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Research Paper

An Observation on Incidence of Upper Gastrointestinal Malignancy in Dyspeptic Patients

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ABSTRACT
Background:- *The term dyspepsia is used variably by health professional to refer to a host of upper abdominal symptoms that include pain or discomfort, bloating, early satiety, post prandial fullness, heart burn, regurgitation, belching, nausea etc. Dyspepsia is prevalent in more than one fourth of general population and is the frequent reason for medical consultation.*
Methods:- *This prospective observational study was based on a detailed study of patients with dyspepsia having clinical evidence of gastrointestinal malignancy attended during the period August 2019 to December 2020 in the Department of Surgery, Rajendra Institute of Medical Sciences, Ranchi, belonging to both sexes and all age groups. Details regarding patient's age, sex, socio-economic status, religion, symptoms, duration of symptoms and various associated risk factors were recorded. Aim of the study was to know the incidence of upper gastrointestinal malignancies in dyspeptic patients in a specific period of time.*
Results:- *Altogether 500 dyspeptic patients were studied and among them 30 cases with malignancy have been included in the present study. Maximum incidence of gastric malignancy was in 6th decade (40%) followed by 5th decade (30%). The commonest presenting features of gastric malignancy were pain abdomen (90%) followed by anorexia (80%), weight loss (80%) and weakness (80%). Gastric malignancy in dyspeptic patient was more common in male than female & ratio was 2:1. In gastric malignancy, antrum (73.33%) was detected as the most common site followed by body (16.67%) and oesophagus (6.67%). Adenocarcinoma of stomach was the most common malignancy (27 cases) followed by squamous cell carcinoma of esophagus (3 cases).*
Conclusion:- *There is a strong need to educate people, and make them realize the importance of the ill effect of smoking, alcohol use and various aspects of life style which are associated with upper G.I. malignancy, especially to the illiterates and people of low socioeconomic group.*
KEY WORDS:- *Upper GI malignancy, dyspepsia, antrum, adenocarcinoma.*

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I. INTRODUCTION

The term dyspepsia is used variably by health professional to refer to a host of upper abdominal symptoms that include pain or discomfort, bloating, early satiety, post prandial fullness, heart burn, regurgitation, belching, nausea etc.

Dyspepsia is prevalent in more than one fourth of general population and is the frequent reason for medical consultation. It accounts for 40-70% of gastrointestinal complains in general medical practice (McQuaid et al. 1998).[1] Older studies reported a prevalence of dyspepsia from 23-41%, but recent studies reported the prevalence of 32-54%.

Over 40% of patients, who present with dyspeptic complaint to the physicians, are concerned about underlying malignancy. Yet the prevalence of malignancy among such patients is only 1-5% (McQuaid).[1]

The prevalence, demography and economical implication of dyspepsia (with or without malignancy) in India in not known. Dyspepsia is reported in 1/3rd of the population of Mumbai, but significant symptoms occur

only in 12%; 40% of these subjects receive treatment and only a small number undergo endoscopy or ultrasonography (Shah SS, et al. 2001).[2]

The incidence rate of gastrointestinal tract cancer in India is moderate to low, and it varies significantly from region to region. Highest rates are recorded in the urban population of Mumbai and lowest in the rural population of Wasi in Maharashtra.

In both sexes, the carcinoma of oesophagus is the commonest site followed by stomach, gall bladder, rectum, colon, liver and pancreas (Mohan Das K.M. et al. 2000).[3]

The incidence of carcinoma oesophagus and stomach is declining steadily in India. Though the incidence of cancer oesophagus is somewhat high in India (24%) but not as high as rates reported in Japan (78%), Sweden (47%) (Sanghvi L.D. et al, 1981).[4]

Oesophageal carcinoma constitutes 2.39% of all malignancies and 17.11% of G.I.T. malignancies in Varanasi (Mehrotra M.L. 1977).[5] Age standardised rate (ASR) of oesophageal cancer in Kashmiri population is 43.6 per one lac in male and 27.9 per one lac in female. These figures are six times higher than those reported in Bangalore, Madras and Mumbai (Khuroo M.S. et al. 1992).[6]

