

Original Research Article

Clinicopathological characteristics of colon cancers in a tertiary care centre

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ABSTRACT

Background: Colon cancer is a leading cause of increase in cancer incidence and now becoming a major cause of cancer related mortality.

Methods: We evaluated data of patients diagnosed with colon cancer and managed under Aarogyasri program between 2013 and 2019 at a tertiary care cancer hospital in Rajamahenderi, Andhra Pradesh, India. We collected data regarding demography, clinical presentation, subsite, histology, stage and treatment.

Results: A total of 142 patients with colon cancer were managed. The mean age was 53.6 years with males accounting for 57%. Most common clinical presentation was abdominal pain followed by vomiting. Most common histology was well differentiated adenocarcinoma. Left sided colon tumors accounted for 47%. Most common stage at presentation was stage III.

Conclusions: Our data of colon cancer was different from that described in the western countries. Young age presentation, higher mucinous and signet ring carcinomas and advanced stage presentation were reported in our study. Socioeconomic factors, inadequate health care access might account for some of these differences.

Keywords: Colon cancer, India, Aarogyasri program

INTRODUCTION

Noncommunicable diseases (NCDs) are now responsible for the majority of global deaths and the single most important barrier to increasing life expectancy in every country of the world in the 21st century is cancer, which is expected as the leading cause of death.¹ Among 18.1 million new cases of cancer and 9.6 million cancer deaths worldwide in 2018, colon cancer accounted for 1,096,601 (6.1%) incidence and 551,269 (5.8%) of deaths.² According to GLOBOCAN 2018 Indian data, number of incident colon cases is estimated at 27605 (2.4%) and mortality at 19548 (2.5%).

Colon cancer incidence rates vary widely, with 8-fold variations in colon cancer, by world region, the disease can be considered a marker of socioeconomic development and in countries undergoing major development transition, incidence rates tend to rise uniformly with increasing human development index (HDI).^{3,4}

Specialization especially in oncology has no doubt raised the standards of care of patients with cancer, but it has escalated the cost of cancer care beyond the reach of an average citizen without aid or charity. For a common man, getting right treatment for cancer is a big challenge due to the finances involved in getting cancer care.

Aarogyasri scheme is the flagship healthcare program of all health initiatives, introduced in combined Andhra Pradesh (AP) in April 2007, before the AP re-organisation, with a mission to provide quality healthcare for the poor to achieve ‘health for all’. On floater basis, the Aarogyasri scheme shall provide coverage for the services to the beneficiaries up to ₹2.50 lakh per family per annum. For patients diagnosed with cancer, recently in 2020, certain changes have been made to provide entire treatment completely free of cost. We undertook this study to know the profile of colon cancer patients benefited under the Aarogyasri scheme.

METHODS

A study of prospectively maintained seven year database of patients with colon cancer was undertaken in GSL trust cancer hospital attached to GSL medical college and hospital, a teaching medical college hospital. The records of colon cancer patients generated between 1 Jan 2013 to 31 Dec 2019 were analyzed from the central record section. Institutional ethics committee (IEC) approval was taken.

Aim of the study was to assess the utilisation of Aarogyasri community health insurance scheme for accessing colon cancer care services and to study the demographic profile, clinical presentation and management of patients with colon cancer. All patients of colon cancer were evaluated by surgical, medical and radiation oncologists along with gastrointestinal surgeon. Data regarding the demography, patient presentation, staging, treatment and follow up was documented.

Statistical analysis

The data was entered in a Microsoft excel spreadsheet, after data cleaning and transported and analyzed using SPSS version 20 for windows (SPSS Inc).

RESULTS

A total of 142 patients were diagnosed with colon cancer between 2013 and 2019. Mean age was 53.64 years (range 14 years to 80 years). Males accounted for 57% (81) of total colon cancer patients. Most patients, 71 (50%) were in the age group of 40 to 59 years, while adolescent and young adult population accounted for 13% of total colon cases (Figure 1).

History of smoking was noted in 16% and alcoholism in 11%. Most common clinical presentation was with pain abdomen in 75% of total patients, followed by vomiting (47%) and weight loss (40%). History of bleeding per rectum was noted in 25% and altered bowel habits in 18% of patients. Thirty-three (29%) patients presented with acute or subacute intestinal obstruction. Right sided colon cancer was noted in 60 patients (53%) and left sidedness in 53 (47%) patients (Figure 2).

