



## Comparison of Clinicopathologic Features of Colonic Malignancies between Patients Aged below 50 and Patients aged above 50 Years

Authors

Joshin Joseph<sup>1</sup>, Abhilash Kumar<sup>2</sup>, Manoj Thillai<sup>3</sup>, Surendran Paramasivam<sup>4</sup>,  
Naveen Alexander<sup>5</sup>

<sup>1</sup>Department of General Surgery, Sri Ramachandra University, Porur, Chennai India  
Email: [joshin90@gmail.com](mailto:joshin90@gmail.com)

<sup>2</sup>Department of General Surgery, Sri Ramachandra University, Porur, Chennai, India  
Email: [dr.k.abhilash@gmail.com](mailto:dr.k.abhilash@gmail.com)

<sup>3</sup>Department of General Surgery, Sri Ramachandra University, Porur, Chennai, India  
Email: [prion57@gmail.com](mailto:prion57@gmail.com)

<sup>4</sup>Department of General Surgery, Sri Ramachandra University, Porur, Chennai, India  
Email: [drsuru@yahoo.com](mailto:drsuru@yahoo.com)

<sup>5</sup>Department of General Surgery, Sri Ramachandra University, Porur, Chennai, India  
Email: [naveenalexander@yahoo.co.in](mailto:naveenalexander@yahoo.co.in)

### Abstract

*The incidence of colon cancer is low in India. More than 70% of colonic cancers occur in people aged 50 or older. However, colonic cancer appears to be increasing among younger patients. This study was done to compare and analyze the differences in clinical & pathological factors of colonic malignancies occurring in young patients (<50 years) and old patients (>50 years). The study showed male predominance within both groups (72% & 80%). Abdomen pain & altered bowel habits and abdomen pain with generalized weakness & anaemia were common presenting symptoms. Family history was an important predisposing factor in younger group (24%). Presentation as acute emergency was more common in younger group when compared to older group (36% & 20%). The younger group had more of left sided malignancy with poorly differentiated variety of carcinoma whereas it was evenly distributed in the older group. The time period between onset of symptoms and diagnosis was 2.4 months in younger group whereas 5.92 months in older group. Younger group tend to have more aggressive malignancy with poorer pathologic findings, and if detected early can have better overall survival rates.*

**Keywords:** Carcinoma Colon Malignancy Older Patients Younger.

### Introduction

Colonic cancer is one of the commonest malignant tumours worldwide and represents an important cause of cancer-related death.

The incidence of colon cancer is low in India. According to a recent epidemiologic study, the

incidence rates in eight population registries vary from 3.7 to 0.7/100,000 among men and 3 to 0.4/100,000 among women. The likelihood of colonic cancer diagnosis increases progressively from age 40, rising sharply after age 50. More than 70% colonic cancer cases occur in people

aged 50 and above. However colonic cancer appears to be increasing among younger persons. Invasive colonic cancer is preventable disease. Early detection through widespread screening programs is the most important factor in the recent decline of colorectal cancer deaths in developed countries. In the past decade, an unprecedented advance in systemic therapy for colonic cancer has dramatically improved outcome for patients with metastatic disease. Though surgery remains the definitive modality of treatment, these new agents will like translate into improved cure rates in early stage disease (stage II & III) and prolonged survival in those with stage IV disease. Hence this specific study was aimed at comparing the various clinical and pathological factors of colonic malignancies presenting in young patients (<50 Years) and older patients (>50 Years) and to identify the differences on the basis of the patient's age.

### Materials and Methods

A total of 68 patients diagnosed as colon cancer were included in the study, between the time-period from April 2013 to September 2015. Patients who underwent surgery were included in the study, which was 50. Around 18 patients were excluded for various reasons like not fit for surgery, not willing for surgery and those who went against medical advice. Patients were divided into two groups based on the age at diagnosis. Group-A patients aged 50 years & less, and Group-B patients aged more than 50 years. Surgical treatment was curative when there was macroscopic resection of all malignant tissue and no microscopic evidence of surgical margin positivity. Post-operative mortality was defined as death within 30 days of surgery. Descriptive statistics were calculated for all variables using chi-square test. Level of significance  $p < 0.05$  was used. Analysis done using the SPSS 14.0 statistical package. Factors analyzed were sex, time duration for onset of symptoms, chief complaints at presentation, family & medical history, complication at presentation, pathological

tumour site & configuration, Histopathological examination (HPE) grade, Staging and type of surgery.

