

# Factors Responsible for Delay in Diagnosis & Treatment of Colorectal Carcinoma

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## ABSTRACT

**Objective:** To study the various factors responsible for delay in the diagnosis & treatment of colorectal carcinoma.

**Study site:** Department of Surgery Bahawal Victoria Hospital/ QAMC Bahawalpur.

**Study design:** Descriptive case series study.

**Duration:** From 1<sup>st</sup> Jan 2010 to 31<sup>st</sup> Dec 2012.

**Patients and methods:** A study of 110 patients with various presentations but eventually diagnosed as a case of colorectal carcinoma was performed to see delaying factors. The demographic data of the patients and various factors responsible for the delayed presentation including socioeconomic status, illiteracy, misbelieves, spiritual healers, quacks, delayed referral from general practioners and inadequate assessment by consultants were analyzed statistically on SPSS version 16. Qui squared test for percentages, ANNOVA test for age & Fischer's exact test for sex, literacy and residential status was applied at multivariate analysis and a p-value < 0.05 was taken as significant.

**Results:** A delay in the diagnosis and treatment of colorectal cancer was seen in 56.2% cases. Total mean delay in diagnosis was  $167 \pm 21$  days with  $114 \pm 10$  days being related to the patient in seeking help. The physician related delay was  $48 \pm 19$  days and the delay related to the hospital / administrative causes was  $15 \pm 7$  days. Young (p value 0.015) rural patients from low socio-economic class (p value 0.007) with misbelieve were more likely to have patient related delay.

**Conclusion:** Delay in seeking appropriate medical help appeared to be a psychosocial at patient level and negligence act at practitioner's level rather than a failure to proceed treatment of colorectal carcinoma at the institutions.

**Keywords:** Colorectal carcinoma, diagnosis, delaying factors.

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## INTRODUCTION

Colorectal carcinoma is the fourth most common cause of cancer death worldwide and is a major global health problem as its incidence is growing continuously<sup>1</sup>. Survival varies according to the stage at diagnosis with 5 year survival falling from almost 90% for early cancer (Dukes A) to 15% for advanced tumors when only palliative measures are possible<sup>2,3</sup>. Early recognition of colorectal cancer without known genetic predisposition is a challenge and clinicopathological features at the time of presentation are not well recognized<sup>4</sup>. The risk factors for delay in presentation of colorectal cancer and the possible influence of delay in diagnosis on survival have been the subject of considerable interest and controversy for many years. Consequently there is a need to understand the diagnostic process and ascertain risk factors related to increased time to presentation and treatment to

improve the outcome<sup>5,6</sup>. Two ways have been proposed to reach an early diagnosis: tumor diagnosis during the asymptomatic period and secondly reduction of diagnostic delay. Although various screening programs have been established for this purpose but there is no consensus as to which other factors may be associated with advanced stages of colorectal cancer<sup>7,8,9,10,11 7-11</sup>.

Various factors are attributable to this delay starting from the patient's non-recognition of symptoms seriousness to delayed diagnostic intervention at institutions. Delayed diagnosis of colorectal cancer can occur as a result of patient delay, practitioners including quacks delay and hospital delay. So a greater knowledge of the factors contributing to these phases is required if survival is to be increased<sup>12,13,14</sup>. We conducted the present study to evaluate precisely the factors responsible for delayed diagnosis of colorectal cancer at Bahawal Victoria Hospital Bahawalpur with the objective if delayed diagnosis is to be reduced there must be recognition these factors.

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**PATIENTS AND METHODS**

This study was carried out in the department of surgery Bahawal Victoria Hospital Bahawalpur from 1<sup>st</sup> Jan 2010 to 31<sup>st</sup> Dec 2012 for a period of 3 years. One hundred and ten consecutive patients out of 196, who were ultimately diagnosed as a case of colorectal carcinoma, were included in the study. Previously diagnosed cases but left without management were not enrolled in the study. The patients managed at other intuitions and presented to us with any stage and reason were also excluded from study. Along with demographic details, primary symptoms with duration were filled in the questionnaire by face to face interview with patient or/ and attendant.

