



**ORIGINAL RESEARCH PAPER**

**General Surgery**

**A RETROSPECTIVE STUDY OF TUMOR LOCATION, HISTOLOGICAL TYPE AND FACTORS AFFECTING THE TUMOR LOCATION OF GASTRIC CARCINOMA OF LAST 5 YEARS AT DR. B.R.A.M.H RAIPUR**

**KEY WORDS:** Gastric carcinoma, tumor location in gastric cancer, trends in gastric cancer

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**ABSTRACT**

**INTRODUCTION:** Nearly 1 million new cases of Gastric carcinoma and 0.7 million Gastric carcinoma deaths are reported every year. Recent survey of cancer mortality in India indicated that gastric carcinoma was the second most common cause of cancer related deaths amongst men and women. Many studies show that adenocarcinomas arising from gastric cardia and proximal part of stomach have increased, especially in areas with low incidence of gastric carcinoma. This observational study was carried out to know trends of gastric carcinoma by location and factors affecting tumour location in Dr. BRAM Hospital Raipur. 1-20 **AIMS AND OBJECTIVE:** to know the pattern of tumour location, histopathological type and factors affecting the tumour location in patients of gastric carcinoma of last 5 years (from 2016-2020). **METHODOLOGY:** A retrospective observational study of gastric carcinoma of last 5 years (from 2016-2020) at Dr. BRAM Hospital Raipur and Pt. JNM medical college Raipur. **RESULTS:** The most common age group was 51-60 years. (Mean age - 52.89 ± 12.12 ) with male preponderance and more in patients with lower socioeconomic status. Tobacco addiction and alcohol intake poses significant risk, most common gross appearance of UGIE findings is ulceroproliferative followed by ulcerative, most common site of tumour in gastric carcinoma patient is antropyloric although there was increasing trends towards proximal site of stomach (GE junction and cardia). Poorly differentiated adenocarcinoma was the most common type histopathology finding in gastric carcinoma patients. **CONCLUSION:** In our study we found that most common site of tumour in patients of gastric carcinoma is antropyloric region, but over the last 5 years (2016-2020) it has been found that there is increasing trends of proximal gastric carcinoma (Cardia, GE junction).

**INTRODUCTION:**

Gastric carcinoma is the fifth leading cancer in the world and the second most common cause of death due to malignancy, accounting for 736,000 deaths (9.7% of the total)<sup>1</sup>. Nearly 1 million new cases of Gastric carcinoma and 0.7 million Gastric carcinoma deaths are reported every year. Age-standardized incidence rates are approximately twice as high in men as in women, Currently, Gastric carcinoma is more common in Asia than in the United State of America (USA) or Europe.

In India, the incidence rate of Gastric carcinoma is very low compared to that in western countries, and the number of new Gastric carcinoma cases is approximately 34,000, with a male predominance (male-to-female ratio, 2:1). The recent nationally representative survey of cancer mortality in India indicated that gastric carcinoma was the second most common cause of cancer related deaths amongst men and women. The 5-year survival rate for patients undergoing surgical resection was reported to be only 27% in 1992<sup>2</sup>.

Gastric carcinoma is a heterogeneous disease with respect to its molecular and histo-pathological feature. Stomach is anatomically delineated into the upper, middle and lower thirds by dividing the lesser and greater curvature in two equidistant points and joining these points. Tumours located predominantly in the gastro-esophageal junction and cardia were determined to be in the upper third of the stomach, those located in the pylorus were considered to be in the lower third and those located in the mid-body were determined to be in the middle third of the stomach.<sup>1</sup>

Gastric carcinoma is also well known for heterogeneity in clinicopathology, survival and molecular pathobiology between proximal gastric carcinoma (PGC) and distal gastric carcinoma (DGC), suggesting the existence of different pathogenesis mechanisms for these two distinct groups of

gastric cancer. Many studies show that adenocarcinomas arising from gastric cardia have increased, especially in areas with low incidence of gastric carcinoma<sup>4</sup> It was not seen in all areas of the world. These changes were seen in both sexes and age groups, it was approximately equal in both sexes. This observational study was carried out to know trends of gastric carcinoma by location and factors affecting tumour location in Dr. BRAM Hospital Raipur.