The incidence of stomach cancer in India is much lower than elsewhere in the world but it remains one of the ten leading sites of cancer in both sexes of India. From 1988 to 1992 stomach was the leading site of cancer in Chennai (A.S.R. = 15.9/100000); fourth in Trivandrum (A.S.R. = 6.8/100000) and also in Bangalore. High A.S.R. for stomach cancer (36% for males and 19.9% for females) has been reported in Kashmir valley (Nagraj Rao D et al. 2002).[7]

The incidence of small intestinal malignancies is very low (1-5% of G.I.T. malignancies in India) (Cohen et al, 1971).[8]

Many risk factors are associated with the upper G.I.T. malignancies such as tobacco and alcohol use, diet containing nitrates and nitrosamine, occupational hazards, consumption of coffee and tea, low socioeconomic status and low literacy.

II. AIMS AND OBJECTIVES

1. To know the incidence of malignancies in these sorted out dyspeptic patients in a specific period of time to know the incidence.
2. To evaluate the results of endoscopic biopsy and its histopathologic examination in dyspeptic patients.
3. To correlate the histopathologic findings to various causative agents and risk factors.

III. MATERIALS AND METHODS

This prospective observational study was based on a detailed study of patients with dyspepsia having clinical evidence of gastrointestinal malignancy attended during the period August 2019 to December 2020 in the Department of Surgery, Rajendra Institute of Medical Sciences, Ranchi, belonging to both sexes and all age groups. After getting approval from the Institutional Ethics Committee, patients were included in the study. A written informed consent was obtained from all the patients. Details regarding patient's age, sex, socio-economic status, religion, symptoms, duration of symptoms and various associated risk factors were recorded. These findings were analysed under various headings. Upper G. I. Endoscopy was recommended in patients with dyspepsia who had alarming symptoms suggestive of potentially serious underlying conditions such as Peptic ulcer disease/ gastric/ oesophageal cancer. Endoscopy was done and tissue biopsies were taken from suspicious sites and sent for histopathological examination. Altogether 500 dyspeptic patients were studied and among them 30 cases with malignancy have been included in the present study.

IV. RESULTS

Table–1: Incidence of various types of dyspepsia (with or without malignancy)

	No. of cases	**Percentage**
Total no. of dyspeptic patients	500	100
Functional dyspeptic patient	275	55
Organic dyspeptic patient	225	45
Organic dyspeptic patient without malignancy	195	39
Organic dyspeptic patient with malignancy	30	6

Above table shows that

- Total no. of dyspeptic patient studied were 500.
- 275 (55%) were diagnosed as functional dyspepsia.
- 225 (45%) patients were diagnosed as organic dyspepsia.

- Among 225 cases of organic dyspeptic patient, 30 patients were with malignancy and rests 195 were without malignancy.
- Out of 500 dyspeptic patient, only 30 i.e. 6% were diagnosed as having upper G.I. malignancy.

Table–2: Incidence of upper g. I. Malignancy in dyspeptic patients in different age groups

Age in years	No. of cases	Percentage
0 – 10	00	00
11 – 20	00	00
21 – 30	02	7
31 – 40	03	10
41 – 50	09	30
51 – 60	12	40
61 & above	04	13

Maximum incidence of malignancy was in 6^{th} decade (40%) followed by 5^{th} decade (30%). There was minimum incidence in first two decades (0 – 20 years).

Table–3: Sex incidence of upper G.I. malignancy in Dyspeptic patients

Sex	No. of cases	Percentage
Male	20	66.67
Female	10	33.33

Malignancy in dyspeptic patient was more in male than female & ratio being 2:1.

Table–4: Upper G. I. Malignancy in dyspeptic patients in different religions

Religion	No. of cases (n=54)	Percentage
Hindus	26	87
Muslims	03	10
Christians	01	3

Among the 30 cases, upper G.I.T. malignancy was more common in Hindus (87%) followed by Muslims (10%) and Christians (3%).

