

## Role of PF Gastroscopy in Peptic Dyspepsia for Early Detection of Carcinoma of Stomach and Role of Dietary Factors, Alcohol & Smoking in the Same

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### Abstract

**Background:** Dyspepsia is defined as persistent or recurrent pain and /or discomfort which is centered in the upper abdomen, may or may not be related to meals, may be associated with other symptoms<sup>1</sup>. In the early stages, gastric cancer symptoms are covert and do not differ from those found in dyspepsia. Early detection and treatment will improve favorable outcome. The role of lifestyle and dietary factors are being investigated and have proved to be pivotal in causing gastric cancer. **Aims:** The aim of this study is to evaluate the role of gastroscopy in peptic dyspepsia for early detection of carcinoma of stomach and its impact on increasing the proportion of early and operable gastric cancers and role of dietary factors, alcohol & smoking as its etiological factors. **Methodology:** During the study period Sep 2014 to Sep 2016, a total of 468 patients with dyspepsia who fit into the inclusion and exclusion criterion underwent upper GI endoscopy. **Results:** Among the 468 patients with dyspepsia 20 patients were diagnosed with gastric malignancy with an incidence of 4.2%. Maximum incidence of patients with malignancy was seen in the age group of 50 - 70 years with a Male: Female ratio of 3:3.6. Salt intake of more than 10 gm/day, fruits and vegetable intake of less than 200 gm/day and consumption of tobacco were found to be risk factors for gastric malignancy. No association was found between alcohol consumption and gastric cancer. 8 patients underwent curative resection, 7 underwent palliative procedures and 6 patients were administered

chemotherapy. The percentage of operable gastric cancer following upper GI endoscopy in our study was 40.9%. **Conclusion:** We conclude that upper GI endoscopy has a specific role in patients with peptic dyspepsia, for early detection of carcinoma of the stomach and that the role of dietary factors is imperative in the prevention of this deadly disease.

**Keywords:** Gastroscopy; Dyspepsia; Carcinoma Stomach; Smoking; Risk Factors.

### Introduction

Dyspepsia is defined as persistent or recurrent pain and /or discomfort which is centered in the upper abdomen, may or may not be related to meals, may be associated with other symptoms [1]. The term "dyspepsia" itself creates difficulties because it seems virtually indefinable - indeed it has been said that "dyspepsia often defeats diagnosis". The condition is reported to occur in approximately 25% (range 13 to 40%) of the adult population each year and accounts for 2-3% of all consultation in general practice.

Although, there are many causes of dyspepsia, a common mode of presentation is abdominal pain which is a predominant feature. There may also be heartburn or some other manifestation of gastroesophageal reflux including dysphagia, anorexia, nausea or vomiting or some disturbances of bowel function.

Upper GI endoscopy in dyspepsia perhaps offers the most accurate objective assessment of the lesions of the esophagus, stomach and duodenum under direct vision which contribute most of the common causes of dyspepsia.

Carcinoma stomach is known as "captain of men of death" is the 2nd most common cause of cancer mortality worldwide accounting for almost 10% of

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all new cancer deaths. The overall 5year survival rate in these patients is less than 25% which reflects the late stage at which so many patients present [2].

In the early stages, gastric cancer symptoms are covert and do not differ from those found in dyspepsia [3]. Hence subjecting patients with dyspepsia which is not responding to regular therapy or patients who are high risk, for gastroscopy for early detection of carcinoma stomach is a realistic approach.

Early detection and treatment will improve favorable outcome. The role of lifestyle and dietary factors are being investigated and proved to be pivotal in causing gastric cancer [4]. Endoscopy is believed to be the best method to diagnose gastric malignancy [5]. So primary prevention in form of lifestyle modification and secondary prevention by early detection and treatment will help us to defeat the captain of men of death.

#### *Aims and Objectives*

1. To find the incidence of "carcinoma of the stomach" on gastroscopy for patients with dyspeptic symptoms.
2. To see whether the investigation of dyspeptic patients with endoscopy & biopsy would increase the proportions of early and operable gastric cancers.
3. To evaluate dietary habits, alcohol & smoking as risk factor for carcinoma of stomach.