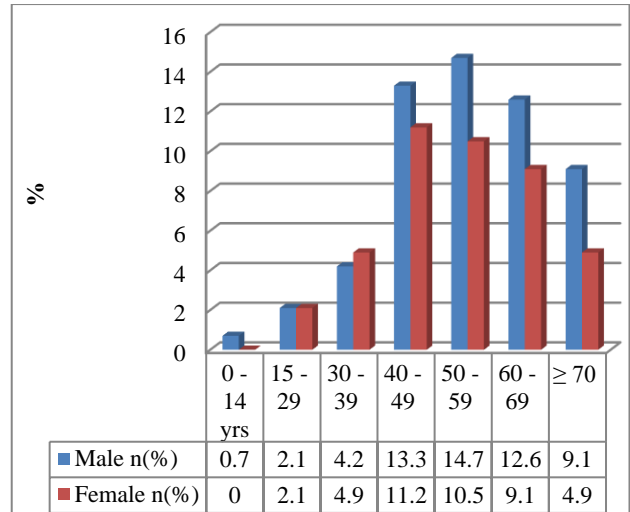


Figure 1: Patient demography.

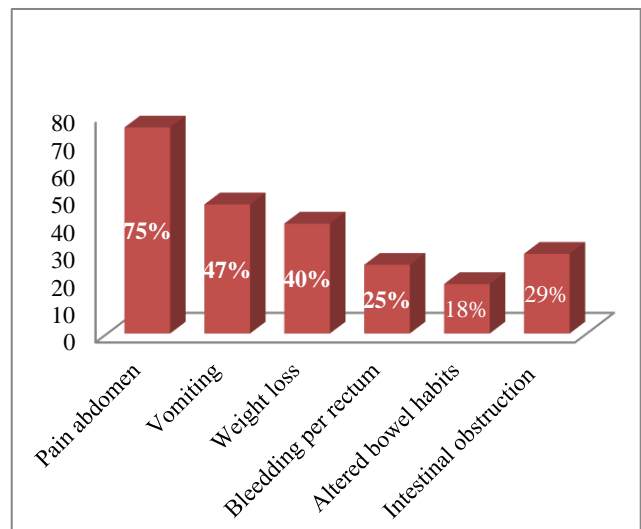


Figure 2: Clinical presentation.

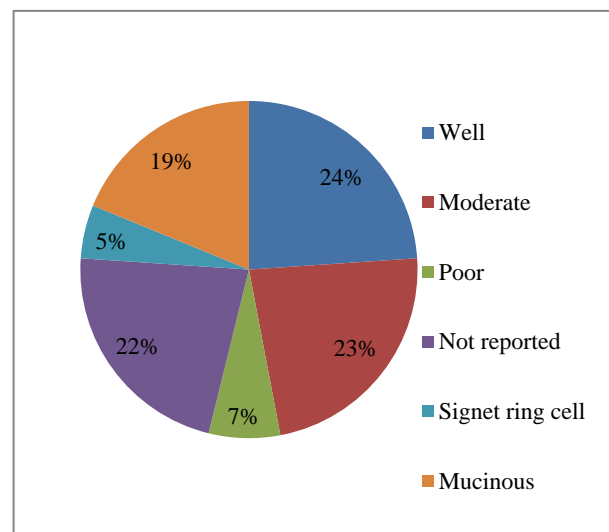


Figure 3: Histology-differentiation

Histology was well differentiated adenocarcinoma in 28%, moderately differentiated in 27% and poorly differentiated histology reported in 8% of the cases. Differentiation not reported in 26% of total cases. Signet ring cell carcinoma reported in 6% and mucinous in 22% (Figure 3).

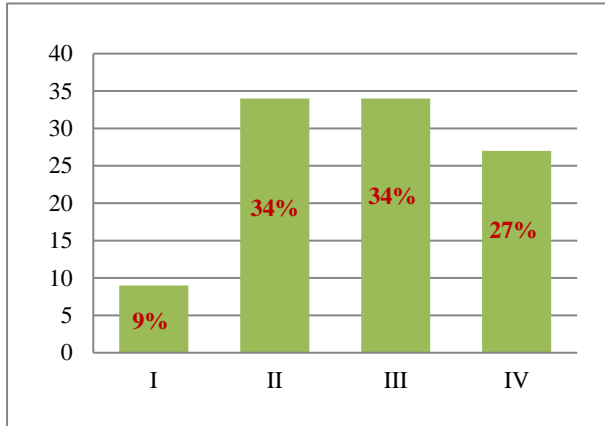


Figure 4: Stage at presentation.