### Results

The study showed a male predominance in the disease occurrence within both groups (72% and 80%). Abdomen pain, altered bowel habits and abdomen pain with anaemia and weakness were the commonest presenting symptoms (36% vs 32%) whereas altered bowel habits was the predominant symptom in older group (52%) (Table 1). Family history such as colonic malignancies, familial adenomatous polyposis, and hereditary non-polyposis colorectal cancer were present in 24% of the younger group, whereas it was only 12% in the older group.

Medical history of Diabetes & hypertension, coronary artery disease and inflammatory bowel disease were present in older group more commonly than younger group. In the younger group, 36% of patients presented with emergency obstruction whereas only 20% of older patients presented with obstruction (Figure 1). The site of tumour varied widely, 72% of younger group had left sided colonic malignancy & 28% right sided colonic malignancy, but the older group had an even distribution of 56% right sided and 44% left sided colonic malignancy (Figure 2).

Ulceroproliferative type of growth was the most common type of tumour configuration in both groups. Tumour grading showed poorly differentiated high grade tumours to be more common in younger group (44%) and moderately differentiated tumours common in older groups (56%) (Table 2). Adenocarcinoma was the commonest variety in both the groups (64% & 72%). Tumour node metastasis (TNM) staging showed T2N0M0 & T3N0M0 equally in the younger group. Similarly T2N0M0 and T3N1M0 was almost equal in older group. Metastasis was noted only in 4% of patients in younger group whereas it was seen in 20% patients in the older group.

Curative left hemicolectomy and Palliative Hartmann’s procedure were equally done in the younger group (32% each), but more number of curative right hemicolectomy done in the older group (40%) (Figure 3). Post-operative complications were 56% in younger group and

40% in the older group. Tumour recurrence was noted in 12% of younger group whereas only in 4% of older group. The mean time duration between onset of symptoms and diagnosis was 2.4 months in younger group and 5.92 months in older group.

Table 1.

			Group		Total
			≤ 50 Years	> 50 Years	
Chief Complaint	Abdomen pain , altered bowel habits	Count	9	13	22
		% within Group	36.0%	52.0%	44.0%
	Abdomen pain ,generalized weakness and anaemia	Count	8	7	15
		% within Group	32.0%	28.0%	30.0%
	Obstipation and vomiting and abdomen pain	Count	6	5	11
		% within Group	24.0%	20.0%	22.0%
	Faecal vomiting ,abdomen pain , anaemia	Count	2	0	2
		% within Group	8.0%	.0%	4.0%
Total		Count	25	25	50
		% within Group	100.0%	100.0%	100.0%

Figure 1.