#### **Methodology**

This observational study was conducted from September 2014 to September 2016 in the Department

of General Surgery, KIMS Hubli. During this period, a total of 468 patients with dyspepsia were offered endoscopy of the upper gastrointestinal tract. An informed consent was taken from all patients.

#### *Inclusion Criteria*

- Patients having dyspeptic symptoms of at least 2week duration.
- Patients with alarm symptoms of gastrointestinal disease.

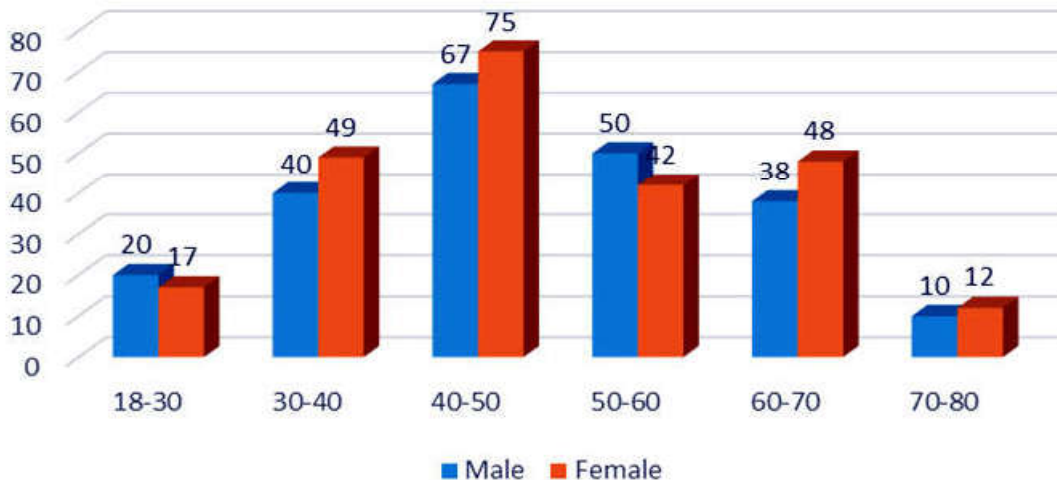
#### *Exclusion Criteria*

- Proven cases of carcinoma of stomach.
- Age less than 18 years.
- Other diseases like hepatopancreatic and biliary diseases causing dyspeptic symptoms.
- Patients not willing for upper GI endoscopy.

#### **Results**

A total of 468 consecutive cases of patients with dyspepsia underwent upper GI endoscopy at KIMS Hospital. Most of the patients belonged to 40 -50 years of age with a male : female ratio of 2:3 (Table 1). The most commonly diagnosed pathologies being gastritis, esophagitis and peptic ulcer disease.

Among the 468 patients with dyspepsia 20 patients were diagnosed with gastric malignancy with an incidence of 4.2%. Maximum incidence of patients with malignancy was seen in the age group of 50 - 70 years with a Male: Female ratio of 3:3.6 (Table 2).

