



Original article

Duration of symptoms and spread of colorectal cancer: a short history does not mean early disease

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The 5-year survival rates for colorectal cancer are generally lower in the UK than other European countries. In an attempt to improve prognosis, central government has stipulated that patients with suspicious symptoms ought to be seen within 2 weeks of referral from a primary care physician. In order to evaluate whether symptom duration affects stage at presentation of colorectal cancer, a retrospective analysis of all patients presenting over a 2-year period to a large district general hospital was performed. There was no significant difference ($P = 0.885$) in Dukes' staging in patients with symptoms lasting less or more than 6 months. Though seeing patients with symptoms suspicious of colorectal cancer in specialist out-patient clinics within 2 weeks of presentation to the primary care physician would probably reduce the number of patients presenting as an emergency, it is unlikely to improve prognosis. Thus funds diverted towards the 2-week wait are probably best utilised for other procedures such as colonoscopy and for improving care once the diagnosis of cancer has been made. Diagnosis of colorectal cancer at an earlier stage is best achieved by screening of the population.

Key words: Colorectal cancer – Dukes' staging – Symptom duration – Stage at presentation

In the UK, resources and effort are directed at early recognition of symptoms of colorectal cancer. Despite this the survival for patients in this country falls below those standards achieved by many European countries.^{1–3}

Central government in the UK now directs that patients suspected by the primary physician of having colorectal cancer should be seen by a specialist within two weeks in the hope that this will improve survival. Although funds have been allocated from the government to achieve this, pressure on district general hospitals has been considerable and there have been concerns that such an edict may divert from more essential services or other aspects of cancer care.

To establish whether early recognition of symptoms alters prognosis, we have examined symptom duration in relation to extent of spread of the tumour at diagnosis. We

also examined other factors such as family history, social circumstances, existing medical supervision, *etc.* which may be expected to result in earlier presentation of colorectal cancer.

Patients and Methods

A comprehensive audit was performed of all patients presenting to Princess Margaret Hospital, Swindon with colorectal adenocarcinoma over a 2-year period between 1998 and 2000. The age and sex characteristics, referral pattern and presentation, presenting symptoms and duration, mode of diagnosis, site and stage of the tumour were noted. Patients who underwent an operation were then separated into two groups based on whether the

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duration of symptoms until the time of surgery was less than or greater than 6 months. The two groups were then compared to determine if there was any difference in the site or stage of the disease between the two groups. In order to document accuracy of symptom duration prior to surgery, the initial referral letter from the general practitioner, the entry in the notes by either the consultant or registrar at the time of first clinic appointment and the notes made by the house officer at the time of patient admission were compared. In the event of disagreement, the average of the three was taken.

Results

A total of 232 patients presented to hospital over the 2-year period. The case notes of all these were perused and data collected. None of the patients had carcinoma in association with inflammatory bowel disease or metachronous lesions. The average age was 70.1 years (range, 46–99 years). Of these, 105 (45.3%) were male and 127 (54.7%) female.

Referral pattern

Of the 232 patients, 165 (71.1%) were elective admissions whereas the remaining 67 (28.9%) presented as an emergency. Of the elective referrals, 55 patients (33.3%) were referred to a physician and the remainder to a general surgeon in the first instance. Of the 165 elective referrals to hospital, 127 patients (76.9 %) were seen within 2 weeks of referral and of the 119 patients classed as urgent in the referral letters, 114 (95.6 %) were seen within 15 working days of receipt of referral. A total of 131 patients (79.4%) had a diagnosis made within 1 month of initial referral. The cause of delay in the remaining 34 patients was due to the waiting time required for a barium enema examination.

Presenting symptoms

The predominant presenting symptom was change in bowel habit (48.3%) followed by rectal bleeding (37.1%) and then abdominal pain (33.6%). The other symptoms included generalised symptoms in the form of loss of weight and appetite (23.7%), abdominal mass (2.1%), anaemia detected either on routine examination or during investigation of symptoms suggestive of anaemia (15.9%).

Diagnosis

Though most patients needed a combination of methods for diagnosis, the modality that first detected or suggested a clinical diagnosis of cancer was considered the

Table 1 Investigation that first suggested the diagnosis of colorectal cancer

Investigation	Number of patients (%)
Barium enema	124 (53.4)
Rectal examination	45 (19.4)
Colonoscopy	13 (5.6)
Rigid sigmoidoscopy	11 (4.7)
CT scan (abdomen and pelvis)	2 (0.9)
Abdominal mass	8 (3.4)
Laparotomy	29 (12.5)

diagnostic modality. Though barium enema diagnosed the majority of cancers, a thorough clinical examination including sigmoidoscopy identified carcinoma in more than a quarter of the patients presenting with bowel symptoms as noted in Table 1. Rectal examination combined with rigid sigmoidoscopy identified carcinoma in nearly a quarter of the patients while 8 patients (3.4%) had an abdominal mass, which was highly suggestive of malignancy. The indication for laparotomy in the patients without a pre-operative diagnosis of malignancy was obstruction except in 3 patients who presented with acute abdominal pain and peritonism.