Delay was defined to have occurred if more than a 3 month period lapsed from the time when initial symptoms were clearly established to the time of histopathological diagnosis of colorectal carcinoma.<sup>15</sup> This delay was considered as dependent variable and was analyzed by three components with following independent variables:

1. Patient related delay: Taking the symptoms unimportant, fear of diagnosis or investigations related to cancer, misbelieves, socioeconomic problems and self diagnosis or medication.
2. Practitioners related delay: Improper examination by GPs, quacks and consultants, misdiagnosis and improper referral.
3. Administration related delay: longer endoscopy / biopsy time, histopathological or unclear reports, false negative results.

The descriptive data of all 110 patients was analyzed on SPSS 16.0 version program. For the qualitative variables the frequencies and the percentages were taken to assess the strength of association. Mean  $\pm$  SD were used for the quantitative variables. A Chi squared test was used

to compare percentages and a significance level of  $p < 0.05$  was established. A multivariate analysis of data was also performed to assess the strength of association by applying ANNOVA test for age and Fisher's exact test for sex, literacy and residential status.

**RESULTS**

A total of 9012 surgical patients were admitted among which 196 were of colorectal carcinoma accounting a relative frequency of 2.18 %. Eighty six cases not fulfilling the criteria were excluded and 110 cases were enrolled for the study, 73 males and 37 females with ratio 2:1 (Fig 1). So delay in diagnosis was seen in 56.2% of patients. The mean age of the patients was  $47.62 \pm 1.59$  years and 21 (19.1%) patients were below 40 years with lowest age of 11 years.

Ninety two (83.6%) patients presented in surgical outpatient department while 18(16.4%) were brought in emergency. Seventy three (66.36%) were from rural areas and 37(33.64%) urban. Sixty six (60%) were literate with 10(9.1%) above matriculation. The primary symptom on presentation was hematochezia 71(64.5%) followed by mass abdomen 51(46.4%) and tenesmus 43(39.1%). Sixty three (57.3%) patients were of Duke's C and D stage. The left sided colonic carcinoma was seen in 64(58.2%) patients. Adenocarcinoma was exclusively the main variant in 108(98.2%) cases including 18(16.7%) poorly differentiated carcinomas (table 1).

Total mean delay in diagnosis was  $167 \pm 21$  days with  $114 \pm 10$  days being related to the patients. The physician related delay was  $48 \pm 19$  days and the delay related to the hospital / administrative causes was  $15 \pm 7$  days.

Fig 1 Age and sex distribution

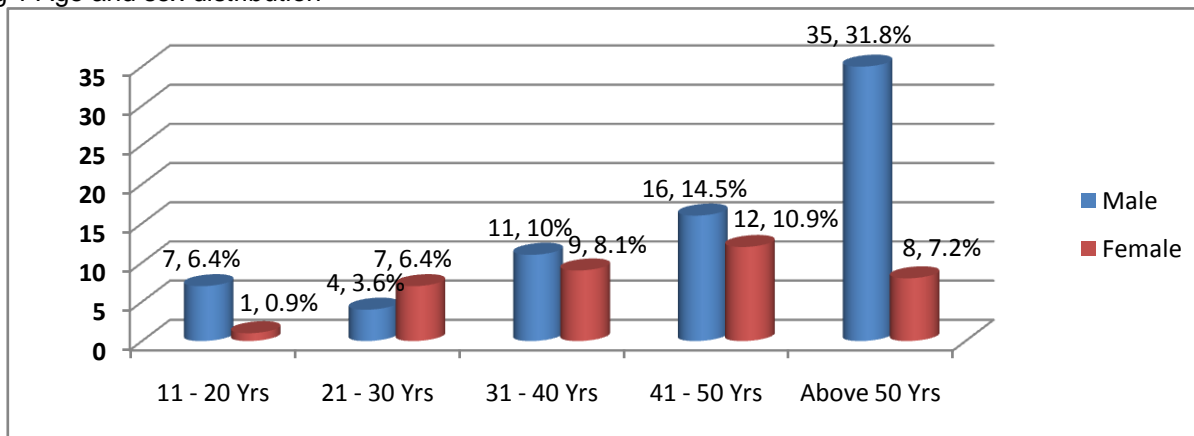


Table 1. Demographic and Descriptive variables

Variable	N	%age
<b>Residence</b>		
Rural	73	66.34
Urban	37	33.66
<b>Literacy</b>		
Literate	66	60
Illiterate	44	40
<b>First symptoms</b>		
Hematochezia	71	64.5
Tenesmus	43	39.1
Change in bowl habit	41	37.3
Mass abdomen	51	46.4
Obstruction	16	14.5
Peritonitis	02	1.8
<b>Tumour location</b>		
Right colon	39	35.5
Transverse colon	07	6.40
Left colon	64	58.2
<b>Dukes stages</b>		
A	17	15.4
B	30	27.3
C	32	29.1
D	31	28.2