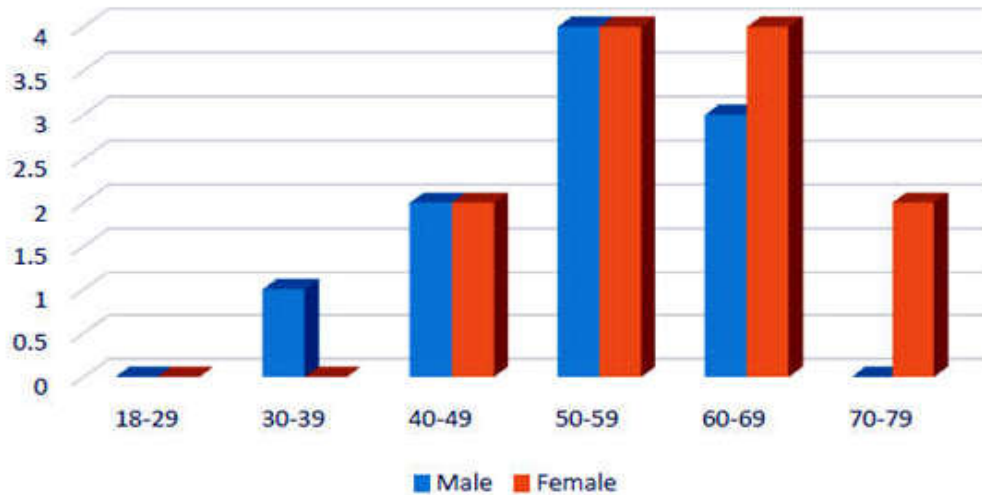


**Graph 1:** Age and sex distribution of patient undergoing Endoscopy for dyspepsia

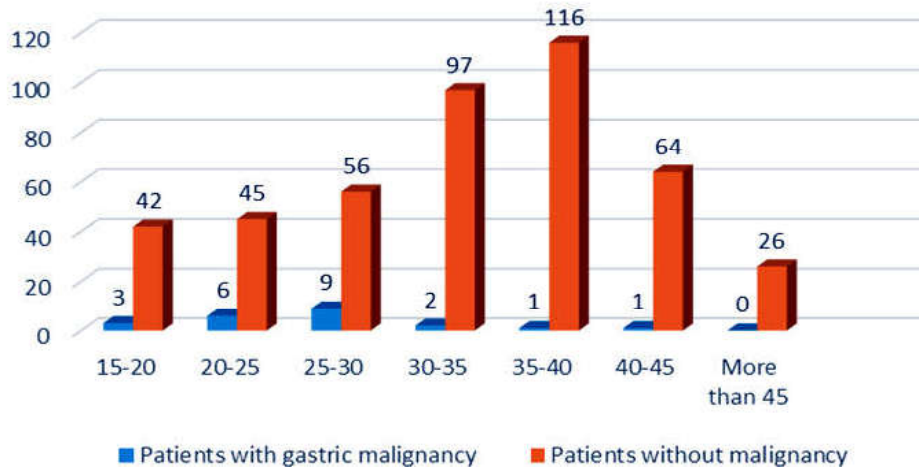
In the present study it was found that salt intake of more than 10 gm / day, fruits and vegetable intake of less than 200 gm / day and consumption of tobacco were found to be risk factors for gastric malignancy while intake of dietary fibres was a protective factor (Table 3-6). No significant association was found between alcohol intake and gastric cancer (Table 7).

Among the 20 patients with gastric malignancy, 2 patients were stage I, 2 were stage II, 5 were stage III and 13 were stage IV (Table 8).

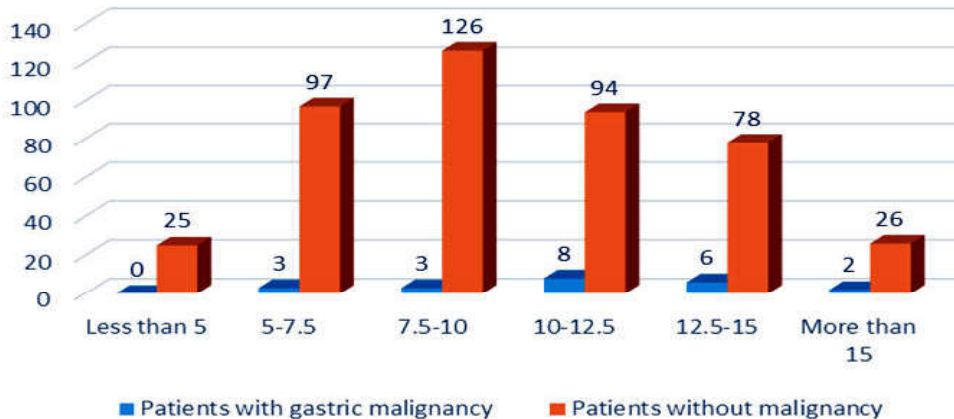
Among the 20 Patients with histologically proven gastric malignancy, 8 underwent potentially curative resection. In the remaining patients, 7 underwent palliative procedures and 6 others had liver or



