

A causal factors and treatment of obstructive ileus in 369 patients



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From 1998 to 2002, 369 patients (47.39% M, 52.61% F; mean age 67.9 yrs) were faced in the Authors' Department due to acute intestinal obstruction.

The main reasons of obstruction were adhesions in 281 patients (76.15%), followed by malignant neoplasms of large intestine in 41 patients (11.11%) hernias in 9 patients (2.44%), Ischemic colitis (4.1%), bezoars (2.39%), bile stone (2.71%) and volvulus (1.1%).

In this study the clinical and laboratorial investigation, the preoperative preparation and the applied surgical treatment of patients with obstructive ileus are discussed. Also it is stressed the importance of the proper preoperative support, as well as the convenient surgical confrontation of patients.

KEY WORDS: Adhesions, Cancer, Ileus, Intestine, Obstruction.

Introduction

By the total of surgical admissions that are owed in acute surgical diseases, 20% are constituted by cases of acute intestinal obstruction. The reasons for which intestinal obstruction is considered to be a dangerous pathological situation, are three:

1. catabolism, because patients cannot receive food, so reserves in carbohydrates, glycogen and fat, are depleted.
2. the disturbance of balance of water and electrolytes, and
3. the disturbance of intestinal blood circulation with consequent necrosis and perforation.

It is easy to understand that intestinal obstruction is considered as one of the most serious causes of acute abdomen, for which the surgeon has to decide if he will intervene immediately, or if he is going to wait for some time, in order to determine the cause as well as the level of obstruction and at the same time to improve patient's general condition, in order to improve the postoperative outcome.

Generally, in case of intestinal strangulation and consequent necrosis leads to mortality rate as high as 23% during the initial 24 hours from admission of the patient and 45% after this interval ^{1,12}.

These reasons, as well as the difficulties that come in front of the surgeon concerning diagnosis, differential diagnosis and confrontation of intestinal obstruction, prompted us in the examination of patients with this disease that were faced in our Department at a five-year period (1998-2002).

Material and methods

We faced in our department, 369 cases of acute intestinal obstruction. The age of patients was from 17 up to 94 years. Cancer of large intestine, hernias and diverticulitis concerned older patients. Men were 47.39% of the patients while 52.61% were women. The main cause of obstruction were adhesions (76.15%), followed by tumors of the large intestine (11.11%) and hernias 2.44%. If the relationship between cause of intestinal obstruction and sex is taken into consideration, we observe that men (65%) are more prone than women (35%) to develop obstructive ileus due to adhesion. On the contrary, regarding neoplasms of the large intestine as well as haernias, prevalence was higher in women with rates of 62% vs of 38% and 63% vs 37% in men respectively.

Regarding the level of obstruction, in 281 (76.15%) cases it was located in small intestine. The time interval from the admission of patients to the time of surgical intervention was interrelation of various factors as the intensity and the duration of symptoms as well as the gra-

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vity of general condition. Change of pain character (to continuous one) and intense, diffuse abdominal sensitivity, fever and leukocytosis that is unrelated to the general condition of the patient, tachycardia, bloody diarrhoea, the absence of intestinal sounds, the presence of incarcerated hernia and shock considered as signs of intestinal strangulation favouring emergency operation. By the other side, provided that the symptoms are intermittent and of low intense and the general condition of patients was not disturbed by the disease, the proper preoperative support and preparation of patients tried to be achieved.

Results

Lyses of adhesive bands alone, or in combination with enterectomy and colostomies were the most frequent types of operations we performed. The duration of hospitalisation time oscillated from 1 to 20 days, while the mean hospitalisation time was 10.25 days. Mortality rate was 3.25%. The causes of death are outlined on Table I. Factors that contributed to mortality were mainly the delayed arrival of patients to hospital and the disturbed general condition of patients at time of admission.

TABLE I - *Causes of death*

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1. *Sepsis*
 2. *Cardiorespiratory insufficiency*
(Acute myocardial ischemia, ventricular fibrillation, pulmonary oedema, massive pulmonary embolism)
 3. *Cerebral stroke*
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Discussion

The acute intestinal obstruction should be faced on time, but after suitable preparation of patients too. The probability of strangulation and the serious results that it involves, impose detailed examination and correct estimation of patient's condition ¹.

There are four types of intestinal obstruction for which the intervention should be decided and it is accomplished in short time from the admission of patient in the hospital. This types are:

- Strangulation (danger of toxic shock).
- Obstruction of closed loop (danger of strangulation).
- Obstruction of larg bowel (danger provided that the ileocecal valve is sufficient, transformation of obstruction in such of closed loop).
- Simple intestinal obstruction that recedes.