Table–5: Incidence of upper G. I. Malignancy in dyspeptic patients as per their socioeconomic status

Socioeconomic group	No. of cases	Percentage
Upper class	01	3.33
Middle upper class	06	20
Middle lower class	09	30
Lower class	14	46.67
Total	30	100

Incidence of upper G. I. malignancy in dyspeptic patient was more common in lower socio-economic group (46.67%). Upper class people were least affected (3.33%).

Table–6: Duration of symptoms in dyspeptic patients with upper G. I. malignancy

Duration of month	No. of cases	Percentage
0 – 2	00	00
3 – 5	02	6.67
6 – 8	17	56.67
9 – 11	10	33.33
12 & above	01	3.33

Average duration of symptoms in dyspeptic patients with upper G. I. malignancy was between 6 – 8 months (56.67%).

Table–7: Various sites of involvement of upper G. I. malignancy in dyspeptic patient based on endoscopy findings

Site	No. of cases	Percentage
Cardia	01	3.33
Body	05	16.67
Antrum	22	73.33
Oesophagus	02	6.67

The most common site of gastric malignancy is pyloric antrum (73.33%) followed by body (16.67%) and then oesophagus (6.67%).

Table–8: Histopathological types of upper G. I. malignancy in dyspeptic patient.

Site	Histopathological findings	No. of cases	Percentage
Stomach	Adenocarcinoma	27	90
Oesophagus	Squamous cell carcinoma	03	10

Adenocarcinoma of stomach was most common malignancy (90%) followed by squamous cell carcinoma of oesophagus (10%).

Table–9: Incidence of gastric malignancy in dyspeptic patients in relation to food habits

Types of food	No. of cases	Percentage
Staple food rice	16	53.33
Staple food rice & wheat	05	16.66
Staple food wheat	02	6.67
Food with plenty of animal protein	07	23.33

Gastric malignancy was more common in those whose staple food was rice (53.33%).

Table–10: Incidence of upper G. I. malignancy in relation to addictions

Type of addiction	No. of cases	Percentage
Smoking	12	40
Alcohol including Haria (fermented rice wine)	13	43.33
Tobacco chewing	04	13.33
None	01	3.33

Majority of the patients were alcoholics (43.33%). Smokers constitute the second major group (40%) in this study.

Table–11: Incidence of upper G. I. malignancy in different blood groups

Blood group	No. of cases	Percentage
A	15	50
AB	01	3.33
B	08	26.67
O	06	20
Total	30	100

Upper G. I. Malignancy was more frequent in patients with blood group A (50%).

Table–12: Prevalence of dyspeptic symptoms in upper G. I. malignancy (n = 30)

Symptoms	No. of cases	Percentage
Pain abdomen	27	90
Nausea &/or Vomiting	20	66.66
Dysphagia	01	3.33
Abdominal mass	18	30
Heartburn	15	50
Anorexia	24	80
Weight loss	24	80
Weakness	24	80
Bleeding ▪ Hematemesis ▪ Malena	 08 06	 26.66 20
Features of gastric outlet obstruction	02	6.66
Ascites & Jaundice	01	3.33

Commonest presenting feature was pain abdomen (90%), followed by anorexia (80%), weight loss (80%), & weakness (80%).

V. DISCUSSION

Out of 500 dyspeptic patients, only 30 were diagnosed as having malignancy. Out of 500 dyspeptic cases 275 (55%) were diagnosed as functional and 225 (45%) as organic dyspepsia. Among organic dyspeptic patients 195 (39%) were without malignancy and 30 (6%) with malignancy. The above observation is similar to Julkunen's study (1995).[9] Kang (1994)[10] observed functional dyspepsia in 50.4% and organic dyspepsia in

49.6% in his study. This study is also similar to Maarit Salo's study (2008)[11] in which the incidence of upper gastrointestinal malignancies in dyspeptic patients with alarming symptoms was 5.5%.

