Colorectal cancer: obstruction is an independent negative prognostic factor after radical resection

Ann. Ital. Chir., LXXIII, 4, 2002

F. Zucchetti, F. Negro, D. Matera, S. Bolognini, S. Mafucci

Università Cattolica del Sacro Cuore - Roma
Istituto di Clinica Chirurgica Generale

Abstract

The rate of colorectal tumors causing large bowel obstruction is still high (about 16%).
In our experience, 93 out of 985 patients (9.4%) affected by colorectal cancer required surgery because of large bowel obstruction.
The comparative analysis between 64 (68.8%) obstructed and 738 (82.7%) non-obstructed radically resected patients showed that sex and age of patients, tumor site, tumor diameter, parietal infiltration, grading, lymphnode involvement, distant metastases, and staging were not significantly different. Post-operative mortality rates (1.6% vs. 0.5%) and morbidity rates (15.6% vs. 15.6%) were not significantly different as well. On the contrary, survival rate was different. Patients submitted to radical resections had a far poorer prognosis as compared with non-obstructed radically resected ones: the five-year survival was 41.2% and 78.9% respectively. Radically resected obstructed patients showed an higher and earlier ráte of local and distant recurrence with a disease-related death rate of 47.6 % vs. 16.3 % as compared with non-obstructed ones.
The occlusive phenomenon by itself resulted to represent an independent unfavorable factor negatively affecting long term prognosis after radical resections.
Key words: Colorectal cancer, obstruction, prognostic factors.

Riassunto

NEOPLASIE COLORETTALI: LA COMPLICANZA OCCLUSIVA, DOPO RESEZIONE RADICALE, RAPPRESENTA UN FATTORE PROGNOSTICO NEGATIVO INDIPENDENTE

Nonostante il miglioramento delle tecniche diagnostiche, l'occlusione intestinale provocata da tumori del colon-retto risulta essere ancora oggi un fenomeno relativamenbe frequente, verificandosi nel 16% circa dei casi. Nella nostra esperienza, il 9,4% (93/985) dei pazienti affetti da neoplasia colo-rettale è stato sottoposto ad intervento chirurgico a causa di occlusione intestinale.
L'analisi comparativa tra 64 pazienti con occlusione (68,8%) e 738 (82,7%) non occlusi sottoposti a chirurgia

Introduction

In spite of the improved diagnostic methods, large bowel obstruction due to a colorectal tumor is a frequent event, still occurring today in about 16% of the patients with colorectal cancer (1, 2, 3).
In most of these cases, urgent surgical treatment is always needed after a rapid correction of hydroelectrolytic and metabolic disorders.
However, the choice of timing and modality of operation are still controversial and seems to be related to the localization, staging, grading and resectability. These are apparently the important factors for the immediate or long term results (4, 5, 6, 7).
A comparative analysis between obstructing and non-obstructing colorectal tumors had been made on the base of our personal experience.
The early and late results of different treatments of obstructing cases were analyzed.
Features of cancer (sex and age of the patients, tumor site, tumor diameter, parietal infiltration, grading, lymph node involvement, at distance metastases, and staging) in both conditions were analyzed in order to try to explain the far poorer prognosis after radical resection of obstructing colorectal tumors as compared with non-obstructing ones.

Relazione al XII Congr. Naz. Soc. It. Fisiopatologia Chirurgica. Bari, 1998
Pervenuto in Redazione il 21 Luglio 2002

radicale, non ha evidenziato differenze significative per quanto riguarda il sesso e l'età dei pazienti, la sede del tumore, le dimensioni della neoplasia, l'entità di infiltrazione della parete, il grading, il coinvolgimento linfonodale, le metastasi a distanza e la stadiazione. Neanche l'incidenza della mortalità postoperatoria (1,6% vs. 0,5%) e della morbilià (15,6% vs. 15,6%) sono risultate statisticamente differenti. Al contrario, i tassi di sopravvivenza si sono dimostrati differenti. I pazienti occlusi sottoposti a resezioni radicali hanno avuto una prognosi di gran lunga peggiore ripetto a quelli non occlusi ugualmente sottoposti a chirurgia radicale: la sopravvivenza a 5 anni è stata rispettivamente del 41,2% e del 78,9%. Inoltre i pazienti occlusi resecati radicalmente hanno dimostrato una maggiore e più precoce frequenza di recidive locali e a distanza, con una mortalità malattia-dipendente del 47,6% contro il 16,3% dei pazienti non occlusi.