Site of tumour

As expected, the tumour occurred with the greatest frequency in the rectum and rectosigmoid regions (37% combined) followed by the sigmoid colon, caecum and ascending colon, respectively (Table 2). Of all tumours, 66.4% were found in the descending colon or more distally.

Comparison of the two groups of patients with differing symptom duration

Of the total, 220 patients underwent operation and Dukes' staging was hence available for these. Nine of the remaining twelve patients were in extremis and hence unfit for surgery while three refused surgery. Based on the

Table 2 Site of colorectal cancer and the number of patients in the two groups with differing Dukes' stage at presentation

Site	Dukes' A and B	Dukes' C and D
Caecum	15 (12.8%)	21 (20.4%)
Ascending colon	7 (6%)	6 (5.8%)
Hepatic flexure	3 (2.6%)	8 (7.8%)
Transverse colon	7 (6%)	3 (2.9%)
Splenic flexure	4 (3.4%)	0 (0%)
Descending colon	4 (3.4%)	5 (4.9%)
Sigmoid colon	30 (25.6%)	26 (25.2%)
Rectosigmoid	13 (11.1%)	10 (9.7%)
Rectum	34 (29.1%)	24 (23.3%)

duration of symptoms from the time of onset up until the time of surgery, the patients were divided into two groups: 150 patients (68.2%) in the first group had symptoms lasting less than 6 months (mean duration, 2.9 months) whereas the second group (70 patients: 31.8%) had symptoms lasting 6 months or more (mean duration, 8.7 months).

Stage

Surgical stage in the 220 patients who underwent operation was determined using the modified Dukes' classification system.⁴ The Fisher Exact test was used to describe the significance of differences observed among categorical variables and *P* values (two-tailed) calculated. For the purpose of this study, patients who were found at operation to have an unresectable primary tumour were included as stage D and went into the latter group (C/D). Figure 1 represents the stages of presentation in the two groups. There was no significant difference in the Dukes' staging between the two groups by Fisher Exact test (*P* = 0.885).

Site

Table 3 gives the site of colorectal cancer in the two groups. The values in parentheses are percentages of the total in each group. Of the total, 34 patients (22.7%) in the first group and 15 (21.4%) in the second group had lesions in the caecum and ascending colon. There was no significant difference in the incidence of these right-sided lesions in the two groups (*P* = 1).

Grade and type of the tumour

Of the total, 141 patients with symptoms lasting less than six months and 61 patients with a longer duration of symptoms had good documentation of the grade of their tumour; 26 patients (18.4%) in the first group and 9 (14.8%) in the second had a tumour that was either poorly differentiated or anaplastic in nature. In addition, 4 patients in the first group and 2 in the second had mucinous tumours which are known to affect prognosis adversely. The two groups of patients did not differ in

Table 3 Site of colorectal cancer in the two groups of patients with symptoms less and greater than 6 months

Site	< 6 months	> 6 months
Caecum	23 (15.3%)	13 (18.6%)
Ascending colon	11 (7.3%)	2 (2.9%)
Hepatic flexure	8 (5.3%)	3 (4.3%)
Transverse colon	8 (5.3%)	2 (2.9%)
Splenic flexure	2 (1.3%)	2 (2.9%)
Descending colon	3 (2%)	6 (8.6%)
Sigmoid colon	37 (24.7%)	19 (27.1%)
Rectosigmoid junction	15 (10%)	8 (11.4%)
Rectum	43 (28.7%)	15 (21.4%)

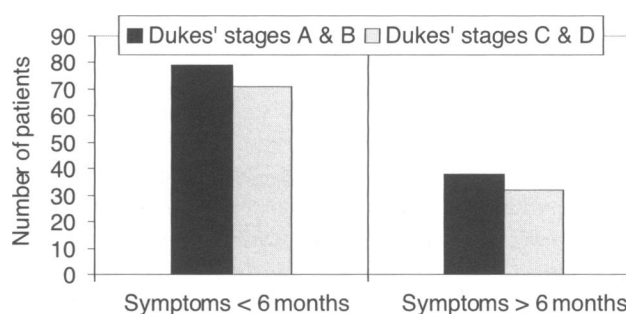


Figure 1 Duration of symptoms and Dukes' classification.

