

## Prognosis of carcinoma in ulcerative colitis

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**SUMMARY** Between 1947 and 1980, 67 patients with carcinoma complicating ulcerative colitis were treated at St Mark's Hospital. The tumours in these patients were compared with those in 4817 patients without colitis seen over the same period. There was a higher proportion of inoperable and high grade tumours in the colitic group but the prognosis was found to be very similar in patients with and without colitis.

Carcinoma is an uncommon complication of ulcerative colitis and the prognosis is usually thought to be worse than in colorectal carcinoma without colitis. This paper describes a relatively large series of patients with carcinoma complicating ulcerative colitis, compares the tumours from certain clinical and pathological aspects with those in patients without colitis, and considers prognosis against that of carcinoma in non-colitic patients seen at the same hospital over the same period.

### Methods

#### PATIENTS

The series consists of 67 patients treated at St Mark's Hospital between June 1947 and January 1980 and includes patients reported previously.<sup>1,2</sup> Patients were included only if both the diagnoses of colitis and of carcinoma were substantiated. There was a pathological diagnosis of adenocarcinoma in all cases and of colitis in 62. In the remaining five patients, all with inoperable tumours, the diagnosis of colitis was made on clinical and radiological evidence. Four patients were excluded, as part of the large bowel had been removed previously elsewhere, including three with carcinoma of the rectum treated at St Mark's Hospital after an earlier colectomy and ileorectal anastomosis elsewhere.

#### CLINICAL DETAILS

There were 25 males and 42 females. The age at diagnosis of the carcinoma ranged from 23-77 years with a mean of 49.4 years. The length of history of colitis was more than 10 years in all but two patients; in nine patients colitic symptoms

began in childhood—that is, at 15 years of age or earlier. Fifty-six patients were known to have colonic involvement up to the transverse colon or more proximally. Thirty-six patients (in whom the diagnosis of carcinoma was known or suspected in 15) were referred with established carcinoma, 15 had been seen previously and were later sent back with further symptoms and 16 were under hospital follow-up.

#### SURGICAL DETAILS

Ten patients were considered to be inoperable; the primary tumour was not removed. Nine patients underwent palliative operations; the primary tumour was removed but it was considered at the time of surgery that growth had been left somewhere in the body. Forty-eight patients were treated by radical operation. In this group, six patients underwent rectal excision only, three were treated by colectomy and ileorectal anastomosis and the remainder by proctocolectomy in one or more stages. In four patients, the rectum was excised for carcinoma after an earlier colectomy and anastomosis.

#### PATHOLOGICAL DETAILS

In the 57 operable cases, there were multiple tumours in 15 patients (five in one patient, three in five patients, and two in nine patients). In 10 of these 15 patients, one or more of the tumours was in the rectum. In the remaining 42 patients with operable single tumours, the carcinoma was in the rectum or rectosigmoid area in 26 patients, in the sigmoid in one, in the descending colon or at the splenic flexure in seven, in the transverse colon in four, and in the ascending colon or at the hepatic flexure in four.

Pathological examination of the specimen in these 42 patients showed the tumours to be Dukes's A in 11, B in 14, and C in 17 (C1 14, C2 3). The tumour was well differentiated (low grade) in 11 patients, moderately differentiated (average grade) in 17, and poorly differentiated (high grade) in 14.

COMPARISON WITH GENERAL SERIES. From 1947 to 1979 inclusive, 4817 non-colitic patients with colorectal carcinoma were seen at this hospital (excluding patients with carcinoma in adenomatous polyposis coli and those treated by local excision). Patients with multiple synchronous tumours form 3.5% of the St Mark's Hospital series without colitis and the prognosis in these patients is the same as that of the more advanced carcinoma had this been a single tumour. These patients with synchronous multiple tumours have also been excluded. The tumours in the 4817 patients are compared with those in the colitic patients in Tables 1 and 2. The proportion of inoperable cases is just significantly higher in the colitic group ( $P < 0.05$ ). The higher proportion of Dukes's A tumours in patients with colitis is not statistically significant but the proportion of high grade tumours is significantly higher ( $P < 0.01$ ) in the colitic group.

Table 1 *Surgical features (% incidence) of colorectal carcinoma in patients with and without colitis*

	<i>Inoperable (primary tumour not removed)</i>	<i>Palliative operations (primary tumour removed; suspected or known growth left)</i>	<i>Radical operations (all known growth removed)</i>
With colitis	15*	13	72
Without colitis	7	19	74

\* $P < 0.05$ .

Table 2 *Pathological features (% incidence) of colorectal carcinoma in patients with single operable tumours in colitis (42 patients) and without colitis (4472 patients)*

	<i>Dukes's classification</i>			<i>Histological grade</i>		
	<i>A</i>	<i>B</i>	<i>C</i>	<i>Low</i>	<i>Average</i>	<i>High</i>
With colitis	26	33	41	26	41	33*
Without colitis	15	39	46	25	58	17

\* $P < 0.01$ .

#### OUTCOME

Among the 57 operable cases, there was one post-operative death: 28 out of the 56 operation survivors were alive at five years (out of a possible

43) giving a crude five year survival rate of 65.1% (corrected rate 68.2%). Another nine patients were alive but had not yet survived five years and four had died in this time. Without colitis, the crude five year survival of all operation survivors at this hospital is 47% for rectal tumours and 53% for colonic carcinoma.

