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Original Article

# Gastric Cancer Profile in a Tertiary Care Centre: A Retrospective Study from Kashmir, India

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## ABSTRACT

**Background** Gastric cancer remains a major global health concern despite a declining incidence in several regions. It continues to contribute substantially to cancer-related morbidity and mortality worldwide.
**Objective** To analyze the demographic, clinical, and pathological profile of patients with gastric cancer presenting to a tertiary care centre in Kashmir, India.
**Materials and Methods** This retrospective observational study included all histopathologically confirmed cases of gastric carcinoma registered at the Hospital-Based Cancer Registry, Government Medical College, Anantnag, from January 2019 to December 2024. Data regarding age, sex, clinical presentation, anatomical site, histopathology, TNM stage, metastatic pattern, and treatment details were retrieved and analyzed using descriptive statistics.
**Results** A total of 175 patients were included, with a marked male predominance. Elderly patients constituted the majority of cases. The pyloric region was the most commonly involved anatomical site, followed by the gastric body and cardia. Histopathological evaluation revealed a predominance of adenocarcinoma. Most patients presented with locally advanced disease, with a substantial proportion having distant metastases at diagnosis. The liver was the most frequent site of metastatic involvement.
**Conclusion** Gastric cancer in Kashmir predominantly affects elderly males and commonly presents at an advanced stage, with pyloric involvement being most frequent. The high burden of advanced disease underscores the need for early detection strategies, including increased public awareness and timely endoscopic evaluation.

***Keywords***: *Gastric carcinoma, adenocarcinoma, epidemiology, Kashmir, TNM staging, pylorus.*

## INTRODUCTION

Gastric cancer remains a significant global health burden and continues to contribute substantially to cancer-related mortality. Worldwide, it accounts for over one million new cases and approximately eight hundred thousand deaths annually, ranking among the leading causes of cancer-related death.1 Although a gradual decline in incidence has been observed in several regions over recent decades, marked geographical variations persist. These differences are largely attributed to disparities in dietary patterns, lifestyle factors, prevalence of *Helicobacter pylori* infection, and socioeconomic conditions.

The incidence of gastric cancer shows a strong age-related increase, predominantly affecting older adults. Population-based data from the Surveillance, Epidemiology, and End Results (SEER) program indicate that gastric cancer is rare in younger individuals, with only a small proportion of cases occurring before the age of 35, while a substantial burden is observed in

the elderly population.2 A consistent male predominance has been reported across populations, with men being affected two to three times more frequently than women3. This gender disparity has been linked to differences in environmental exposures, dietary habits, tobacco use, and hormonal influences.

Despite advances in diagnostic modalities and therapeutic strategies, gastric cancer continues to be diagnosed at an advanced stage in many developing countries. Early-stage disease is often asymptomatic or associated with nonspecific symptoms, leading to delays in clinical presentation and diagnosis. Furthermore, the absence of organized screening programs in high-risk regions contributes to late detection and poorer outcomes.4

India exhibits considerable regional variation in the incidence and presentation of gastric cancer, reflecting diverse cultural, dietary, and environmental influences. However, data from certain regions, including the Kashmir valley, remain limited. The present study aims to analyze the demographic characteristics and clinicopathological profile of gastric cancer patients presenting to a tertiary care centre in Kashmir, thereby contributing region-specific evidence to better understand disease patterns and inform strategies for early detection and improved management.

## MATERIALS AND METHODS

This retrospective observational study was conducted in the Department of Radiation Oncology, Government Medical College, Anantnag, Kashmir, between January 2024 and December 2024.

**Inclusion Criteria:**
All histopathologically confirmed cases of gastric carcinoma across all age groups and both sexes were included.

**Exclusion Criteria:**
Patients diagnosed with non-malignant gastric lesions, lymphomas, or non-epithelial gastric tumors were excluded.

Data Collection and Analysis: Demographic data, clinical features, anatomical location, histopathology, and TNM stage were obtained from institutional records available in the Hospital-Based Cancer Registry. Diagnosis was established using upper gastrointestinal endoscopy, contrast-enhanced CT (CECT), and histopathological confirmation. Staging followed the TNM classification. Descriptive statistics were used for analysis, and categorical data were expressed as percentages.