**AIMS AND OBJECTIVE:**

1. To study pattern of tumour location in patients of gastric carcinoma.
2. To study histopathology type in patients of gastric carcinoma.
3. To study the associated risk factors in patients with gastric carcinoma.

**MATERIAL AND METHODS:**

The study was a retrospective observational study to know the pattern of tumour location, histopathological type and factors affecting the tumour location in patients of gastric carcinoma of last 5 years (from 2016-2020) at Dr. BRAM Hospital Raipur and Pt. JNM medical college Raipur.

**INCLUSION CRITERIA:**

1. All patient of gastric carcinoma who presented at Dr. BRAMH Raipur in department of general surgery and department of radiotherapy during last 5 years (2016-2020).

**EXCLUSION CRITERIA:**

1. Patients with incomplete document

**METHODOLOGY:** Data of all patients (Patient profile, addiction, investigations, treatment) of gastric carcinoma who were presented in department of general surgery and radiotherapy of last 5 years and fulfill the inclusion criteria were collected.

The data were included Age, Sex, Dietary habits, Addiction, Socioeconomic status, gross appearance of tumor in upper GI endoscopy, tumor location, histopathological type of the patients. Statistical analysis is done by using descriptive and inferential statistics using Chi square test and one way ANOVA and software used in the analysis were SPSS 27.0 version and GraphPad Prism 7.0 version and p<0.05 is considered as level of significance.

**Table. 1. Risk factors associated with patients of gastric carcinoma**

ADDICTI ON	2016	2017	2018	2019	2020	TOTAL
BIDI	20(19.80%)	28(29.79%)	46(35.1%)	31(31%)	28(23.33%)	153(28.02%)
CIGARE TTE	09(08.91%)	05(05.32%)	13(09.9%)	09(09%)	08(06.67%)	44(08.06%)
GUDHAK HU	36(35.64%)	32(34.04%)	22(16.7%)	13(13%)	22(18.33%)	125(22.89%)
ALCOH OL ADDICTI ON	24(23.76%)	38(40.43%)	51(38.9%)	38(38%)	10(08.33%)	161(29.49%)

**RESULTS:**

This study was a Hospital based, observational, retrospective , study including a total 546 patients, of gastric carcinoma in the Department of Surgery and Department of radiotherapy at Dr. B. R. A. M. Hospital, Raipur, Chhattisgarh. In this study we found out that gastric Carcinoma was most commonly seen in 51-60 years age group of patients (177 cases) and incidence was more in male (342 cases) patient as compare to female patients .smoking (322 cases) and alcohol (161 cases) are increase significant risk for developing gastric carcinoma (Table 1).

The most common type of lesion was ulcero-proliferative lesion (219 cases) as seen in Table 2 , with the most affected part of the stomach was antrum and pylorus(266 cases) as shown in figure 1. There is also increasing trends of cases towards proximal part of stomach. The most common histological type was poorly differentiated adenocarcinoma (410 cases).

**Table. 2. Gross appearance of tumor in UGIE in patients with gastric carcinoma**

UGIE	2016	2017	2018	2019	2020	TOTAL
Flat lesion	06(05.94%)	00(00.00%)	03(02.29%)	00(00%)	00(00.0%)	09(01.64%)
Infiltrative growth	07(06.93%)	06(06.38%)	05(03.81%)	06(06%)	04(03.33%)	28(05.13%)
Ulcerative growth	13(12.87%)	15(15.95%)	22(16.79%)	10(10%)	14(11.66%)	74(13.55%)
Ulceropro liferative growth	75(74.25%)	73(77.65%)	101(77.09%)	84(84%)	102(85.00%)	435(79.67%)
Total	101(100%)	94(100%)	131(100%)	100(100%)	120(100%)	546(100%)

