CLINICOPATHOLOGICAL PROFILE AND SURGICAL OUTCOMES OF GASTRIC CARCINOMA: A PROSPECTIVE STUDY AT A TERTIARY CARE CENTER

General Surgery

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ABSTRACT

Background: Gastric carcinoma is one of the leading causes of cancer-related mortality worldwide, particularly in developing countries. Although it is potentially curable when diagnosed early, most patients present with advanced disease, limiting treatment options and adversely affecting prognosis. The stage at presentation is the most critical prognostic factor influencing resectability and survival. **Methods:** This prospective study was conducted between January 2023 and December 2024 at a tertiary care center. Patients with histopathologically confirmed carcinoma of the stomach were analyzed with respect to age at presentation, gender distribution, clinical stage, tumor location, presence of gastric outlet obstruction, type of surgical intervention, and histopathological subtype. **Results:** Out of 40 patients, the highest incidence (50%) was seen in the 30–50 year age group. The male-to-female ratio was 1.38:1. Approximately 58% of patients presented with locally advanced disease (Stage IIIA–IIIC), while 8% had liver metastases. Tumors were most commonly located in the distal stomach (64%), particularly in the pyloric region. Surgical interventions included total gastrectomy (48%), distal gastrectomy (36%), and truncal vagotomy with gastrojejunostomy (14%). Adenocarcinoma was the predominant histopathological type (94%). **Conclusion:** This study highlights a concerning trend of younger age at diagnosis and a predominance of late-stage presentation, underscoring the urgent need for increased awareness, early endoscopic evaluation, and timely intervention. The pyloric region was the most frequent site, and surgical management was guided by tumor location and stage. Early detection remains the key to improving survival in gastric cancer.

KEYWORDS

Gastric cancer, carcinoma stomach, gastrectomy, tumor staging, surgical outcomes, adenocarcinoma

INTRODUCTION :

Gastric cancer remains a major global health burden, especially in developing countries. In India, it is among the top five most common cancers and the second leading cause of cancer-related deaths, largely due to late-stage presentation and limited access to diagnostic tools. The high consumption of salted, spicy food, smoked meats, and alcohol, as well as tobacco use, are known dietary and lifestyle-related risk factors. Genetic predisposition, Helicobacter pylori infection, and conditions like chronic atrophic gastritis and pernicious anemia further increase risk.

Despite advancements in imaging and endoscopy, early-stage gastric cancer is often asymptomatic or presents with nonspecific symptoms such as dyspepsia or early satiety. As a result, the majority of cases are diagnosed at an advanced stage when curative surgical resection is no longer feasible. Early detection is critical, as prognosis strongly depends on the stage at diagnosis.

Adenocarcinoma accounts for over 90% of gastric malignancies, with histological subtypes (intestinal vs. diffuse) influencing tumor biology and patient outcomes. The anatomical location also varies by geographic region: distal tumors remain more common in Asia, whereas proximal tumors are increasing in Western countries.

This study aims to analyze demographic, clinical, pathological, and surgical variables among patients diagnosed with gastric carcinoma in a tertiary care setting, with a focus on identifying patterns that may inform earlier diagnosis and better outcomes.

METHODS:

This was a prospective study conducted from January 2023 to December 2024. Patients diagnosed histopathologically with gastric carcinoma were included. Data were collected on:

- Age at presentation
- Gender distribution
- Tumor location
- Presenting symptoms
- Stage at diagnosis
- Surgical procedures performed
- Histopathological subtypes

Descriptive statistics summarized patient characteristics. Due to sample size constraints, inferential statistical analyses were not performed.