Table 2: Delaying factors in presentation of colorectal carcinoma

Variables	N	%	P value
<b>At patient level</b>			
Misbelieves /consultation from SH / quacks	49	44.5	Multivariate associations: Age (0.567) Sex (0.163) Rural (0.007*) Literacy (0.101)
Self medication	22	20.0	
Socioeconomic factor	18	16.4	
Non-recognition of seriousness of symptoms	10	9.1	
Lack of sense of cancer	9	8.2	
None	2	1.8	
<b>At practitioner level</b>			
Non-recognition of cancer	38	34.5	Age (0.015*) Sex (0.178) Rural (0.396) Literacy (0.692)
Insufficient examination	26	23.6	
Delayed referral	26	23.6	
Improper referral	15	13.6	
None	5	4.5	
<b>At hospital level</b>			
Delay in investigations	22	20.0	Age (0.968) Sex (0.479) Rural (0.165) Literacy (0.666)
Delayed appointment for endoscopy	07	6.4	
Improper counseling	17	15.5	
None	64	58.2	

SH: Spiritual healer. Tests applied: ANOVA for age, Fisher's exact for sex, rural vs urban and literacy status\* denotes significance. The patient related delay was the main (75%) delaying predictor and

factors responsible for it were misbelieves about cancer treatment 49(44.5%) followed by self medication seen in 22 (20%) patients as given in table 2. The multivariate analysis showed rural factor as significant (p value = 0.007) in the delay at patient level.

Among the total delay 52% was attributable to the spiritual healers, quacks and general practitioners. Non recognition of cancer was main factor (34.5%) followed by the improper examination (23.6%) at practitioner level. Age was significant variable on multivariate analysis (p value =0.015). Although 68(62%) patients showing delay were above 40 years but 35(48%) above 50 years were male (p value= 0.012). The hospital related delay was 12% and the longer investigations period was main (22%) delaying factor.

## DISCUSSION

The prevalence of colorectal cancer in our society is ever increasing and its burden on our health care system has been fortified. The countless medical efforts to manage the disease remain fruitless as the majority of cases reports in advanced stage. The benefits of diagnosis early in the course of the disease are well established. Understanding the delaying factors in the diagnosis of colorectal cancer is the first step in reducing it. Delayed treatment seems to be a multifactorial problem<sup>15</sup>.

Across the common malignancies, the symptom's nature is predictive of delay in presentation. If the symptom is more serious or alarming the risk of delayed presentation is reduced as observed by literature<sup>5, 16</sup>. The situation is entirely different in our community as majority 71(64.5%) of our patients noticed hematochezia but reported too late in advanced stages. This is usually because of lack of awareness of symptom of cancer as reported by Pobb et al<sup>17</sup> which is in consistent to our observation that 41 (37.3%) patients were entirely lacking awareness of carcinoma. Nearly 70% of diagnosis delay has remained attributable to the patients in most of the other studies which is in consistent to our study<sup>13, 16</sup>. This non recognition of seriousness of symptoms has been observed in other communities as well as reported by Robb et al, Courtney RJ et al and Hashim SM et al<sup>18, 19</sup>. As common cancer symptoms are often attributable to benign disease like piles and patients start either self medications or seek medical help from quacks as evidenced by our study that 49 (44.5%) patients consulted quacks and 22(20%) started self medication after developing hematochezia. This "wait and see" attitude of the patients denying or

redefining their symptoms in relation to benign diseases or self medication has also been reported by Macdonald et al, Mitchell et al and U Macleod et al<sup>5,12,20</sup>.

The lower socioeconomic status and education level are risk factors for delayed presentation of several cancers. There is a definite impact of level of fear on patients delay regarding health care seeking behavior<sup>21</sup>. The cancer awareness is poorer among those who are less well educated and those with low socioeconomic status as mentioned by Grunfeld et al and Robb et al<sup>17,22</sup>. This is in consistent to the present study in a sense that 73 (66.3%) were of rural origin among these 80% were belonging to poor socioeconomic class. Although 66(60%) patients in our study were fulfilling the basic criteria of literacy but only 10 (9.1%) patients were having qualification above matriculation. This factor is evident in our study on multivariate analysis with a significant p value of 0.007 (Table 2).