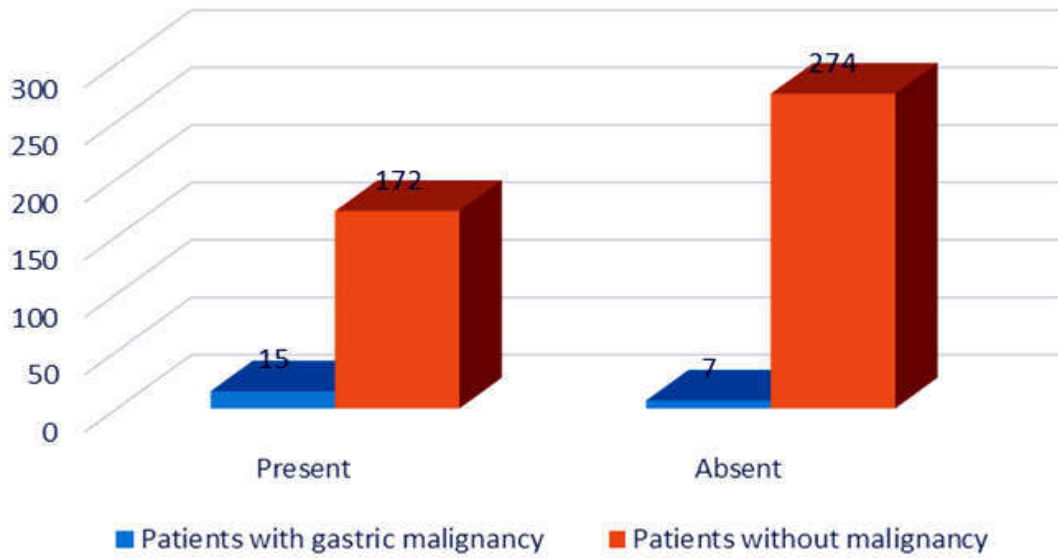
Graph 2: Age and sex distribution of gastric cancer



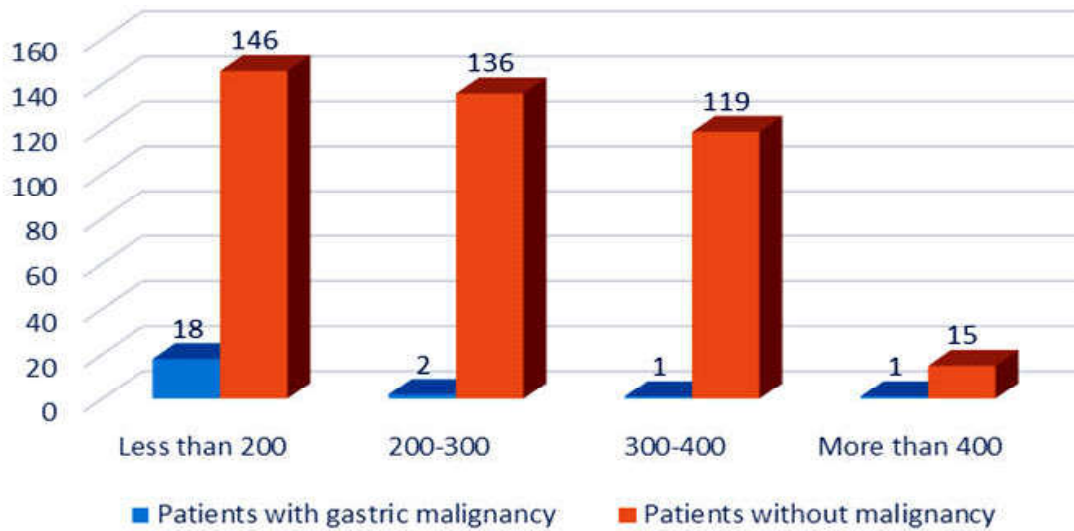
Graph 3: Role of dietary fiber intake in gastric malignancy patients