Maximum incidence of upper G.I.T. malignancy is in 6th decade (40%) followed by 5th decade (30%) in the present series. Paymaster (1968)[12] from Bombay, Subharwal et al. (1975)[13]from Ludhiana, Prabhakar (1981)[14] from Amritsar and Khodaskar et al. (1982)[15] from Central India also showed more than 60% of stomach carcinoma occurs in 5th and 6th decade. Neuget (1996)[16], Nagraj Rao D et al (2002)[7] also showed that maximum incidence of gastric malignancy is in the 6th decade of life. But Tandon and Usha Sharma (1986)[17] reported maximum incidence in the 5th decade age group. As compared to my study my patients presented in the sixth decade and this delay is probably due to ignorance and poverty of my rural patients.

Among all cases studied in the present study 66.67% are male and 33.33% are female. The male-female ratio is 2:1.

Paymaster et al. (1968)[12] from Tata Memorial Hospital, Bombay reported male-female ratio in gastric malignancy as 2.6:1. Costello et al. (1977)[18] observed male-female ratio to be 1.1:1. In USA male-female ratio is 2:1 (Neuget et al. 1996).[16] Nagraj Rao D et al (2002)[7] reported male-female ratio in Mumbai to be 2.4:1.

The male-female ratio in all G.I.T. malignancies shows male preponderance in the present study, which is similar to observation made by other workers. The high incidence of gastric malignancy in male in present study is similar to Neuget et al. (1996)[7] but dissimilar to ratio of 3:1 by Madhavan (1971).[19]

The incidence of upper G.I.T. malignancy in Hindus are 87% while in Muslim and Christians are 10% and 3% respectively among the 30 cases studied.

Koteshwar Rao et al. (1983)[20] found that 82.2% patients of gastric malignancy were Hindus whereas Muslims and Christians accounted for 9.8% and 7.9% respectively. Khodaskar et al. (1982)[15] reported that 92% cases of gastric malignancy belonged to Hindus, only 1.2% to Muslims and 7% to Christians. Nagraj Rao D et al (2002)[7] reported the incidence of malignancy in Hindus 87% followed by 8.2% and 1.8% in Muslims and Christians respectively. This incidence of upper G.I.T. malignancy in Hindus in present study is almost similar to that of Koteshwar Rao et al. (1983)[20] and Nagraj Rao D et al (2002)[7] but dissimilar to Khodaskar et al. (1982).[15] It is probably because of the variable population density of Muslims and Christians.

The present study revealed that incidence of malignancy in dyspeptic patients are more common in lower socio-economic group (46.67%) and middle lower class (30%) whereas upper class people are least affected (3.33%).

The incidence of upper G.I. malignancy is found to be higher in lower socio-economic group in various studies such as, 46.0% by Prabhakar et al. (1981)[14] from Amritsar, 43.4% by Koteshwar Rao et al. (1983)[20] from Karnataka, 41.7% by Khodaskar et al. (1982)[15] from Central India and 45.8% by Neuget et al. (1996)[16] from USA. People with lower socio economic status are more prone to have malignancy at the antrum as compared to people with higher socio economic status who are more prone to have malignancy at the cardia.

The duration of symptoms in dyspeptic patients in present study is between 6-8 months (56.67%). Costello et al. (1977)[18] said that majority of the patients suffering from gastric malignancy presented within 6-8 months, which is similar to present study.

In gastric malignancy, antrum (73.33%) was more frequently involved followed by body (16.67%), oesophagus (6.67%) and cardia (3.33%) in present study. The pyloric antrum is most common site as revealed by previous studies also. According to Paymaster et al (1973)[21] gastric carcinoma occurred in antrum in 58% cases followed by 20% in body and 5% near the cardia. According to Lumpkin (1964)[22], Koteshwar Rao & Balasundram (1983)[20] the pyloric antrum was most frequent site of involvement followed by body and cardia in gastric malignancy. However, Gadekar (1963)[23] after radiological examination of 75 cases of gastric malignancy reported that the body was most commonly involved part (50.6%). This is in contrast to present study.