RESULTS :
Following Are The Results Observed Under The Following Heading:
- Age distribution
- Gender distribution
- Commonest site of presentation
- Type of surgery
- Common histopathology

Age distribution
The age wise distribution is shown in table 1 shows highest incidence of 50% in the age group of 30-50 years , 22% in 51-60 years and 18% in 61-70 years and 10% in >70 years, beyond 70 years the incidence decreases

Age	No of patients
30-50	20 (50%)
51-60	09 (22%)
61-70	07 (18%)
>70	04 (10%)

Gender Distribution
The gender distribution as per the world wide statistics male:female ratios 1.5:1 In this study the ratio isv1.38 :1 Gender distribution is Shown in table 2 Male and female distribution was 58% and 42% respectively

Sex	No of patients
Male	23 (58%)
Female	17 (42%)

Site Of Presentation
As per Indian statistics the most common site of presentation was distal stomach followed by proximal stomach in this study also the most common site was also distal stomach 64% followed by proximal stomach 36%.Both male and female presented with pylorus as the common site which was 42% for males and 22% for females

Site	No of patients
Distal stomach	24 (64%)
Proximal stomach	16 (36%)

Type Of Surgery
- Depending upon the site of presentation appropriate surgery has been done.
- Total Gastrectomy with anastomosis was done in 48% of patients.
- Distal Gastrectomy was done in 36% of population
- Truncal vagotomy + GJ in 14% of population

Type of surgery	No of patients
Total gastrectomy + OJ +JJ	19
Distal gastrectomy + GJ + JJ	15
Truncal vagotomy +GJ	6

DISCUSSION:
The current study highlights that the majority of patients with gastric carcinoma present at an advanced stage, particularly Stage III, with a notable proportion (58%) showing locally advanced disease. This pattern mirrors findings from other Indian and Southeast Asian studies, where delayed presentation is common due to vague early symptoms and lack of routine screening. [1,2]

Interestingly, while global data often suggest the highest incidence in the 6th to 7th decades of life, this study observed a significant proportion of patients (50%) in the 30–50 age group, suggesting a trend toward earlier onset in the Indian population. Genetic predisposition, lifestyle factors, and Helicobacter pylori infection may contribute to this younger onset.

The male predominance (M:F ratio 1.38:1) observed in this study is consistent with worldwide data indicating higher risk in males, possibly due to higher exposure to risk factors like tobacco and alcohol.

Tumor location also plays a significant role in determining symptoms and surgical approach. The majority of tumors were located in the distal stomach (64%), particularly in the pyloric region, making D2 distal gastrectomy a preferred surgical choice in many cases. Total gastrectomy was performed in patients with proximal involvement or larger tumors.

Histopathologically, adenocarcinoma remained the most common variant (94%). Signet ring cell carcinoma, though rare (2%), is known to be aggressive, diffusely infiltrative, and associated with poorer outcomes. This histologic type requires more aggressive multimodal treatment and close follow-up.

In terms of surgical outcomes, curative resection was possible in most cases, with palliative gastrojejunostomy being reserved for patients with inoperable or obstructive tumors. Postoperative chemotherapy was administered based on tumor staging and histological findings, in line with current oncological guidelines. [3,4]

Limitations of the study were --small sample size (n=40) which limits statistical generalizability. Single-center design restricts geographical diversity. Lack of survival or recurrence data impedes long-term outcome analysis.

Overall, the study emphasizes the need for awareness and early endoscopic evaluation in patients presenting with dyspepsia or unexplained weight loss, especially in high-risk regions. Improved public health initiatives, early H. pylori eradication, and nutritional interventions may help reduce the burden of this disease.

CONCLUSION:
This study underscores the increasing incidence of gastric carcinoma in younger age groups, particularly between 30 and 50 years, with a clear male predominance. The pyloric region and distal stomach were the most common tumor locations. A majority of patients presented at a locally advanced stage, limiting curative options and highlighting the aggressive nature of late-diagnosed gastric cancer.

Surgical management—ranging from total and distal gastrectomy to palliative procedures—was tailored based on tumor location and stage. Adenocarcinoma was the predominant histological subtype, consistent with global patterns.

The findings emphasize the urgent need for heightened clinical suspicion, especially in patients with persistent dyspepsia, weight loss, or signs of gastric outlet obstruction. Early diagnostic endoscopy and public awareness are crucial in enabling timely diagnosis and

improving overall survival rates. Strengthening screening protocols in high-risk populations may significantly alter the disease trajectory.

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