People's attitude, believes and social context clearly influence the process of medical help seeking. The existing literature is in favor of the fact that fear and embarrassment influenced by the family members, close society members and friends play a role in patients delay for the diagnosis of cancer which is also true for our society<sup>23</sup>. Equally these study report that the people hold negative belief and attitude about the benefits of seeking medical help for cancers and such misbelieves are potentiated by spiritual healers and quacks to whom our patients report with vague symptoms as evidenced by the fact that 71(64.5%) of our patients either first consulted spiritual healers or quacks and presented delayed to our institution.

There was found no significant association between sex and delayed presentation neither at patient level (p value 0.163) nor at practitioner's level (p value 0.178) at our institution. It is in consistent to the observations of Mitchell et al and Macdonald et al<sup>12,20</sup> but disagreeing the results of Esteva M et al who reported that women experience a longer intervals than men<sup>24</sup>. However we have noticed in our study that relatively elder patients from either sex asked the practitioners and quacks for early referral to consultants for hematochezia regardless of their socioeconomic or literacy status. This diversity of observation is because patients in our community have already wasted a long duration at their own level by self medication or by spiritual healers and have got a bit experience and awareness so far.

General practitioners and health care personals play a role in referral for colorectal cancer. Failure to fully or adequately examine the patients, use of inadequate tests and failing to follow up inconclusive results contributed to delay at their level. This fact is

supported not only by our study that 80% patients with hematochezia had no digital rectal examination when they reported to various health care providers but also by Tomlinson et al who reported that only 38% patients had digital rectal examination during their first visit<sup>25</sup>. Overall even after a long lag the referral is not proper as evidenced by our study the fifteen (13.6%) cases of bleeding per rectum were referred to either gynecologists or irrelevant consultants who did not bather the importance of digital rectal examination and the delay for the diagnosis of colorectal cancer was fortified.

It is prudent to emphasize that even the patients suspicious of colorectal cancer has reported or referred to tertiary care institutions but suffer more or less delay in diagnosis. Although a delay of 15±7 days was observed at our institution before endoscopy and biopsy yet it was observed in 46 (41%) cases which is comparable to reports of Singh H et al<sup>26</sup> who noticed a hospital delay in 33.7% patients. In contrast to our observation Singh et al has reported a median time of 123 days, between first referral and completion of endoscopy which is too high. This diversity of results may be due to overburden of patients at their institution or inefficient process related to colonoscopy.

There is a definite need of greater understanding of the psychological sociological factors influencing patients help seeking behavior. In addition, health care systems need to devise culturally sensitive strategies not only to improve awareness of cancer but also to aid interpretation of symptoms seriousness by the patients and practitioners. Equally important is the need for health care system legislative rules for practicing quacks, general practitioners, consultants and the institutions.

## CONCLUSION

Delay in seeking appropriate medical help appeared to be a psychosocial at patient level and negligence act of health care providers rather than a failure to treat colorectal carcinoma at the institutions. We stress the significance of public awareness and strict medical practicing regulations by responsible authorities to improve the outcome of colorectal cancer management.

## REFERENCES

1. Parkin DM, Bray F, Ferlay J et al "Estimating the world cancer burden" *I J Cancer* 2001; 94: 153-160.
2. McArdle Cs, Hole DJ. Outcome following surgery for colorectal cancer: analysis by hospital after adjustment for case mix and deprivation. *Br J Cancer* 2002;86: 331-335.

