encountered five cases(4.7%)with one case died of cardiac arrest on table. Of these, four cases were encountered in the period 1971 -1975.

To two cases manual extraction of the faeces were done under spinal anaesthesia, and in two, laparotomy was done where we found faecal mass impacted above a bilharzial mass, and in the other , the rectum and sigmoid colon were hugely distended and obstructed by huge amount of hard stool, to them milking was done manually towards the anal orifice.

In the period January-June,1976, one case was encountered which was presented by severe distension and absolute constipation for three days. An x-ray was taken in the erect position (Fig.7) which shows massive distension and multiple fluid levels.

Fig.(7)

Frequent hourly soap and water enemas were done and found sufficient to rid the patient of his problem, and survived.

Pressure from outside: Two cases were encountered in the period 1971- 1975 (1.9%).

In one case the cause was incarcerated retroverted flexed fibroid uterus pressing on and occluding the rectum. A subtotal hysterectomy was done but the patient developed uraemia and died of irreversible shock."Mawat,1973" reported a similar case.

The second case was due to incarceration of huge ovarian cyst in the pelvis. The patient survived after excision of the cyst.

Obstruction of colostomy: This was by hard stool in two cases who had had abdominoperineal resection for cancer rectum with left iliac colostomy. Manual extraction of the hard faecal matter was done.

In the period starting January to June 1976, we encountered one case in which the obstruction was due to band snaring the colostomy. This patient had had a defunctioning left iliac colostomy for severe trauma lacerating the pelvis and anal canal three weeks previously. The management was cutting the band and the patient survived.

Ileocaecal stones: (Fig.8):

A very interesting case. A 14-Years old male mentally retarded presented in the period starting January to June 1976 by a picture of intestinal obstruction, toxic look, and evident rebound tenderness. On exploration, there were free stones in the pelvic cavity with two perforations in the terminal ileum and excessive purulent material in the peritoneal cavity. There was a stone impacted in the ileocaecal orifice with other large numbers of stones in the terminal ileum. Resection anastomosis was done five centimeters from the ileocaecal valve after extraction of the stones.

The stones were of different character, nature, size and shape.

Relatives told us that there is a tradition in the rural side on the effectiveness of eating stones and mud for the treatment of Ankylostomiasis !!!

Fig. 4: Resected part of the ileum.
Also, multiple stones of different sizes are seen.

Amongest the rare causes which we did not encounter, but were reviewed in the literature are:

Obstruction due to Gall-stones: (Grey-Turner,1933) had reported successful extraction of two gall stones from the transverse colon after its obstruction.
One stone was 17.8 cm. in circumference and 105 gm. in weight from a female patient.

Endometriosis: (Krajka,1972), (Madding,1954): each reported a case of acute large gut obstruction in adults secondary to endometriosis, affecting the pelvic colon.

Crohn's disease: (Arnaout,1972) had reported two cases of Crohn's disease of colon causing its obstruction.

Pancreatitis: (Carter,1974), (Torregrosa,1973) each reported a case of acute large gut obstruction in adults secondary to pancreatitis.

Trichobezoar: (J.Am.Geriatrics Soc.,1974) reported a case of acute large gut obstruction from trichobezoar in the sigmoid colon.

Herniation of the caecum through the foramen of Winslow: had been reported by (Malter,1973) causing acute large gut obstruction in an adult.

CHAPTER IV

SUMMARY AND CONCLUSION

SUMMARY AND CONCLUSION

- A series of 106 cases of acute large gut obstruction in adults in Alexandria University Hospital for the period starting January 1971 to June 1976 requiring emergency surgery has been analysed as regards etiology, management, morbidity and mortality.
Detailed study has been given to the cases seen during the period January - June 1976.

- Large gut obstruction represented in our series 18.8% of all intestinal obstructions in adults.

- Males were commonly affected than females (2.2 : 1).

- The over-all operative mortality for cases of large gut obstruction for the period starting January 1971 to June 1976 was (37.9%).
However, for the period January - June 1976 the mortality was (31.3%).

- The most common causes encountered in our series were: Cancer colon (29.3%), External hernia (27.4%) and volvulus sigmoid (17.9%). Also, these three causes constituted 75% of total deaths; cancer alone constituted 40%.