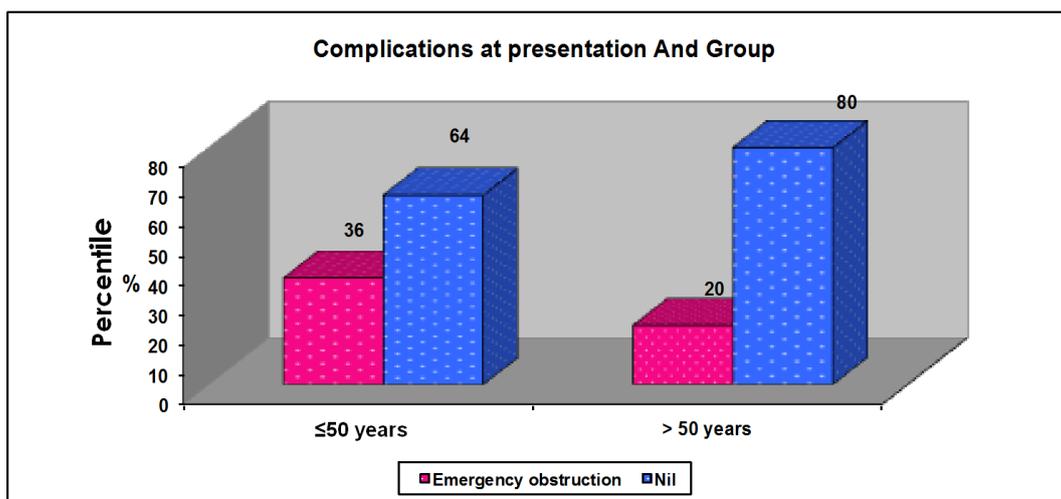


Figure 2.

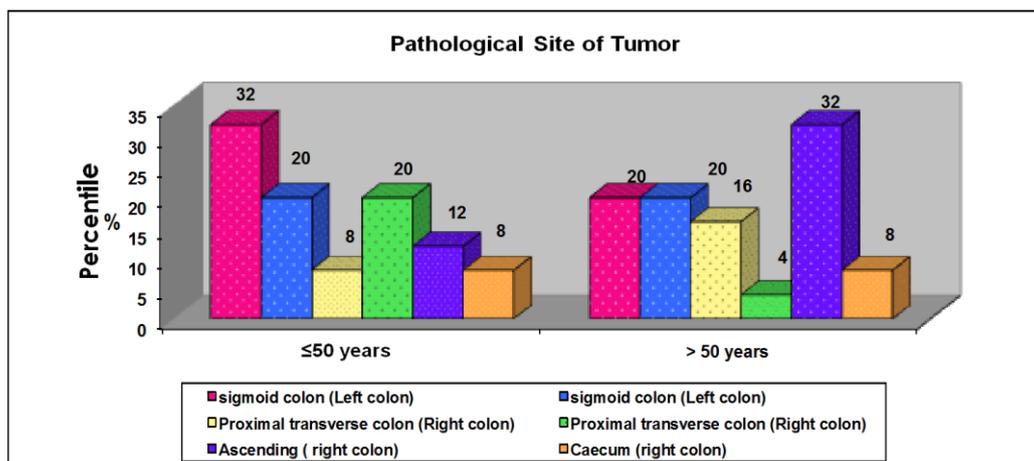
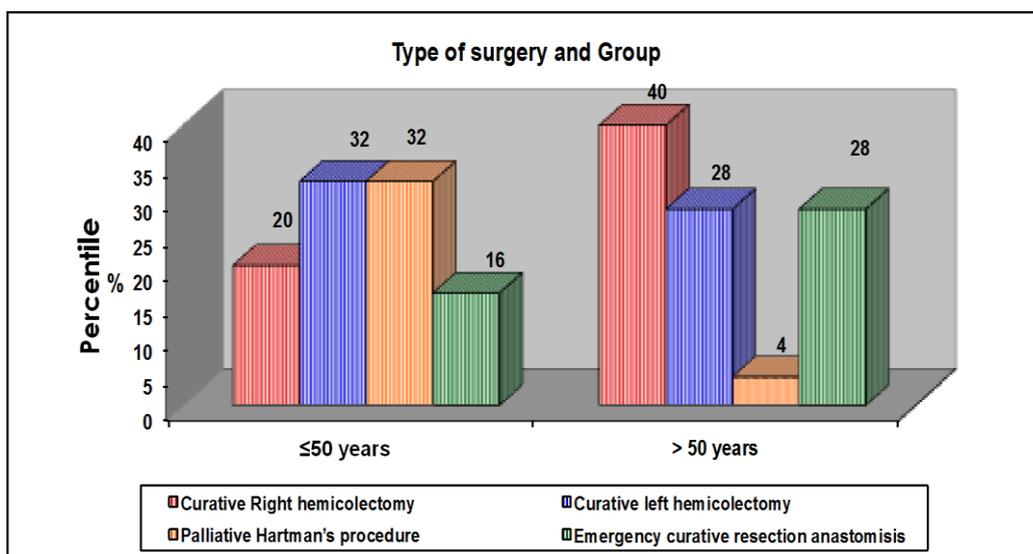


Table 2.