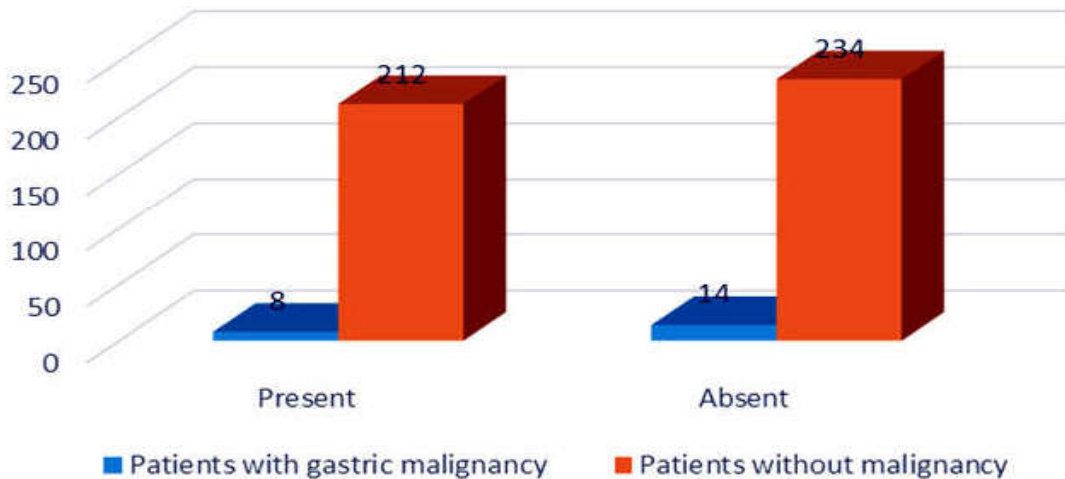
Graph 4: Role of salt intake in gastric malignancy



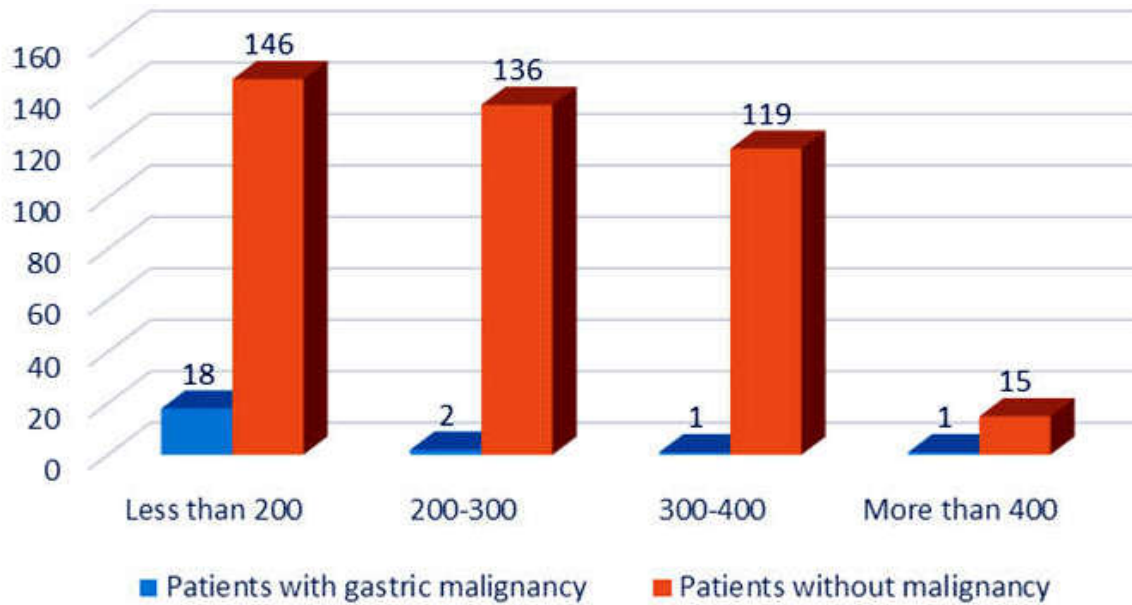
Graph 5: Role of tobacco use in gastric malignancy



Graph 6: Role of vegetable and fruit intake with risk of gastric malignancy



Graph 7: Role of alcohol intake in gastric malignancy



Graph 8: Stage of Gastric malignancy at the time of Diagnosis by Upper GI endoscopy

peritoneal metastasis and hence surgery was deferred and palliative chemotherapy administered. The percentage of operable gastric cancer was 40.9%.