**DISCUSSION:**

Age distribution of patients ranged from 20 years to more than 50 years, of which the maximum number of patients belongs to the age group of 51-60 years 177 cases (32.42%), followed by 41-50 years 137 cases (25.09%) of age and mean age is 52.89 with a standard deviation of 12.12. Afshin et al, (1969-2004) found out that the mean age of gastric carcinoma patients was 56.6 ± 21.2.5 F.Icli • H. Akbulut et al, (2011) found that Median age of the patients were 55.5 and 57.0 years.<sup>5</sup>

There are 342 males (62.64%) and 204 females (37.36%) who are suffering from gastric carcinoma and male to female ratio is 1.6:1. Afshin et al,(1969-2004) found out that there was a

male preponderance in which 78.5% were male.5 Yongning Zhou et al,(2016-2017) found out that 4177 (79.5%) were males and 1076 (20.5%) were females. gastric carcinoma is more common in male patients.<sup>7</sup>

There are 445 cases (81.5%) who belonged to the lower socioeconomic status, while 101 cases (18.5%) belonged to middle socio-economic status. F. Icli • H. Akbulut et al (2011), found that incidence of gastric cancer increase in lower socioeconomic status patients.<sup>5</sup>

History of tobacco consumption was found in 322 cases (58.97%) of gastric carcinoma in which most common mode of tobacco consumption is bidi smoking in 153 cases (28.02%), followed by gudhakhu in 125 cases (22.89%), cigarette smoking in 44 cases (8.06%). F. Icli , H. Akbulut et al (2011), found that cigarette smoking rate and duration of smoking , heavy smoking (C2 packs/day) appeared as a significant risk factor for gastric cancer.6 Ashish kumar shah et al (2014), found out that smokers and tobacco chewers were significantly affected than non-smokers and non-chewers. Smokers were significantly affected than tobacco chewers. Again, bidi smokers were significantly affected than cigarette smokers. Early starters as well as, heavy smokers were significantly affected.<sup>5</sup>

According to UGIE gross appearance, from the year 2016 to 2020, the most common endoscopic finding is Ulceroproliferative growth, 435 cases (79.67%), followed by ulcerative growth,74 cases (13.55%) and infiltrative growth 28 cases (5.13%). MA Kabir et al (2006) reported that out of 50 patients, in 56% cases the lesion was ulcerative followed by polypoid (34%) and ulceroinfiltrative (10%).9 Ashish Kumar et al.(2014) showed that ulcerative lesion (57.8%) was significantly common as compared to ulceroproliferative (24.9%) and polypoid lesion (17.3%).<sup>8</sup>

According to the site of the tumour overall, the most common site is antro-pyloric region; 266 cases (48.53%), followed by GE junction; 161 cases (29.24%), fundus; 48 cases (8.79%). Although we find that there is an increasing trend in the frequency of gastric carcinoma cases tumour in the GE junction from 9.90% (2016), 22.34% (2017) , 29.77% (2018) , 45% (2019) to 45% (2020). Similarly there is a decreasing trend in the frequency of gastric carcinoma cases in the antro-pyloric region from 75.25% (2016), 48.94%(2017), 48.85%(2018), 41% (2019) to 31.67%(2020). Ying Liu et al(1975-1989), found out that relatively increasing incidence of cardia or proximally localized gastric adenocarcinoma.10 Yongning Zhou et al (2016-2017), found out that In the non-cardiac cancers, 142 cases were in the fundus (2.7%), 1240 in the body (23.6%), and 1787 cases in the antrum (34.0%). The proportion of cardiac gastric cancers has increased from 29.6% in 1993 to 37.1% in 2004, and that of the stomach body cancer from 22.6% in 1993 to 31. In contrast, a significant decrease was observed for gastric cancer of the fundus, from 2.9% in 1993 to 1.6% in 2004 , and for antrum cancer, from 41.4% in 1993 to 21.1% in 2004 and found out that there was a trend of significant increase for cancers of the gastric cardia and body of the stomach, as well as cancers of multiple sites.7