Consequently, with the entry of patient in the Hospital

and at the same time with the clinical and laboratory investigation, the treatment is directed in the re-establishment of electrolyte disturbance and the replacement of water loss, as well as in the decongestion of gastrointestinal duct (with the help of nasogastric suction tube placement). The application of these meters and the likely improvement of surgical technique had as result the restriction of mortality lower than 5 % during the recent years ².

The right planning of surgery is essential for each disease, particularly however for the intestinal obstruction. The preparation of patients concerning urgent cases should be rapid. Central venous pressure has to be between 80 and 120 mmH₂O, water has to be replenished by at least half of liquids that are absent and electrolytes have to be balanced. Also, urination has to be more than 30 ml per hour and circulated blood has to be sufficient. Otherwise blood and fresh frozen plasma has to be available ^{3,4}.

Provided that the reason of obstruction is known, after laparotomy, the surgeon proceeds immediately to operative treatment. Otherwise, it is convenient for the surgeon to begin his exploration from the right iliac fossa. If the caecum is distended, then the impendiment is found in the large intestine. On the contrary if it is normal, then the impendiment is found in the small bowel. Nevertheless the surgeon should never neglect the assiduous and careful investigation of entire intestinal tube, as for as another lesion apart of the main one (e.g. adhesions) is possible to exist simultaneously ^{5,7}.

The surgical treatment that was followed in our cases, aimed in the most radical one regarding the problem of each patient. The lyses of adhesive bands concluded one of the more simple operations. Some times we were forced to combine it with partial small intestinal excision, in cases of volvulus or intussusception. Excision of small bowel loop also performed in cases of incarcerated haernia followed by local ischemia.

In the cases where the cause of ileus was malignant tumour of the large intestine and provided that the conditions allowed it (good general condition, convenient transport in operation theatre without other general alterations and local infiltration of neoplasia), we proceeded in the excision of tumour with colectomy. This however was rendered possible only in 40 patients.

In cases with cancer on the sigmoid colon, excision was combined with protective colostomy because the anastomosis was judged precarious. In one case we performed extensive colectomy as it was judged to be obligatory, due to perforation of colon in multiple locations. That operation was followed by ascending colostomy and closure of rectum. This patient died due to sepsis.

In the remainder cases of large intestinal carcinomas, due to bad general or even local conditions, they underwent various type of colostomies (4 on transverse colon, 3 Mikulitz typed colostomies, 10 descending colostomies and 1 ileostomy) as first stage of intervention.

Cases of sigmoid diverticulitis with intense local inflammation underwent descending colostomy. Also a case of sigmoid volvulus with huge distention of descending colon underwent transverse colostomy. The patient suffered from syringomyelia too.

Whenever local conditions in ileocecal region or around the first portion of ascending colon area does not permit excision of the diseased intestine, then a bypass procedure with ileotransversal anastomosis is performed. We proceeded in similar operations in 3 cases with cecal tumor, in 1 with neoplasm of the ascending colon and in 1 case with distant metastases.

The abstraction of foreign bodies (10 bile stones and 9 bezoars) did not present any problem. The intervention was recommended in intestinal dissection, abstraction of the foreign body and suture of the intestine at the transverse axis. As is marked here, provided that it is possible, bile stone is moved centrally or peripherally from point that is located, so that the intestine is opened up in a region where mucosal ulceration does not exist. Large bowel pseudobstruction, requires some indication, because it can bring up acute symptoms of obstruction without any responsible obvious damage and still because it is possible to bear out rupture of the cecum. In this case bowel decompression is highly indicated.

Acute pancreatitis constitutes infrequent reason of intestinal obstruction. Actually where the points of obstruction predominate and outshine that of pancreatitis are these cases where the picture that is presented is that of huge distension of proximal jejunum^{8,9}. In one case we faced, it had preceded peritonitis and apart from the lysis of adhesions – that had been created, we also performed cholecystectomy.

Conclusions

1. Apart from some cases of adhesions that resolve automatically, intestinal obstruction should be operated after suitable preparation in first 24 hours. Otherwise the mortality rate increases from 1% in the simple mechanical ileus to 25% in case of strangulation⁶.
2. Decompression of distended intestine that we applied in a lot of cases, appears to be advantageous, mainly in neglected cases that are looking for medical help belatedly. It seems that decompression facilitates the intervention and the localisation of point of obstruction, improves the circulation of intestinal wall and peristaltic bowel movement reversal is easier¹⁰.
3. The control of viability of intestine should be careful.
4. Lesions of the small intestine that can not be excised and cause obstruction too, are treated with side to side anastomosis.
5. If local conditions allow it, neoplasms of large intestine that cause obstruction removed with colectomy.