In conclusione, il fenomeno occlusivo si è dimostrato rappresentare di per se stesso un fattore sfavorevole indipendente, capace di influenzare negativamente la prognosi a lungo termine dopo chirurgia radicale.

Parole chiave: Tumori del colon-retto, ostruzioni, fattori prognostici.

Patients and methods

Among 985 patients operated on for colorectal cancer, between 1981 and 1997, in the Department of General Surgery at Catholic University of Rome, 93 cases (9.4%) underwent surgery in the occlusive phase. The tumor was localized in the majority of cases in the colon (80.6%) (Fig. 1).

Palliative treatment (Tab. I) was needed in 29 patients (31.2%): 12 (41.4%) of whom received a resection while 17 (58.6%) were submitted to a derivative procedure alone. Operative mortality occurred in 2 cases (16.7%) after resection and in 1 case (5.9%) after derivative procedure. Morbidity was 8.3% and 5.9% respectively. No patient survived up to five years.

Radical resections (Tab. II) were performed in 64 cases (68.8%): 37 primary resections (57.8%), and 27 staged resections (42.2%). Tumor stage (according to Astler-Coller's classification) of radically resected patients was A in no case (0%), B1 in 4 (6.3%), B2 in 36 (56.3%), C1 in 1 (1.6%), C2 in 20 (31.3%), D in 3 (4.7%) (Fig. 10). Twenty-two tumors presented Iymph node involvement (N+ = 34.4%), while 42 cases (65.6%) were N- (Fig. 8). Two carcinomas (3.2%) were well differentiated, 54 (83.9%) moderately differentiated, 8 (12.9%) poorly differentiated (Fig. 7). Operative mortality atter radical resections was 1.6% (no-case-after primary resections, 1 case after staged resections). Morbidity was observed in 10 (15.6%) occluded patients operated on with a radical procedure: 6 cases (16.2%) after primary resections and 4 cases (14.8%) after staged resections (Tab. II). Mean survival was 35.3 months and 22.9 months respectively: this confirm the better results in the primary resection.

In order to try to explain why these patients, although submitted to radical surgery, had so poor long term survival, a comparative analysis was made with radically resected patients affected by non-obstructing colorectal cancer.

Fig. 1: Rate and site distribution of obstructing colorectal tumors (personal experience)

CASES n = 985

		Colon	*Rectum*
Obstructing	93 (9.4%)	75 (80.6%)	18 (19.4%)
Non-obstructing	892 (90.6%)	548 (61.4%)	344 (38.6%)

Tab. I – OBSTRUCTING COLO-RECTAL CANCER. OPERATIVE MORTALITY, MORBIDITY AND 5-YEAR SURVIVAL AFTER PALLIATIVE PROCEDURES

Palliative procedures: cases 29/93 (31.2%)

		Cases n. (%)	*Op. Mort. n. (%)*	*Morb. n. (%)*	*5-year surv.*
Derivative	– 2 Ext. – 15 Int. – 3 R+A – 2 R+A+C	17 (58.6)	1 (5.9)	1(5.9)	–
Resective	– 5 H – 2 STC	12 (41.4)	2 (16.7)	1 (8.3)	–

R = resection;
A = anastomosis;
C = colostomy;
H = Hartmann;
STC = subtotal colectomy.

Tab. II – OBSTRUCTING COLO-RECTAL CANCER. OPERATIVE MORTALITY, MORBIDITY AND MEAN SURVIVAL AFTER RADICAL RESECTIONS

Radical Resections: cases 64/93 (68.8%)

		Cases n. (%)	*Op. Mort. n. (%)*	*Morb. n. (%)*	*Mean-surv. month.*
Primary R+A		37 (57.8)	0 (0.0)	6 (16.2)	35.3
Staged	– 6 R+A+C – 8H –13 C+ (R+A)	27 (42.2)	1 (3.7)	4 (14.8)	22.9

R = resection;
A = anastomosis;
C = colostomy;
H = Hartmann.

Statistics: the data obtained had been processed applying the chi-square test for contingencytables (2 x m) and the variance analysis when required.

Results

Features of 64 patients with radically resected obstructing tumors (sex and age of the patients, tumor site, tumor diameter, parietal infiltration, grading, lymph node metastases, at distance metastases, staging) were not significantly different when compared with 738 non-obstructing-ones (Fig. 2, 3, 4, 5, 6, 7, 8, 9, 10).