			Group		Total
			≤ 50 Years	> 50 Years	
HPE grade	Low grade G I , well differentiated	Count	4	6	10
		% within Group	16.0%	24.0%	20.0%
	G II moderately differentiated	Count	10	14	24
		% within Group	40.0%	56.0%	48.0%
	High grade , G III poorly	Count	11	5	16
		% within Group	44.0%	20.0%	32.0%
Total		Count	25	25	50
		% within Group	100.0%	100.0%	100.0%

Figure 3.



**Discussion**

In this study, there was male predominance, in the occurrence of the disease within both the groups. According to studies by *Mohandas, K. M. et al* and *Peedikayil, Musthafa Chalikandy et al*, it is shown that there is a slight increase in the incidence of the disease in males when compared to females in Indian population.<sup>(1,2)</sup>

In common to both groups, abdomen pain was the commonest symptom, and there was altered bowel habits more frequently seen in the older group. *Myers, Elizabeth A., et al* & also by *Ben-Ishay, Offir, et al* also had similar finding on their study.<sup>(3,4)</sup>

There was a strong family history of the malignancy in patients belonging to the younger

age group than the older group. This is in accordance to studies conducted by *Chung, Y. F. A., et al* & also by *Jarvinen, H. J. et al* that a majority of the younger age group patients have significant family history.<sup>(5,6)</sup>

With respect to co-morbid factors, the older group tend to have medical ailments like Diabetes and hypertension. Studies by *Giouleme, Olga et al* have connected type 2 DM and colo-rectal cancers, either proximal or distal, in both sexes.<sup>(7)</sup> Additionally, chronic insulin treatment has been linked with increased risk of colo-rectal tumours among type 2 diabetic patients.

In this study, 36 % of the patients in the ≤50 age group presented with acute emergencies to the hospital, and in the above 50 age group 20% of

the patient presented as emergencies. It is apparent that for reasons unknown yet, the younger age group patients present more acutely with emergencies than the older age group counterparts. This could probably be explained by the higher occurrence of poorly differentiated advanced malignancy in the younger age group.

Left sided malignancy were more common in the younger age group. *Quah, H. M., et al* & also by *Howard, E. W., et al* had findings that showed younger patients present more with Left sided lesions.<sup>(8,9)</sup> Younger age group had worse histology grade, presenting with more cases of poorly differentiated Grade III tumors in comparison to the older age group. This pattern of behavior of tumor in the younger age group has already been observed and reported by *Ben-Ishay, Offir, et al* & also by *Connell, Jessica B., et al.*<sup>(4,10)</sup> Adenocarcinoma was found to be the commonest variety of tumour consistent with other studies. Younger patients tend to present more with stage III and stage IV disease rather than stage I or II. Similar findings have been noted in other studies by *Ben-Ishay, Offir, et al, Connell, Jessica B., et al* and *Chung, Y. F. A., et al.*<sup>(4,5,10)</sup>

Studies by *Isbister William H et al* & also by *O'Connell Jessica B., et al* suggest that colonic cancer in the young population appears to be more aggressive, to present quickly, and to have poorer pathologic findings.<sup>(10,11)</sup> However, if detected early, young patients have better overall 5-year survival rates. These findings emphasize the need for health care providers to have a heightened awareness when caring for this young population particularly because excellent modalities exist to diagnose and treat colorectal cancer.

### Conclusion

This study shows certain different characteristics difference between the older and the younger group, but they did not significantly alter the disease progression or outcome. There was a frequent occurrence of high grade and advanced tumours in younger group, although the reasons for this discrepancies remain unclear, it could be

due to environmental and genetic factors. Higher number of left sided malignancies in younger group were also reported in other studies. In our study, only factors significantly affected by age were tumour differentiation and site of tumour. Variable study designs on age differences in colon makes comparison difficult, and in addition, only fewer patients in the older group undergo surgery, hence selection bias cannot be excluded.

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