3. Mandle JS, Bond JH, Church TR et al. Reducing mortality from colorectal cancer by screening for fecal occult blood. *N Engl J Med* 1993;328: 1365-71.
4. Dozois, Eric J, Boardman, Lisa A et al. Young onset colorectal cancer in patients with no known genetic predisposition: Can we increase early recognition and improve outcome. *Journal of Clinical Oncology*, vol 26 No 2 (10): 2008; 302-312.
5. U Macleod, E D Mitchell, C Burgess et al. Risk factors for delayed presentation and referral of symptomatic cancer : evidence for common cancers. *Br J Cancer* 101(10):2009; 92-101.
6. Cockburn J, Paul C, Tzelipes F et al. Delay in seeking advice for symptoms that potentially indicate bowel cancer. *Am J Health Behav* 2000; 27(4) : 401-407.
7. Niv Y. Colonoscopy for early detection and prevention of colorectal cancer. *Harefuah* 2010 Aug ; 149(8): 535-6.
8. McArdle CS, McMillan DC, Hole DJ et al. Male gender adversely affects survival following surgery for colorectal cancer. *Br J Surg* 2003;: 90: 711-5.
9. Campbell NC, Elliott AM, Sharp L et al. Rural and urban differences in stage at diagnosis of colorectal and lung cancers. *Br J Surg* 2001; 84: 910-4.
10. Jover R, Herraiz M, Alarncorn O et al. Clinical practice guidelines: colonoscopy in colorectal carcinoma screening. *Endoscopy* 2012 April, 44(4): 444-51.
11. Koka VK, Potti A, Fraimam GN et al. An epidemiological study evaluating the relationship of distance from a territory care cancer center to early detection of colorectal carcinoma. *Anticancer Res* 2002; 22: 2481-3.
12. E Mitchell, S Macdonald, N C Campbell et al. Influences on prehospital delay in the diagnosis of colorectal cancer: a systematic review. *Br J Cancer* 2008; 98: 60-70.
13. E Gomez-Dominguez, M. Trapero-Marugan, A. J del Pozo et al . The colorectal carcinoma prognosis factors: Significance of diagnosis delay. *Rev Esp Enferm Dig* 2006; 98(5):322-9.
14. Cerdan-Santacruz C, Cano-Valderama O, Cardenas Crespo S et al. Colorectal cancer and its delayed diagnosis: have we improved in past 25 years. *Rev Esp Enferm Dig* 2011; 103(9):458-63.
15. Mike Ralf Langenbach, Johannes Schmidt, Jurgen Neumann et al. Delay in the treatment of colorectal cancer : Multifactorial Problem. *World J Surgery* 2012,27 (3): 304-308.
16. YOUNG CJ, Sweeney JL, Hunter A. Impications of delayed diagnosis in colorectal cancer. *Aust N Z J Surg* 2000; 70 (7): 635-8.
17. Robb K, Stuppings S, Ramirez A et al. Public awareness of cancer in Britain: a population based survey of adults. *Br J Cancer* 2009; 101:2, 1234-7.
18. Courtney RJ, Paul CL, Sanson Fisher RW et al. Factors associated with consultation behavior for primary symptoms potentially indicating colorectal cancer: a cross- sectional study on response to symptoms. *BMC Gastroenterol* 2012 Aug 3;12:100. Doi 10.1186/1471.
19. Hashim SM, Fah TS, Omar K et al. Knowledge of colorectal cancer among patients presenting with rectal bleeding and its association with delay in seeking medical advice. *Asian Pac J Cancer Prev*. 2011; 12(8):2007-11.
20. Macdonald S, Macleod U, Campbell N C et al. Systematic review of factors influencing patient and practitioner delay in diagnosis of upper gastrointestinal cancer. *Br J Cancer* 2006; 94:1272-1290.
21. Tatiana Dubayova, Jitse P, Van Dijk et al. The impact of the intensity of fear on patients delay regarding health care seekin behavior ; a systemic review. *International J of Public Health* 2010;55(5):459-468.
22. Grunfeld EA, Rameriz AJ, Hunter MS et al. Womens knowledge and believes regarding breast cancer. *Br J Cancer* 2002(86) : 1373-1378.
23. Smith LK, Pope C, Botha JL et al. Patient s help seeking experiences and delay in cancer presentation : a qualitative synthesis. *Lancet* 2005; 366:825-831.
24. Esteva M, Leiva A, Ramos M et al. Factors related with symptom duration until diagnosis and treatment of symptomatic colorectal cancer. *BMJ Cancer*. 2013 Feb 23;13:87.doi 10. 1186/1471-2407-14-87.
25. Tomlinson C, Wong C, Au HJ et al. Factors associated with delays to medical assessment and diagnosis for patients with colorectal cancer. *Can Fam Physician* 2012 Sep; 58(9):495-501.
26. Singh H, Khan R, Giardina TD et al. Postreferral colonoscopy delays in diagnosis of colorectal cancer: a mixed method analysis. *Qual Manag Health Care*. 2012 Oct-Dec; 21(4):252-61.