## RESULTS

A total of 175 patients were included in the study. Majority of the patients belonged to the age group of 45 to 65 years (Fig. 1) Constitutional and gastrointestinal symptoms were the predominant modes of presentation, with weight loss and anorexia being the most frequently reported complaints, indicating a high burden of systemic involvement at diagnosis. Upper gastrointestinal bleeding manifestations and epigastric discomfort were also commonly observed, while recurrent vomiting was comparatively less frequent, suggesting variable degrees of gastric outlet or luminal compromise (Table 1).

Histopathological evaluation revealed a striking predominance of malignant epithelial tumors, with adenocarcinoma accounting for nearly all cases. Non-epithelial malignancies were distinctly uncommon, underscoring the overwhelming burden of adenocarcinoma in gastric malignancies within the study population (Table 2).

Disease staging at presentation demonstrated that the majority of patients were diagnosed at advanced stages. While a small proportion of cases were identified at an early stage, most patients belonged to stage II and stage III categories, reflecting delayed clinical presentation and diagnosis. A substantial subset of patients had metastatic disease at the time of diagnosis, emphasizing the aggressive nature of the disease and the challenges in early detection (Table 3).

Among patients with metastatic disease, the liver emerged as the most frequent site of distant spread, highlighting its vulnerability in advanced gastric malignancy. Pulmonary and skeletal metastases were less commonly encountered, while a small proportion of patients exhibited either multiple metastatic sites or involvement of less common organs (Table 4).

Overall, the results demonstrate a clinical profile characterized by late-stage presentation, predominance of adenocarcinoma, and a high frequency of distant metastasis, particularly involving the liver.

**Table 1: Presenting symptoms in the study population**

| Symptom | Frequency (n) | Percentage (%) |
|---|---|---|
| Weight loss | 58 | 33 |
| Anorexia | 47 | 27 |
| Melena | 30 | 17 |

| | | |
|---|---|---|
| Epigastric pain | 26 | 15 |
| Recurrent vomiting | 14 | 8 |
| Total | 175 | 100 |

**Table 2: Histopathological types**

| Histopathological Type | Number of Cases | Percentage |
|---|---|---|
| Adenocarcinoma | 172 | 98% |
| Gastrointestinal stromal tumor (GIST) | 3 | 2% |
| Total | 175 | 100% |

**Table 3: TNM Stage Distribution (n = 175)**

| TNM Stage | Number of Cases | Percentage |
|---|---|---|
| Stage I | 12 | 7% |
| Stage II | 68 | 39% |
| Stage III | 52 | 30% |
| Stage IVA | 6 | 3.40% |
| Stage IVB | 37 | 21% |
| Total | 175 | 100% |

**Table 4: Site of Metastasis**

| Site of Metastasis | Number of Cases | Percentage |
|---|---|---|
| Liver | 29 | 68% |
| Lungs | 8 | 19% |
| Bones | 3 | 7% |
| Others / Multiple sites | 3 | 6% |
| Total | 43 | 100% |