Tab. III – COLO-RECTAL CANCER.
OPERATIVE MORTALITY, MORBIDITY AND 5-YEAR SURVIVAL AFTER RADICAL RESECTIONS

Cases n = 985 (1981-1997)

	Obstructing		*Non-obstructing*	
	n.	*%*	*n.*	*%*
Total	93	9.4	892	90.6
Radical res.	64	68.8	738	82.7
Op. Mortality	1	1.6	4	0.5
Morbidity	10	15.6	115	15.6
5-year surv.	41.2%		78.9% (p = 0.002)	

Higher resectability rate was obtained in non-obstructing tumors (738/892 = 82.7%) than in obstructing ones (64/93 = 68.8%) (Tab. III). Operative mortality occurred in 1 obstructed case (1.6%) and in 4 non-obstructed patients. Morbidity was 15.6% (10 pts.) and 15.6% (115 pts.) respectively. Five-year survival was 41.2% and 78.9% respectively (p = 0.002) (Tab. III).

Fig. 2: OBSTRUCTING COLORECTAL CANCER
distribution by sex
p= n.s.

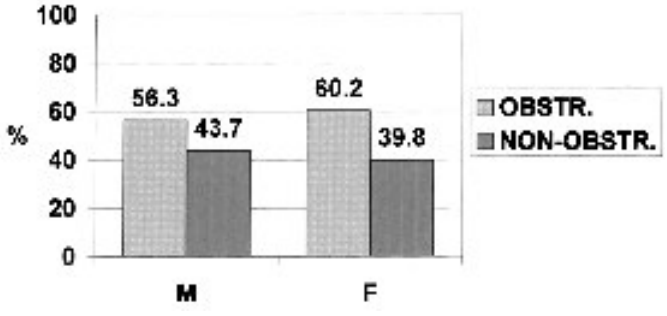


Fig. 3: OBSTRUCTING COLORECTAL CANCER
distribution by age
p= n.s.

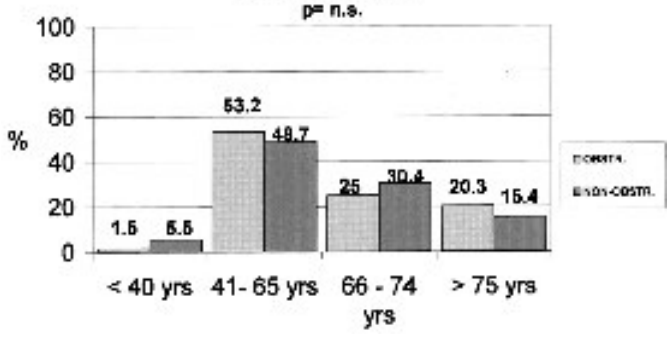


Fig. 4: OBSTRUCTING COLORECTAL CANCER
distribution by site
p = n.s.

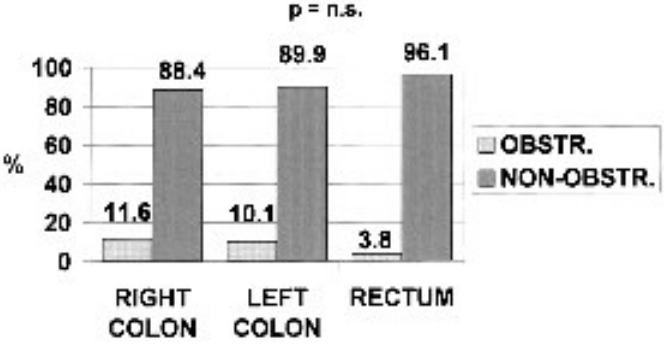


Fig. 5: OBSTRUCTING COLORECTAL CANCER
distribution by tumor diameter
p = n.s.

