# The Association of Synchronous Neoplasms with Occluding Colorectal Cancer

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**To find and eradicate synchronous neoplasms, colonoscopy was performed before and after resectional surgery in 50 patients with "occluding colorectal cancer," defined as encroachment of the lumen by tumor to a degree that prevented passage of a colonoscope. Synchronous, frequently multiple adenomas were found in 29 (58 percent) of these patients. Three patients (6 percent) had synchronous invasive cancer as well. None of these lesions was detected by intraoperative palpation, even though 46 percent of them measured more than 1.0 cm in diameter. Synchronous neoplasms were found significantly more often in patients with occluding cancer than in patients with non-occluding cancer, investigated concurrently at the same hospital. The former patients appear to be in double jeopardy with respect to synchronous neoplasms, these being more prevalent and less accessible than in patients with non-occluding tumors. Moreover, most of the synchronous lesions are undetectable by palpation. These findings bear out the importance of early postoperative, as well as preoperative, colonoscopy in all patients with occluding colorectal cancer. [Key words: Colonic neoplasms; Polyps; Gastrointestinal neoplasms; Endoscopy; Colonoscopy]**

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SINCE COLORECTAL CANCER is frequently accompanied by synchronous neoplasms (adenomas and carcinomas), it is generally agreed that preoperative colonoscopy should be performed whenever possible.[1,2] This objective cannot be fully realized when the main lesion cannot be traversed by the colonoscope. This difficulty is compounded by the fact that synchronous neoplasms are frequently undetectable by intraoperative palpation.[3]

Mainly for these reasons, a number of surgeons have advocated subtotal colectomy in preference to segmental resection for obstructing or partially obstructing colorectal cancer.[4,5] It has also been said that, in the presence of obstruction, subtotal colectomy is associated with a lower surgical mortality than local resection.[5] Nevertheless, a majority of surgeons still practice segmental resection for obstructing colorectal cancer, and many of them forego postoperative colonoscopy on the assumption that synchronous neoplasms are adequately ruled out by intraoperative palpation and eventual barium-enema examination.[6,7]

In the hope of arriving at a balanced judgment concerning this issue, we have reviewed our own experience concerning the association of synchronous neoplasms with occluding colorectal cancer.

## Patients and Methods

Between July 1978 and June 1983, we diagnosed or verified adenocarcinoma of the colon or rectum by means of colonoscopy in 325 patients who were subsequently treated by surgical resection of the tumor. In 77 patients (24 percent), occluding cancer was diagnosed, "occlusion" being defined, for present purposes, as an encroachment of the lumen by tumor to a degree that prevented passage of a colonoscope. By the same criterion, the other 248 patients (76 percent), had non-occluding cancer. Twelve of the 77 patients with occluding cancer (16 percent) had signs and symptoms of large-bowel obstruction.

In all patients treated by resection, the entire colon was systematically palpated by the operating surgeon in search of additional lesions. The main lesion was removed by wide segmental resection and was staged according to Dukes' 1932 classification.[8] In addition, the excised bowel was carefully inspected for synchronous neoplasms.

Surgical mortality in patients with non-occluding cancer was 4.8 percent; in patients with occluding cancer, 6.5 percent; and in patients who were clinically obstructed, 16.7 percent (2 of 12).

In 50 of 77 patients with occluding cancer, the entire residual colon was re-examined by colonoscopy within six months of resection. All polyps encountered during colonoscopy were biopsied and then resected by diathermy snare. Very small polyps were removed by "hot biopsy." The locations of synchronous lesions were systematically recorded. Most of the lesions resected during colonoscopy were retrieved and submitted to pathologic examination.

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During the same years, 150 of 248 patients with non-occluding cancer had complete colonoscopy, either prior to surgery or shortly thereafter, and all polyps encountered were treated as described above.

In the 125 remaining patients, complete perioperative colonoscopy was not feasible, mainly because of advanced disease or poor general condition.

Equipment employed in this study consisted of Olympus colonoscopes types CFLB2, CFLB3R, and CFLB3W and related accessories (forceps and diathermy equipment).

Group comparisons with respect to biologic variables and prevalence of synchronous neoplasms were analyzed statistically by the chi-square test.

## Results

**Patients with Occluding Cancer:** The 77 patients with occluding colorectal cancer comprised 33 males and 44 females (ratio 1:1.3). The age range was 29 to 91 years (mean 66.1). Eighty-four percent of the tumors were located distal to the splenic flexure and more than 50 percent of these were in the sigmoid colon. Ninety percent were beyond reach of the rigid sigmoidoscope. Fifty-three percent of the tumors were Dukes' stage C, 42 percent, stage B, and 5 percent, stage A.

These patients presented with the usual symptoms of large-bowel cancer. Despite the presence of complete or virtually complete occlusion of the bowel lumen in every instance, symptoms and signs of large-bowel obstruction were encountered in only 16 percent of the patients. Moreover, even though all of these were bulky tumors, 83 percent of the patients had been symptomatic for less than six months.

In the 50 patients with occluding cancer who had postoperative colonoscopy, additional neoplasms were found in 29 (58 percent). Three of the lesions were invasive carcinomas and the remainder were adenomas. Twenty-four patients (48 percent) were found to have neoplasms proximal to the obstructing tumor (Table 1). In five patients, these proximal lesions were confined to the resected specimen but, in 19 others, they were discovered by postoperative colonoscopy. Fifteen patients (30 percent) had synchronous neoplasms proximal to the splenic flexure. These would have been missed if only postoperative flexible fiberoptic sigmoidoscopy had been performed.