- Large gut obstruction occurs more frequently in the left colon (62.3%), also, (62.5%) of mortality occurred with left colon obstruction.

- Obstructing colorectal carcinoma occurs more frequently in the left colon (80.6%) and particularly in the region of rectosigmoid junction (71%).

- In our series, males were commonly affected by carcinoma (75%) than females and this is against most references.

- In our series obstructing colorectal carcinoma occurs at a rather younger age (47.1 years) compared to world literature.

- For obstruction of left colon, a proximal colostomy is the best as an emergency measure, to be followed by preparation of the patient for elective surgery.
While for lesions of Right side of the colon, a(By-Pass) procedure is recommended.

- The mortality rate was lower after transverse colostomy than after caecostomy. Also, transverse colostomy is preferred for left iliac colostomy as it may help later on for a sphincter-saving procedure during radical operation.

- External hernia was the second common cause in our series while most references regard it amongest the rare causes.

- With gangrenous strangulated external hernia the mortality was (100%), while with non gangrenous colon the mortality was (14.8%).

- We recommend- in cases of volvulus sigmoid colon - untwisting, deflation then exteriorization of the sigmoid colon even if viable, as the first emergency measure to be followed later on by resection anastomosis.

- In our series we encountered volvulus of sigmoid colon only.

- In the recorded cases of intussusception we can not tell if the cause is idiopathic or not, however, reviewing the literature there is usually an exciting cause.

- Three cases of mesenteric occlusion had been encountered and all died.

- In cases of faecal impaction, just frequent soap and water enemas are all what is needed.

- An interesting case of intestinal obstruction due to ileocaecal stones is presented.

No similar case had been reviewed in the literature.

CHAPTER V

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دراسة اكلينيكية باثولوجية عن انسداد الأمعاء الغليظة الحاد عند البالغين

ان انسداد الامعاء الغليظة الحاد عند البالغين ليعتبر من الاسباب الشائعة للبطن الحادة ومن المشاكل الخطيرة فى جراحات البطن بصفة عامة وجراحات الجهاز الهضمى بصفة خاصة. ولقد مثلت حوالى ١٨٫٨٪ من حالات انسداد الامعاء بصفة عامة عند البالغين فى الفترة ما بين يناير ١٩٧١ حتى يونيو ١٩٧٦ فى المستشفى الرئيسى الجامعى بالاسكندرية. كما أن معدل الوفاة من هذه المشكلة مثل حوالى ٢٧٫٧٪ وهى نسبة تعتبر عالية خاصة بعد التقدم العظيم فى طرق الجراحة والابحاث المعملية والعناية الطبية للمريض قبل وأثناء وبعد العمليات ويعزى ذلك لعدة عوامل نوجز منها الآتى :-

أولا : ان الأورام السرطانية تمثل السبب الاول الشائع لانسداد الامعاء الغليظة بما هو معروف عن الاورام السرطانية من تأثير على الجسم البشرى .

ثانيا : انسداد الامعاء الغليظة يحدث عادة فى سن متقدمة حيث تقل المناعة الطبيعية للجسم والتى لا تستطيع مقاومة التغيرات الباثوفسيولوجية الناتجة عن هذه المشكلة.

ثالثا : قد يعجز الطبيب وخاصة ان لم يكن عنده خبرة كافية بهذه المشكلة عن تشخيصها فى مراحلها الاولى بينما التغيرات الباثوفسيولوجية تجرى داخل الجسم.

ومقارنة معدل الوفاة عندنا بمثيله فى البلاد المتقدمة فى مجال الطب نجدها عالية عندنا ويعزى ذلك الى وجود الامكانيات الكافية فى هذه البلاد والتى تساعدهم على التشخيص السريع والتدخل الجراحى فى الوقت المناسب ، بالاضافة الى التقدم الكبير فى هذه البلاد فى مجال التخدير وطرق الجراحة والعلاج .

ولقد جرت هذه الدراسة على حالات انسداد الامعاء الغليظة الحاد عند البالغين والتى عولجت فى الفترة ما بين يناير ١٩٧١ وحتى يونيو ١٩٧٦ فى المستشفى الرئيسى الجامعى بالاسكندرية. ولقد اعتمد فى التشخيص فى كل حالة على نتيجة الكشف الاكلينيكى والاشعاعى وما ظهر أثناء التدخل الجراحى .