For the 35 patients treated radically from 1947 to April 1975, 27 survived for five years (crude five year survival rate 77.1%, corrected rate 80.6%). The best figures for survival of radical operation survivors from these years in the general series where carcinoma is analysed in five year periods are rectum 59% (corrected rate 72%) and colon 70% (corrected rate 83%), while the average corrected figures over the 25 year period 1948-72 are rectum 67% and colon 78%.

#### Discussion

Some changes in the type of tumour encountered have occurred in the 33 year period studied. The actual number of patients treated has increased from 24 in the first half of the period to 43 in the second. Six of the 10 inoperable cases were seen before 1959. There has been no patient treated by palliative operation since 1968. However, no change can be detected in the staging of the tumours by Dukes's classification over the period. Among the 17 patients with single tumours treated by radical operation up to 1967 the Dukes's classification was A4, B8, C5. In the 18 similar patients treated after this time the figures are A7, B4, C7. It would appear that this lack of change is due to the high proportion of patients referred with established carcinoma, as the 10 operable single tumours found in patients under hospital follow-up were either A or B cases.

At this hospital, carcinoma in ulcerative colitis differs in three main ways from colorectal carcinoma in non-colitic patients. One is the younger age of the patients: 49 years on average compared with 63 years in the general series. The second is the higher proportion of multiple tumours: 26% (15 out of 57 of the operable cases) compared with about 3.5% of synchronous tumours in patients without colitis. The third is the significantly higher proportion of high grade tumours. All these tendencies have been noted before, although not always substantiated by background data from the same institution. In other ways, however, colitic carcinoma is similar to that seen without colitis—for example, Dukes's classification and outcome.

It seems unlikely that the crude five year survival rate of colorectal carcinoma in Great Britain is more than 30% at the most if the figures are viewed *in toto*—that is, with inoperable cases and postoperative deaths included. In the most recent results from England and Wales,<sup>3</sup> from regions<sup>1,5</sup> and from general hospitals,<sup>6,7</sup> the figures are between 20% and 25%, although those from special centres may be higher.<sup>8,9</sup>

There are few figures for five year survival of carcinoma in ulcerative colitis in the literature: all are based on very small numbers of patients. Crude five year survival rates reported are 36% (12 out of 33),<sup>10</sup> 21% (five out of 24),<sup>11</sup> 36% (12 out of 33),<sup>12</sup> and 38% (10 out of 26)<sup>13</sup> if inoperable cases and postoperative deaths are included in the figures. Bargen and Gage,<sup>14</sup> in the largest series of patients with carcinoma in colitis ever published, reported a cumulative five year survival rate of 48.8% among the 101 operable cases in a total of 178.

Survival comparing that of carcinoma in colitis with colorectal carcinoma seen at the same place over the same period was reported by Daly and Brooke.<sup>15</sup> Six of the 29 patients survived five years: at that time in the Birmingham Region the survival rate for colorectal carcinoma in general was exactly the same—that is, 21%.

There are two reports of five year survival rates of patients with carcinoma in ulcerative colitis compared with survival in matched controls without colitis. Hughes *et al.*<sup>16</sup> found a cumulative five year survival rate of 55.1% in 29 patients with carcinoma complicating colitis and 46.9% in the controls. Hulten *et al.*<sup>17</sup> in patients less than 40 years of age found that three out of 25 patients with carcinoma in colitis and five out of 22 without colitis survived five years. The poor prognosis of colorectal carcinoma in young patients is well known.<sup>18</sup>

There are many ways to analyse survival in patients with colorectal carcinoma. The most straightforward and perhaps the fairest (although making no allowance for deaths not due to carcinoma) is to include all patients seen and to give the number alive at the end of five years. This gives the lowest possible survival rate: progressively higher figures are obtained with the exclusion of inoperable cases, postoperative deaths, and patients undergoing palliative removal of the tumour. The highest possible rate is obtained when the survival of radical operation survivors is corrected to allow for deaths from all causes.

Twenty-eight of the 52 patients in this series seen up to April 1975 were alive after five years,

or 54%. In the general series the comparable highest figure for carcinoma of the rectum is 46% and 51% for carcinoma of the colon. For all operable cases, the crude five year survival rate of operation survivors is higher in patients with colitis than in those without at this hospital and this is also true for the patients treated radically. The corrected figure (allowing for expected deaths from all causes) for radical cases is also higher than the average figure for either carcinoma of the rectum or colon in patients without colitis seen at this hospital over the same time period.

In view of the very small number of patients in the colitis series, it would be most unwise to suggest that the prognosis of colorectal adenocarcinoma in colitis is better than without colitis. However, the figures do suggest that, at this hospital, the prognosis may be as good as that of colorectal carcinoma in general. This finding agrees with those in the three series in which patients with colitic carcinoma were compared with those without colitis.

It seems certain that carcinoma in colitis will continue to occur, albeit rarely. About half the patients are referred with established carcinoma<sup>19,20</sup> and no method of prevention or early detection can be practised in those not under continued care. However, this complication should not be regarded with undue despondency as the prognosis may be about the same as for colorectal carcinoma without colitis.

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