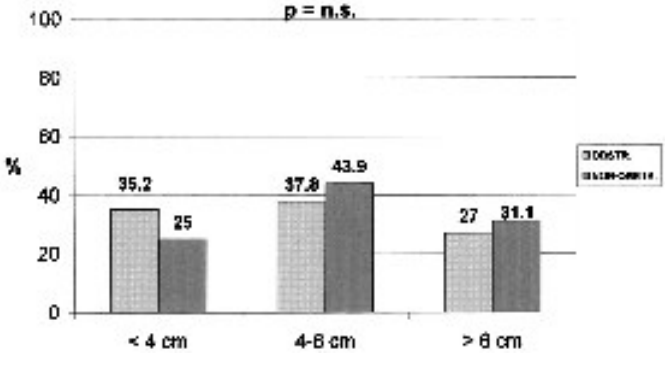
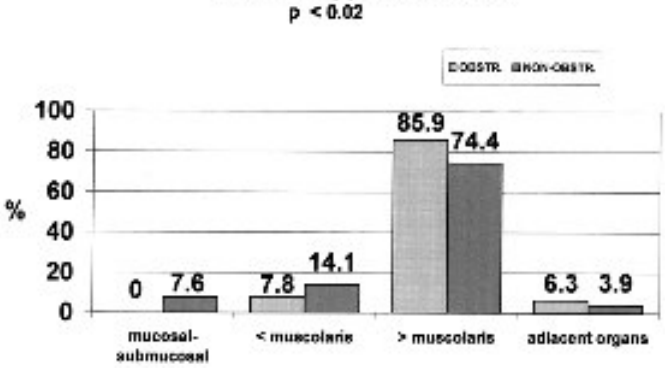
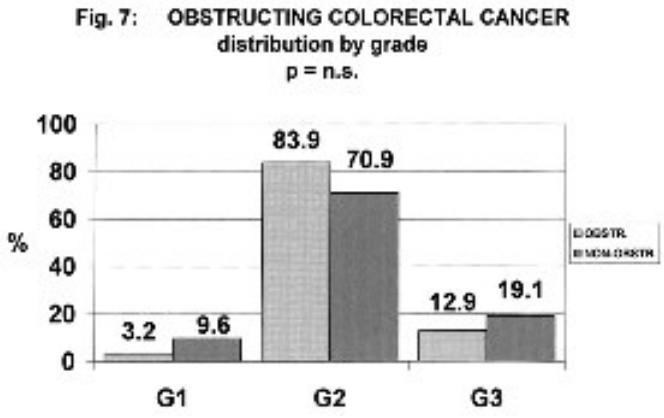
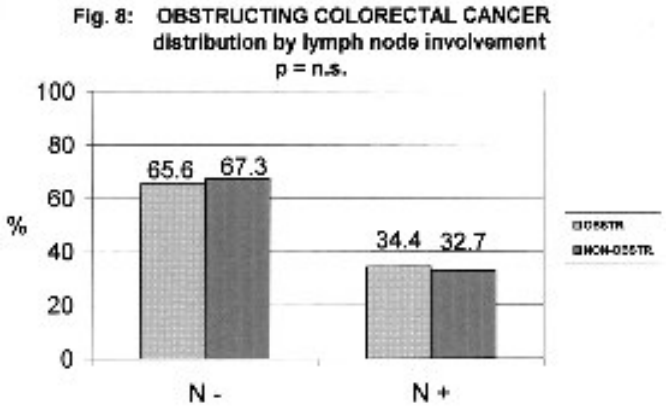
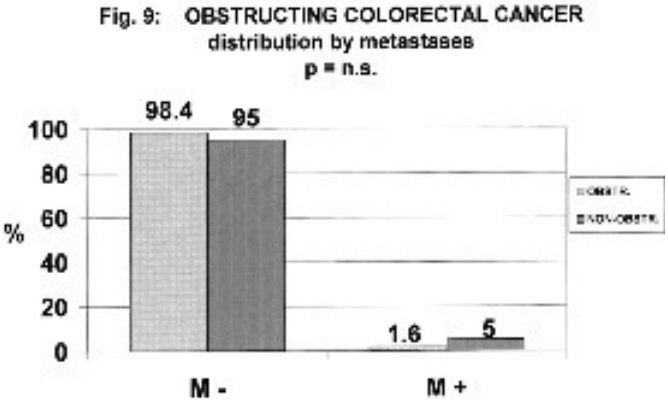


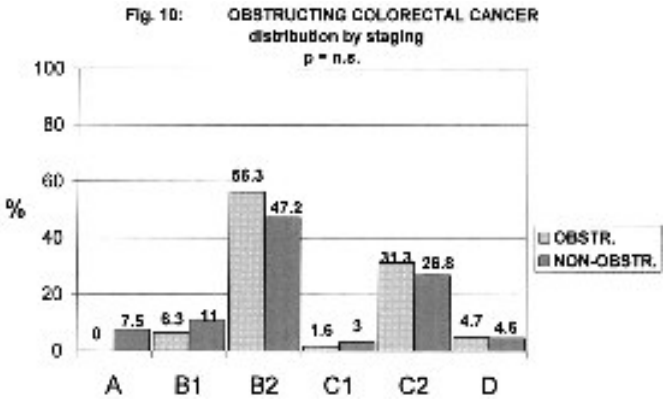
Fig. 6: OBSTRUCTING COLORECTAL CANCER
distribution by parietal infiltration
p < 0.02











Tab. IV – COLO-RECTAL CANCER

Death after radical resection: cases 192/797 (63+734) 24.1%

	Obstructing		*Non-obstructing*	
	n.	*%*	*n.*	*%*
Total	37/63	58.7	155/734	21.1
Disease related	30/63	47.6	120/734	16.3 (p = 0.0001)
Other causes	7/63	11.1	35/734	4.7

In particular, among radically resected patients who successively dead (192/797 cases), neoplastic disease was the cause of death in 47.6% (30/63 pts.) and 16.3% (120/734 pts.) in the occluded and non-occluded groups respectively (p=0.0001) (Tab. IV).