Table 4 Predominant symptom and Dukes' stage

Predominant symptom	Dukes' A and B	Dukes' C and D
Change in bowel habit	59	60
Rectal bleeding	56	31
Abdominal pain	35	48

Values represent actual number of patients with the symptom.

relation to the relative proportion of poorly differentiated or mucinous tumours (*P* [two-tailed] = 0.705). Further, the relative proportion of poorly differentiated and mucinous tumours in patients presenting in Dukes' A and B stages was similar in the two groups (*P* = 1).

Late presentation of colorectal cancer

Of the 220 patients who underwent surgery, 117 patients (53.2%) had an 'earlier stage' (i.e. Dukes' A and B) whereas the remaining 103 (46.8%) were either Dukes' C or D ('later stages'). The average age of patients with stage A and B colorectal cancer was 69.5 years whereas that of those with Dukes' C and D stages was 72.3 years. The site of colorectal cancer in these two groups is given in Table 2 and the predominant symptom in Table 4. There was no significant difference in the proportion of patients with right-sided lesions between the two groups (*P* = 0.335).

Out of 15 patients with a family history of colorectal cancer in close relatives, 11 had either Dukes' A or B cancer whereas four Dukes' C or D cancer. Though an increased awareness of the disease and its symptomatology would be expected in patients with a family history, there was no significant difference in the stage of presentation in patients with or without a family history of colon cancer (*P* = 0.117).

A total of 134 patients had chronic disease such as diabetes, hypertension or a previous history of cancer, which would normally require a high degree of understanding and compliance on their part. Of these, 74 had the 'earlier stage' and 60 the 'later stage'. Though

such patients would also be expected to present earlier as they are normally under on-going medical follow-up, we found that there was no significant difference ($P = 0.49$) between the groups when compared for antecedent chronic disease.

Twenty-six patients with Dukes' A and B cancer and 31 patients with Dukes' C and D were living alone at home and hence did not have a responsible adult who could encourage them to seek medical advice soon after the onset of their symptoms. However, patients living alone at home too did not seem to be predisposed to presenting in the later stages (C and D) rather than to the earlier A and B stages ($P = 0.218$).

Discussion

It is widely believed that early diagnosis and prompt treatment improves survival in patients with carcinoma of the large intestine,⁵⁻¹⁰ and it has been suggested¹¹ that greater public awareness of colorectal cancer symptoms might result in earlier presentation and public education should be directed at population groups with higher risk and the least knowledge of colorectal cancer. This is also the basis for central government guidelines within the UK, which specify that patients with a suspicion of colorectal cancer should be seen by a specialist within 2 weeks.

This study suggests that there is no relation between the duration of symptoms and the stage at presentation. Other studies¹²⁻¹⁶ have also failed to find a relationship between symptom duration and survival in patients with carcinoma of the colon and rectum. One study¹⁴ has reported significantly worse prospects when symptoms were less than 3 months in comparison to a longer duration.

As the accuracy of symptom duration depends on the memory of the patient, it is subject to an element of recall bias. We have tried to minimise the extent of this bias by considering some other factors, which might predispose a patient to present sooner and consequently influence the Dukes' stage. Patients with a positive family history of colorectal cancer would be expected to be more aware of the disease and hence present early after the onset of symptoms. Chronic medical conditions require a great degree of awareness and also active participation on the part of the patient to ensure adequate management. Such patients would be more aware of the need to discuss their bowel-related symptoms, would have ample opportunity to do so during visits to their doctor and would hence be expected to present early. Similarly, as most patients with colorectal cancer tend to be elderly, those who have a responsible adult living at home with them would be expected to present sooner than those living alone. We

found that patients in the early (Dukes' stages A and B) and the late stage (C and D) groups did not differ with regard to the above factors which would have predisposed them to an earlier presentation.

In our study, poorly differentiated adenocarcinoma and mucinous tumours which are considered to be of poor prognosis by some authors¹⁷⁻¹⁹ did not seem to influence either the symptom duration or stage of presentation. Host defence mechanisms may play an important part in determining tumour spread.

A good clinical examination establishes the diagnosis in 27.5% of patients. However, barium enema and/or colonoscopy are needed to make a diagnosis in the remainder of patients. Unfortunately, these departments are often significantly under-funded and this is not helped by the diversion of available resources to address the issue of the 2-week wait.

Conclusions

This study suggests that symptom duration does not influence extent and stage of presentation of tumour at diagnosis. Clearly, earlier referral is useful in preventing emergency presentation²⁰ and complication,²¹ but it will not, in itself, grossly influence survival. In our series, 66.3% of tumours were found in the descending colon or more distally which emphasises the role of flexible sigmoidoscopy as both a screening and a diagnostic tool. Proper allocation and redistribution of funds to improve services such as barium examination and colonoscopy and improving care once the diagnosis of cancer has been made rather than reducing out-patient waiting time would be of greater benefit to the patient. Diagnosis of colorectal cancer at an earlier stage is best achieved by screening of the population.^{12,13,22-25}

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