Otherwise a colostomy or by pass is applied. Colostomies and bypasses are also preserved for inflammatory diseases such as diverticulitis, Crohn's disease, etc...¹¹.

6. For the tumours of the descending colon colostomy of the transverse colon is performed, as it constitutes the most mobile and least distended part of the large bowel.

7. Mikulitz's operation, is not ideal. Nevertheless it is applied in obstructions of long length and high degree, or in very urgent cases¹².

8. In very urgent and late presenting cases with excessive distention of the colon ceacostomy may help.

9. Provided that, the anastomosis after colectomy is judged precarious, a central to anastomosis colostomy can ensure that anastomosal leakage or rupture will not evolve¹².

10. Generally, the colostomies are located in transverse or descending colon near the sigmoidorectal junction. The type as well as the location of a colostomy from the general status of the patient, the disease's location, the local conditions, and the preference of surgeon too¹³.

Riassunto

Nell'intervallo di tempo 1998 - 2002 nel Nostro Reparto di Chirurgia Generale, abbiamo affrontato chirurgicamente 369 casi di ostruzione intestinale acuta. Dei pazienti trattati il 47,39 è stato di sesso maschile ed il 52,61% di sesso femminile con una età media di 67,9 anni.

Le principali cause dell'ostruzione sono state le aderenze intestinali in 281 casi rispetto al totale di quelli trattati (76,15%). In seconda posizione erano le neoplasie maligne del colon (cancro), osservate in 41 dai pazienti trattati (11,11%). Infine, in terza posizione si classificano i casi dovuti ad ernia, 9 rispetto al totale dei pazienti trattati (2,44%). Cause di minore frequenza, sono state la colite ischemica (4,1%), la presenza di bezoari (2,39%), la presenza di calcoli biliari (2,71%) ed infine il volvolo intestinale (1,1%).

In questa pubblicazione si discutono l'approccio clinico e le indagini di laboratorio, la preparazione preoperatoria dei pazienti come pure le tecniche chirurgiche utilizzate. La tecnica chirurgica più frequentemente utilizzata è stata la lisi delle aderenze da sola oppure combinata con una resezione intestinale, mentre frequente è stato anche l'utilizzo delle stomie in generale. Dove è stato possibile le neoplasie del colon venivano resecate. Nei casi in cui l'anastomosi effettuata, non era reputata sicura la si perfezionava effettuando una colostomia. In questo lavoro si discute anche sull'importanza della corretta preparazione preoperatoria dei pazienti e della tempestività all'esecuzione dell'intervento chirurgico, come pure sui presupposti da tenere in considerazione, allo scopo di diminuire l'incidenza di complicazioni e la mortalità.

References

- 1) Halenn A, Levi J, Orda R: *Emergency subtotal colectomy*. Ann Surg, 1989; 210(2):220-22
- 2) Reomond HP et al.: *Safety of double anastomosis in low anterior resection*. Br J Surg, 1993; 80(7):924-27.
- 3) Moran BJ et al.: *Local recurrence after anterior resection for rectal cancer using a double stapling technique*. Br J Surg, 1992; 79(8):836-38.
- 4) Russello D, Di Stefano, et al: *La chirurgia delle neoplasie del retto inferiore*. Minerva Chir, 1994; 49(4):253-57
- 5) Schwartz S, Shires ET, Spenceer FC: *Principle of Surgery*. 6th Edition New York: Mc Graw Hill, 1994.
- 6) Umpleby HC, Williamson RCN: *Survival in acute obstructing carcinoma*. Dis Colon Rectum, 1984; 27:299-304.
- 7) Fielding LP: *Clinical pathologic staging of large bowel cancer. A report of the ASCRS committee*. Dis Colon Rectum, 1988; 31:204-09
- 8) Floyd CE Cohn J: *Obstruction in carcinoma of the colon*. Ann Surgery, 1967; 165:721.
- 9) Sanfelippo MPM, Beahrs OH: *Factors in the colon*. Ann Surgery, 1967; 165:721.
- 10) Rayne JE: *International colorectal carcinoma staging and grading*. Dis Colon Rectum, 1989; 32:282-85.
- 11) Umpleby HC, Ranson DL, Williamson RCN: *Peculiarities of mucinous colorectal carcinoma*. Br J Surg, 1985; 72:715-18.
- 12) Symonds DA, Vickery AL: *Mucinous carcinomas of the colon and rectum*. Cancer, 1976; 37:189-90.
- 13) Blenkinsopp WK, et al.: *Histology reporting in large bowel cancer*. J Clin Pathol, 1981; 34:501.