Ten patients (9%) presented in stage I, 34% in stage II, 34% in stage III and stage IV accounted for 27% of total colon cancer patients. Oligometastatic disease accounted for majority of stage IV patients. Most common site of metastases was to liver, followed by peritoneal metastases (Figure 4).

Total of 68% of patients underwent surgery and were planned for adjuvant chemotherapy. Most common regimens used were FOLFOX and CAPEOX. Three patients received adjuvant radiation, 2 patients of sigmoid primary and one patient of carcinoma splenic flexure. Out of stage IV patients, conversion to surgery was possible in 9 patients (23%) after chemotherapy. Six patients (4%) were offered palliative/best supportive care.

DISCUSSION

Left or distal colon primary accounts for majority of colon cancers. However, the incidence of right side or proximal colon cancer has been increasing not only worldwide, but also in Asian countries.

A diet high in the consumption of red or processed meats has been associated with an increased risk of colon cancer, but not rectal cancer.⁵

India has a low incidence of colon cancer compared to western developed countries.^{6,7} Reports from Japan and Korea suggest that the incidence of colon cancer is increasing in Asia.^{8,9}

Compared to colon cancer presentation in USA (70.5 years), age at presentation of colon cancer in Indians (53.64 years) was a decade earlier.¹⁰ Studies from India have suggested that colon cancer may occur even at a

younger age. Deo et al reported a mean age at presentation of 45.3 years.¹¹

In the United States, colon cancer incidence rates and disease related death rates have declined over the last few decades in subjects above 50 years, however, the incidence rates have been increasing in the under age 50 group.¹²⁻¹⁴ This decrease in incidence rates has been primarily attributed to screening programs (mostly targeting the population above 50 years of age) and detection and removal of adenomatous polyps.

The six population-based registries have shown an increase in the rates of colon cancer.¹⁵ This reflects probably the changing lifestyles and urbanization leading to a change in the environmental risk factors. Lack of population-based screening program in India might also be a factor for the rise in cases of colon cancer.

India with a broad-based population pyramid, has a large proportion of young population. According to the data from the 2011 census, 29.5% of the population is in the age group 0-14, 62.5% of the proportion is in the age group 15-59 years and the percentage of elderly population above 60 years is 8.0%.¹⁶ The median age of India's population is around 25 years.¹⁷ The average life expectancy at birth is approximately 68 years.

This is in contrast to western countries which have a larger elderly population. Larger proportion of young population in India could be biased factor for the increased incidence of colon cancer in younger subjects.

In our patients, the median duration of symptoms was 4 months and most common presentation was with pain abdomen in 75% of total patients, followed by vomiting (47%) and weight loss (40%). History of bleeding per rectum was noted in 25% and altered bowel habits in 18% of patients. Most studies have reported similar common symptoms.¹⁸⁻²⁰

There is almost equal distribution, with 47% left sided tumors and 53% right sided tumors. Earlier presentation of left sided colon cancers may be due to obvious symptoms like overt bleeding per rectum and pain. This may be the reason of increased proportion of left-sided tumors in some studies.²¹

Tumor marker most commonly used for prognostification, follow up and for monitoring the response of metastatic disease to systemic therapy in colon cancer is carcinoembryonic antigen (CEA).²² CEA has a low diagnostic ability with sensitivity for diagnosis at 46% (95% CI 0.45-0.47) and specificity being 89% (95% CI 0.88-0.92). CEA levels within the normal range was found in 38% of our patients (0-3 ng/ml). Higher CEA levels were associated with stage IV disease.

Signet ring cell carcinoma reported in 6% and mucinous in 22% in our study. Mostly these histologies are seen in

younger age group compared to other histologies and were associated with poor prognosis. Prevalence of mucinous tumors in most Western studies reported at 5-15% and 1% for signet ring tumors.^{24,25}

Metastatic disease accounted for 27% of patients in our study. Approximately 20% of patients in the United States have distant metastatic disease at the time of presentation.²⁶ Studies from India show 10-20% prevalence of metastatic disease, however, small number of study subjects and young age might be the limiting factors. Lack of population based screening might account for more number of advanced stage presentations. Availability and timely access to healthcare might have been influenced by social and economic factors. Young patients might have a delayed diagnosis due to less suspicion of malignancy and higher chance of misdiagnosis.

CONCLUSION

Our data of colon cancer was different from that described in the western countries. Young age presentation, higher mucinous and signet ring carcinomas and advanced stage presentation were reported in our study. Socioeconomic factors, inadequate health care access might account for some of these differences.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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