ولقد مثلت حالات انسداد الامعاء الغليظة الحاد ١٠٦ حالة بينما كان العدد الكلى لحالات الانسداد المعوى ٥٦٣ حالة.

وكان الذكور اكثر تعرضا لهذه المشكلة من الاناث بنسبة ٢ر٢ : ١

وبايجاز فان مسببات انسداد الامعاء الغليظة فى هذه المجموعة كان كالآتى :—
الأورام السرطانية (٣ر٢٩٪) — الفتق الخارجى (٤ر٢٧٪) — التواء القولون (٩ر١٧٪) — تداخل الامعاء (٦ر٧٪) — الالتصاقات المعوية (٤ر٤٪) — انسداد ناتج عن تجمع كتلة من البراز فى تجويف الامعاء الغليظة (٧ر٤٪) — انسداد الاوعية المعوية (٨ر٢٪) — أورام ليفية وكيس على المبيض ضاغط على القولون (٩ر١٪) — انسداد تحويلة خارجية لمسار البراز (٨ر٢٪) — وحالة واحدة كانت بسبب وجود كمية من الأحجار والحصى ابتلعها المريض وتجمعت فى منطقة اتصال الامعاء الدقيقة بالأمعاء الغليظة .

ومما سبق يتضح أن الأسباب الاساسية الشائعة هى الاورام السرطانية والفتق الخارجى والتواء الامعاء والتى مثلت حوالى ٦ر٧٤٪ من الاسباب بصفة عامة كما أن الوفيات من هذه الاسباب الثلاثة وحدها يمثل حوالى ٧٥٪ من الوفيات الكلية من هذه المشكلة .

ولقد وجد أيضا أن اسباب انسداد الامعاء الغليظة يوجد فى الناحية اليسرى من القولون اكثر من الناحية اليمنى (٣ر٦٢٪ و ٧ر٣٧٪ على التوالى) .

بالنسبة للاورام السرطانية عندنا وجد أنها اكثر انتشارا للذكور عن الاناث (٣ : ١ تقريبا) على الرغم من أن معظم المراجع أثبتت عكس ذلك .
أيضا وجد أن السن التى تحدث عندها الاورام السرطانية عندنا (١ر٤٧ سنة) أقل بكثير منها فى معظم بلدان العالم . كما أن الاورام السرطانية والتى تسبب انسدادا للامعاء الغليظة تحدث اكثر شيوعا فى الجانب الايسر من القولون (٦ر٨٠٪) .
كقاعدة فى حالات انسداد الامعاء الغليظة الحاد الناتج عن اورام سرطانية اذا كان فى الجانب الايسر للقولون ينبغى عدم استئصال الورم السرطانى فى التدخل الجراحى الاول بينما اذا كان فى الناحية اليمنى وكانت حالة المريض العامة طيبة يمكن استئصال الورم السرطانى فى العملية الأولى .

بالنسبة للفتق الخارجي وجد أنه يمثل السبب الثاني من ناحية الشيوع على الرغم من أن معظم المراجع تقول أن الفتق الخارجي كسبب من أسباب انسداد الامعاء الغليظة يعتبر نادر الحدوث .

في حالات التواء القولون ينبغي أن يكون التدخل الجراحي الاول عبارة عن ارجاع الالتواء ثم اخراج هذا الجزء من خلال بطن المريض ثم تحضير المريض فيما بعد لعملية استئصال هذا الجزء .

في حالات تداخل الامعاء الغليظة لا نستطيع أن نجزم ان كان هناك سببا أوليا لذلك أم لا . على الرغم من أن معظم المراجع تؤكد وجود سببا أوليا لذلك.

ولقد صادفنا من خلال هذه الدراسة ثلاث حالات لانسداد الامعاء الغليظة كان سببها انسدادا بالاوعية المعوية على الرغم من ندرة تلك المشكلة.

أيضا صادفنا حالة لم نجد لها مثيلا في المراجع العالمية وهي وجود كمية من الأحجار والحصى ابتلعها مريض يبلغ من العمر أربع عشرة سنة وتجمعت في منطقة اتصال الامعاء الدقيقة بالامعاء الغليظة.

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تمت بحمد الله