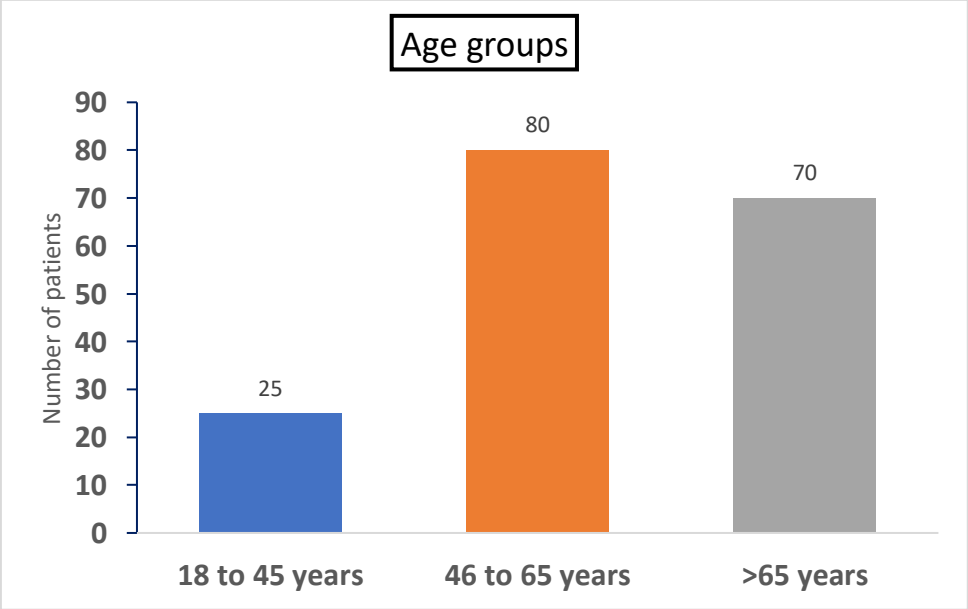


**Fig. 1: Age distribution in the present study**

## DISCUSSION

Gastric cancer continues to pose a significant oncological challenge worldwide, particularly in developing regions where delayed presentation remains common. The present study provides a comprehensive overview of the demographic and clinicopathological profile of gastric cancer patients managed at a tertiary care centre in Kashmir, India, and highlights several important trends consistent with existing literature.5

A clear male predominance was observed in the study population, which aligns with global epidemiological data reporting a two- to three-fold higher incidence of gastric cancer among males. This gender disparity has been attributed to differences in lifestyle factors, dietary habits, tobacco use, and hormonal influences. The majority of patients were older adults, reflecting the well-established association between increasing age and gastric cancer risk. Similar age distributions have been reported in large population-based studies, reinforcing the role of cumulative environmental exposure and age-related genetic alterations in gastric carcinogenesis.6,7

Anatomically, the pyloric region was the most commonly involved site in this cohort. This finding contrasts with trends from Western countries, where a rising incidence of proximal and gastroesophageal junction cancers has been noted. The predominance of distal gastric cancers in the present study may reflect regional dietary patterns, high prevalence of Helicobacter pylori infection, and socioeconomic factors prevalent in the Kashmir valley. Such regional variation underscores the importance of local epidemiological data in guiding screening and prevention strategies.5

Histopathological analysis demonstrated an overwhelming predominance of adenocarcinoma, which is consistent with global patterns of gastric malignancy. The rarity of non-epithelial tumors such as gastrointestinal stromal tumors in this cohort further emphasizes the central role of adenocarcinoma in gastric cancer burden and supports the continued focus on this entity in clinical and research settings.8,9

A notable finding of this study was the advanced stage at diagnosis in the majority of patients. Most cases were classified as stage II or III, with a considerable proportion presenting with metastatic disease. This late presentation mirrors observations from other Indian and South Asian studies and likely reflects nonspecific early symptoms, lack of awareness, and limited access to early diagnostic endoscopy.10 The liver emerged as the most common site of distant metastasis, consistent with the hematogenous spread pattern of gastric cancer reported in previous studies.11

The predominance of advanced-stage disease at presentation highlights the urgent need for early detection strategies. Public education regarding alarm symptoms, improved access to diagnostic endoscopy, and targeted screening of high-risk populations could potentially facilitate earlier diagnosis and improve outcomes. While this study is limited by its retrospective nature and single-centre design, it offers valuable insight into the regional pattern of gastric cancer and provides a foundation for future multicentric and population-based research in Kashmir.

### Limitations

This was a single-centre, retrospective study with limited regional representation. Some patients may have been referred elsewhere, and detailed follow-up data were unavailable. However, as one of the major oncology centres in the region, this study offers a representative snapshot of gastric cancer patterns in Kashmir.

## CONCLUSION

Gastric cancer in Kashmir predominantly affects elderly males and commonly involves the pyloric region. Most patients present at advanced stages, highlighting the urgent need for awareness programs and early endoscopic screening. Population-based registries and multicentric studies are essential for defining regional risk factors and improving early detection.

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