All in all, 120 adenomas were found. These, quite often, were multiple (average four per host) (Table 1). Eighty percent were tubular adenomas, 7 percent villous adenomas, and 13 percent tubovillous adenomas. Forty-six percent of the adenomas measured more than 1 cm in diameter (range 1.0 to 3.5 cm). (One-third of all lesions proximal to the occluding tumor were in this category.) None of the synchronous lesions, however, was detected by intraoperative palpation. (Synchronous adenomas or carcinomas were found distal to the occluding tumor in 15 of the above patients and in 12 of 27 additional patients with obstructing cancer who could not be investigated by postoperative colonoscopy.)

**Patients with Non-occluding Cancer:** One hundred fifty patients with non-occluding cancer, investigated by complete perioperative colonoscopy, were compared with the 50 patients with occluding cancer who were investigated in like manner (Table 2). No significant differences were found between the two groups with respect to age, sex, stage of tumor, location of synchronous lesions, location of main lesion or family history of colorectal cancer. On the other hand, a significant difference was found in the overall frequency of synchronous neoplasms: 58 percent of the patients with occluding cancers harbored adenomas or carcinomas, as compared with only 40 percent of the patients with non-occluding cancer ($P = 0.03$).

## Discussion

In the present series of patients, the overall frequency of synchronous neoplasms in association with colorectal cancer (50 percent) is impressively higher than the frequency of 20 to 30 percent that is usually reported.[1,9,10]

TABLE 1. *Prevalence, Distribution, and Number of Synchronous Neoplasms in Presence of Occluding Colorectal Cancer*

| Location of lesion | Patients | Adenomas | Carcinomas |
|---|---|---|---|
| Below tumor | 5 | 12 | 1 |
| Above tumor | 14 | 60 | 2 |
| Above and below tumor | 10 | 48 | 0 |
| TOTAL | 29* | 120† | 3 |
| None found | 21 | — | — |
| TOTAL | 50 | 120 | 3 |

*58 percent of all patients.
†Mean = 4 adenomas per host.

TABLE 2. *Characteristics of Patients with Occluding and Non-occluding Colorectal Cancer*

| | Occluding Cancer | Non-occluding Cancer | *P* |
|---|---|---|---|
| No. of patients | 77 | 248 | |
| Age: mean (range) | 66.1 (29-91) | 65.3 (32-87) | N.S. |
| M:F | 1:1.3 | 1.1.05 | N.S. |
| Dukes' stage A | 5 percent | 10 percent | N.S. |
| B | 42 percent | 42 percent | N.S. |
| C | 53 percent | 48 percent | N.S. |
| Family history of colonic cancer | 6.5 percent | 5.4 percent | N.S. |
| Synchronous neoplasms* | 58 percent | 40 percent | $P = 0.03$ |

*In patients investigated by perioperative colonoscopy.

This was especially true in our patients with occluding cancer: 58 percent of these patients had synchronous neoplasms and most of those were located proximal to the main lesion.

We find no obvious explanation for the fact that synchronous neoplasms were significantly more frequent in those of our patients with occluding cancer than in those with non-occluding cancer, since the two groups of tumors were virtually identical in terms of Dukes' classification (Table 2), and the patients harboring them were closely matched in terms of age, sex, and relevant family history.

Contrary to the experience of Irvin and Greaney,[6] we did not find occluding cancers to be more "aggressive" than non-occluding cancers: the former were not associated with a higher frequency of positive lymph nodes or distant metastases. On the other hand, in common with the above authors,[6,11] we did observe that most of the patients with occluding lesions had a surprisingly short history of symptoms. Perhaps this variant of colorectal cancer, while not necessarily more invasive, is characterized by a relatively high rate of intraluminal growth. This, in turn, may be associated, in some manner, with an enhanced tendency toward adenomatous change in the rest of the colon.

Whatever the explanation, our findings indicate that patients with occluding cancer are in double jeopardy with respect to synchronous neoplasms, these being, at one and the same time, more frequent and less accessible than in patients with non-occluding cancer. Moreover, in our experience, most of these synchronous lesions are undetectable by intraoperative palpation. It is common knowledge, also, that small colonic neoplasms are easily missed by barium-enema examination (even when using the double-contrast technique),[2,10] and they are not ruled out by negative stool examinations for occult blood.[10]

For all of these reasons, complete colonoscopy seems essential in all patients with occluding colorectal cancer who are treated by segmental resection. Colonoscopy in these patients should be carried out as early as possible after surgery and should, of course, be accompanied by endoscopic removal of all polyps encountered.

As mentioned earlier, subtotal colectomy is an alternative approach that offers a similar degree of cancer prevention and control in patients such as these and reputedly decreases surgical mortality as well. In our limited experience, however, the surgical mortality of segmental resection in patients with occluding cancer was not prohibitive, and was not significantly higher than in patients with non-occluding cancer, while early postoperative colonoscopy and polypectomy were quite easily accomplished and were not attended by complications. The latter policy, coupled with segmental resection of the tumor, appears, therefore, to be the optimal approach to patients with occluding colorectal cancer.

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