### Discussion

Carcinoma of the stomach is still the second most common cause of cancer death worldwide. Though in geographical variation India is at low risk, it was found to be one of the leading causes of death in Southern India [6].

In the present study, the incidence of gastric cancer in patients with peptic dyspepsia, who underwent upper GI endoscopy was 4.7% with peak incidence in 5<sup>th</sup> and 6<sup>th</sup> decade. In a study conducted by M T Haliisey, W H Allum et al, the incidence was 2.1% with peak incidence seen at 6<sup>th</sup> decade

In our study the male: female ratio of carcinoma of the stomach is 3 : 3.6. while the male : female ratio worldwide is 3:1. This result is significantly different from world statistics, which needs further evaluation.

Diet and lifestyle also playing an important role and is a high risk factor for gastric carcinoma, while pickled food, spicy salty food, consumption of high-temperature foods, smoked dried salted meat or fish, have been shown to have significant dietary risk factors.

In a study conducted by Correa P, it has been suggested that salt intake is strongly associated with intestinal metaplasia and potentiates the effects of

carcinogens [7]. In the present study it showed a trend of an increasing risk of gastric cancer with consumption of salt more than 10 gm/day

Vegetables and fruits are found to be protective factors for its role in the inhibition of intragastricnitration [8] and this study had comparable results where patients consuming fruits and vegetables less than 200 gm/day had a higher risk of developing gastric cancer.

In the present study 68% of those who had gastric carcinoma had association with tobacco in one form or another which was found to be comparable with other studies. Koizumi et al reported that the higher number of cigarettes smoked per day was associated with a linear increase in risk and also significant increase in risk for past smokers remained for up to 14-year after cessation [9].

In the present study no significant association of alcohol with gastric cancer was found. These results were comparable to other studies who also failed to show any significant association between them [10]. The meta-analysis performed by Tramacere et al. proved there is no association between consumption of alcohol and risk of developing gastric carcinoma, even at higher doses of consumption [11].

Patients with Gastric carcinoma invariably present to the hospital with alarm symptoms and the probability of these being advanced malignancies are higher. Maconi et al. have shown in their study reported that the mortality is nearly threefold in patients having at least one alarm symptom when

compared with to patients with uncomplicated dyspepsia [12]. Bowrey et al. reported that the patients with "alarm" symptoms had a relatively more advanced stage tumor and were less likely to undergo surgical resection (50% vs. 95%), and these patients had poorer survival rate (median of 11 vs. 39 months) than their counterparts without such symptoms [13]. In the present study the proportion of early gastric cancer picked up on UGI endoscopy was 9% and operable gastric malignancy was 40.9% as against 21% in the general population.

### Conclusion

In our study, by offering endoscopy for dyspeptic patients, the detection of operable cancers has increased. Hence, we conclude that upper GI endoscopy has a specific role in patients with peptic dyspepsia, for early detection of carcinoma of the stomach.

The role of dietary factors is imperative in the prevention of this deadly disease. In our study excessive carbohydrate intake, low fiber consumption, low fruits and vegetable consumption, high salt intake and tobacco use turn out to be risk factors for gastric malignancy. Other dietary factors and alcohol consumption did not show any statistically significant association. Usage of upper GI endoscopy as a screening tool has the potential to reduce the mortality from gastric cancer in a given population. However, before embarking on gastroscopy as a screening procedure in dyspeptic patients for early detection of carcinoma stomach larger studies should be undertaken.

### Acknowledgement

We would like to thank the Director, Principal, the Medical Superintendent and Head of the Department of General Surgery of KIMS hospital, Hubli for their help in completing this study.

*Informed consent* was taken from the patients for publication of photographs in a scientific journal according to the guidelines given in the Helsinki Declaration, 1964 and its later amendments.

### Conflict of Interest

All authors i.e Dr. Shilpa Huchannavar, Dr. Anil and Dr. Nishanth Lakshmikantha declare that they have no conflict of interest whatsoever.

*Ethics committee approval* was taken for publishing

this case report from the institutional ethics committee of KIMS, HUBLI and all ethical standards were adhered to according to the Declaration of Helsinki, 1964 and its later amendments.

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