Considerations and conclusions

Our extensive review of the literature (1) had shown that colorectal cancer was diagnosed in the obstructive phase in 16% of cases: this incidence had been constant in time. The left colon was the most frequently involved site (60.4%), and Dukes' B and C the most represented stages (31.6 and 41.6% respectively). Poorly differentiated tumors occurréd less frequently than expected (17.9%). Neoplasms were radically resected in 58.5% of cases. Overall operative mortality was high (19.5%). Long term survival was not high (overall long term survival of 20%), although it was more encouraging after radical surgery (35.6%). The only derivative (intemal and extemal) operations showed a considerable operative mortality (28.8%). Among radical treatments, primary resection with one-stage anastomosis offered better results than staged resection, possibly because of repeated surgical trauma: operative mortality was 15.3% and 18.4% respectively, morbidity 23% and 31.9%, and 5-year survival 37.8% and 34.1%. Although subtotal colectomy carried out a more extensive resection, it appeared to be followed by lower operative mortality (8.7%); however, morbidity was higher (33.3%), and long term survival was not well valuable.

In this report, comparative analysis of our data between obstructing and non-obstructing radically resected colorectal tumors showed that:

- patients were observed in the occlusive phase in 9.4% of cases (Fig. 1);
- sex and age of patients, tumor site, tumor diameter, parietal infiltration, grading, lymph node metastases,

distant metastases, and staging were not significantly different (Fig. 2, 3, 4, 5, 6, 7, 8, 9, 10);
- a radical resection was performed frequently (68.8%) in the occlusive phase although less frequently than in the non-obstructed group (82.7%) (Tab. III);
- postoperative mortality rates (1.6% vs. 0.5%) and morbidity rates (15.6% vs. 15.6%) were non significantly different` between the two groups (Tab. III);
- the 5-year survival rate was significantly lower in the group with obstruction (41.2% vs. 78.9% - p=0.002) (Tab. III).
- the poorer prognosis in patients with obstructing cancer did not depend on the clinical and pathological features of the tumor but on higher and earlier rate of local and distant recurrence of the tumor (disease-related death rate 47.6 % vs 16.3 % - p = 0.0001) (Tab. IV).

Therefore in radically resected colorectal cancer the presence of occlusion represents an important negative prognostic factor affecting the shorts and long terrn results, independently of the type of operation and of the tumor features.

References

1) Zucchetti F., Negro F., Natuzzi G.: *Traffamento chirurgico delle neoplasie colorettali occlusive. Relazione.* Atti XXII Congr Soc Ital Chir Urg, 1993.

2) Zucchetti F., Sofo L., Ratto C., Nucera P., Merico M., Negro F., Natuzzi G., Doglietto G.B., Crucitti P.F., Crucitti F.: *Obstructing colorectal cancer: analysis of surgical strategy and causes affecting poor prognosis.* Proceedings ECCP, 221-227, Barcelona, Spain, 1995.

3) Zucchetti F., Crucitti F.: *Obstructing colorectal cancer. Analysis of surgical strategy and causes affecting poor prognosis.* Abstracts XVI Biennal Congress Internat Soc Univers Colon and Rectal Surg, Lisbona, 1996.

4) Peracchia A., Sarli L., Carreras F., et al.: *Recidive loco-regionali dopo chirurgia curativa per cancro del colon.* Ann Ital Chir, 1:37, 1991.

5) Peracchia A., Sarli L., Pietra N., et al.: *Recidive pelviche dopo chirurgia curativa per cancro del retto.* Ann Ital Chir, 2:151, 1991.

6) Coco C., Cogliandolo L., Carbone L., et al.: *Faffori prognostici nelle recidive loco-regionali delle neoplasie del colon-retto.* Ann Ital Chir, 62:239, 1996.

7) Lagautrière F., Valvano L., Chaazal M., et al.: *Fattori prognostici dell'adenocarcinoma colorettale.* Ann Ital Chir, 69:491, 1998.

Autore cossispondente:

Prof. Fabio ZUCCHETTI
Via Carlo Anfosso, 21
ARANOVA - FIUMICINO
Tel.: 06/6674944