In our study, the most common histopathology finding was poorly differentiated adenocarcinoma 410 cases (75.09%), followed by moderately differentiated adenocarcinoma 95 cases (17.40%), well differentiated adenocarcinoma 21cases (3.85%). Afshin et al(1969-2004) found out that, according to lauren classification 54.9% were intestinal type (poorly diffrentiated) and the remaining was diffuse type.5 Ashish kumar shah et al(2014) found out that some tumours were well differentiated, and major were poorly differentiated.8 Shunli Liu et al (2018) , found that Differentiation degree was Poor (81.3%) followed by Moderate/well 26 (18.7%).<sup>11</sup> (75.09%), followed by moderately differentiated adenocarcinoma 95 cases

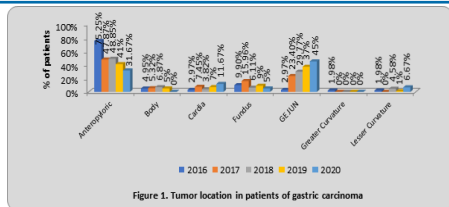


Figure 1. Tumor location in patients of gastric carcinoma

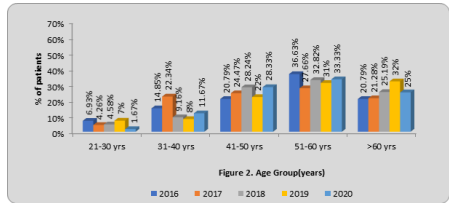


Figure 2. Age Group (years)

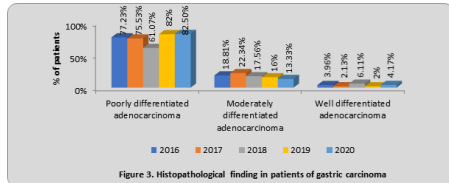


Figure 3. Histopathological finding in patients of gastric carcinoma

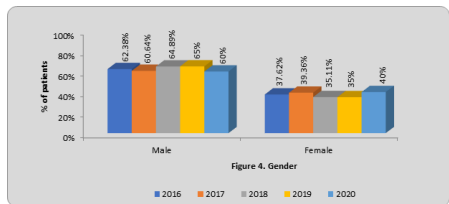


Figure 4. Gender

**CONCLUSION:**

This observational study included 546 cases of gastric carcinoma in Dr. BRAMH Raipur of last 5 years (2016-2020) and concluded that the most common age group was 51-60 years. (Mean age - 52.89 ±12.12 ), males have more risk for developing gastric carcinoma than female, gastric carcinoma is more common in patients with lower socioeconomic status, tobacco addiction and alcohol intake are significant risks for developing gastric carcinoma, most common gross appearance of tumor in UGIE is ulceroproliferative followed by ulcerative, most common site of tumour in gastric carcinoma patient is antropyloric although there was increasing trends towards proximal site of stomach (GE junction and cardia), poorly differentiated adenocarcinoma was the most common type histopathology finding in gastric carcinoma patients.

Thus, it is seen that the most common site of tumour in patients of gastric carcinoma is antropyloric region, whereas similar studies conducted in western countries conclude that the most common gastric carcinoma located in proximal part of stomach (Cardia, GE junction). However, in our study, over the last 5 years (2016-2020) it has been found that there is increasing trends of gastric tumour located in proximal part of stomach (Cardia, GE junction), from 9.90% (2016), 22.34% (2017) to 45% (2020). Thus, the crux of this study emphasises the need to identify the increasing trend of proximal stomach cancers and strive to bring about preventive measures in lifestyle behaviours which might play an important role in this.

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