In the present study adenocarcinoma is found to be the most common malignancy followed by squamous cell carcinoma of oesophagus. Adenocarcinoma was most common malignant tumours as studied by many workers. ReMine (1969)[24] reported that 95% of gastric malignancy was adenocarcinoma. Illingworth (1967)[25] and Mayer (1995)[26] quoted that in majority of cases the carcinoma is adenocarcinoma in nature whereas squamous cell carcinoma is a rare finding. Malik et al. (1976)[27] found 90.3% were adenocarcinoma followed by 5.6% lymphoma, 2.8% sarcoma and 1.3% carcinoid.

A good correlation can be made between malignancy & dietary habits and different addictions. In this study, gastric malignancy is found predominantly in non vegetarians (81.4%) and especially in those who take rice and some form of alcohol as main constituent (53.33%). Segi et al. (1957)[28] noticed a high incidence of gastric malignancy (48.3%) who used rice as staple food. Green vegetable and fresh fruits especially citrus fruits and selected fibre-rich elements (whole grain bread) showed protective effects on gastric malignancy whereas rice, maize were positively related with gastric malignancy risk (Vecchia et al., 1987).[29] Siddiqui M. et al (1992)[30] reported in their study that consumption of *Brassica* vegetables, red chilies and salted tea among people in Kashmir leads to high intake of dietary amines and nitrates and these may be a possible cause of the high incidence of stomach cancer in that region. Mathew A, Gangadharan P et al (2000)[31] reported that high

consumption of rice, chili and consumption of high-temperature food are independent risk factors for gastric carcinoma in South India.

Smoking is found in nearly half of the patients in the present study. Khuroo M.S. et al (1992)[6] reported that Hukka smoking among Kashmiri Muslim males has been associated with a high incidence of stomach and oesophageal cancer. Alcohol addiction is present in 43.33% cases in present study. Similarly Segi (1957)[28] also observed high incidence of gastric carcinoma among rice wine (sake) takers in Japan.

In this study, tobacco chewing is found in about 13.33% of all cases and Nagraj Rao D et al (2002)[7] have said that tobacco chewing is not statistically significant risk factor for stomach cancer and the risk level was same for bidi and cigarette smokers.

The present study revealed that the incidence of gastric malignancy in dyspeptic patient is more common in blood group 'A' patients (50%) followed by (26.67%) in blood group 'B' patients, whereas AB blood group patients are least involved (3.33%).]

Rai, Saronwala and Singh (1972)[32], studied the association of G.I.T. malignancies with different blood group. They found that all G.I.T. malignancies were very common in blood group 'A' patients which is similar to the present study but there is a low incidence in patients with blood group 'AB'. Ian Aird (1953)[33]and Doll et al. (1960)[34] also showed the higher incidence of gastric carcinoma among blood group 'A' patients, but, Koteshwar Rao (1983)[20] from Karnataka reported that 'O' group persons were commonly involved in gastric carcinoma (36.3%) followed by 'B' (30.2%), 'A' (23.2%) and 'AB' (10.2%) groups.

Dyspeptic patients with malignancy present with varied complains. Commonest presentation of gastric malignancy is pain abdomen (90%) followed by anorexia (80%), weight loss (80%) and weakness (80%). Abdominal mass is also common finding in 30% of cases in the present study. Shahon (1955)[35] in his study observed that majority of gastric malignancy patients presented with pain abdomen (66.77%), epigastric mass present in 49.17% of cases. Jaundice and ascites were present in 3.33% of cases in this series. Jaundice was also found to be the least common finding in the study of Shahon[35] (2%).

VI. CONCLUSION

The present study has pointed out important epidemiological contributions in the incidence of upper G.I. malignancy in dyspeptic patients in the plateau of Chotanagpur. There is a strong need to educate people, and make them realize the importance of the ill effect of smoking, alcohol use and various aspects of life style which are associated with upper G.I. malignancy, especially to the illiterates and people of low socioeconomic group.

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