Original Research Paper

Volume - 10 | Issue - 11 | November - 2020 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

General Surgery

AS WE SAY "PREVENTION IS ALWAYS BETTER THAN CURE"

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ABSTRACT **Background and Objectives:** Gastric cancer remains one of the most common and deadly cancers worldwide. Based on GLOBOCAN 2018 data, stomach cancer is the 5th most common neoplasm and the 3rd most deadly cancer, with an estimated 783,000 deaths in 2018. Gastric cancer incidence and mortality are highly variable by region and highly dependent on diet and Helicobacter pylori infection. Hence the aim of this study was to analyze the benefits of upper gastrointestinal endoscopy (UGI Scopy) among patients with Gastro Esophageal Reflux Disease symptoms (GERD) and analyze the results of the same, in an attempt to find and diagnose patients with early stage gastric cancer.

Materials and Methods: A cross-sectional study of all patients attending general surgical outpatient department for dyspepsia, GERD and associated symptoms during the year 2019-2020. After institutional ethical clearance, patients written informed consent was obtained after explaining the procedure to them. A through history and examination was done and following this UGI scopy was performed and the findings recorded.

Results: there were a total of 2038 cases. Among these patients 95.78% of them had significant findings. Reflux esophagitis was found in 13.7%, Antral gastritis in 26.4% and Pangastritis in 39.6%, Duodenitis was found in 10.69%, esophageal varices in 4.31% and esophageal candidiasis was 3.72%. 7.2% of the patients were diagnosed with malignancies.

Conclusion: Upper GI endoscopy is therefore an effective tool to facilitate earlier diagnosis and treatment in patients with GERD like symptoms.

KEYWORDS : GERD, UGI Scopy, gastric carcinoma

INTRODUCTION:

Gastric carcinoma (GC) is one of the commonest malignancies with a fourth common incidence worldwide (989,600 new cases per year in 2018). When taking mortality into consideration it is the third most cause of death (738,000 deaths annually) of all malignancies worldwide.(Bray, Ferlay, & Soerjomataram, 2018)

The disease is in its early stages present with nonspecific complaints and becomes symptomatic in an advanced stage. Among the world countries the overall five-year survival rate is reasonably good only in Japan, where it reaches close to 90% due to an elaborate screening program in place. In the Western countries, the five-year survival rates vary from ~10% to 30%. The good survival rate in Japan is probably achieved by early diagnosis by endoscopic examinations and subsequent early tumour resections. The incidence of gastric cancer shows wide geographical variation with more than 50% of the new cases occur in developing countries. The difference is a 15–20-fold variation in risk between the highest- and the lowest-risk populations across the globe. (Zheng et al., 2014)

The high-risk areas are East Asia, Eastern Europe, Central and South America. The low-risk areas are Southern Asia, North and East Africa, North America, Australia, and New Zealand. There is downward trend in gastric cancer (GC) incidence rates worldwide in the last few decades. This trend has been noticed particularly in young patients with noncardia, sporadic, intestinal type of GC, as reported in the Japanese analysis. On the other hand, the American data with a different race and age subpopulations shows that the anatomic subtype of corpus gastric cancer, which have an increasing tendency.(Sitarz et al., 2018)

Coming to the Indian Subcontinent, the incidence of gastric cancer has a North-South divide. Gastric cancer is the leading cancer among males of Chennai. Stomach cancer in South India is diagnosed four times more in comparison to North India. (Mohandas & Nagral, 1998) The World Health Organization and Lauren's classification system have divided the gastric cancer into two histological types of gastric cancer. The two types are clinically and epidemiologically distinct entities-intestinal and diffuse. The intestinal-type is a well-differentiated malignancy which contains cohesive neoplastic cells, forms gland-like structures that frequently ulcerate. The diffuse-type is a poorly differentiated malignancy which is characterized by infiltration and thickening of the stomach wall ("leather bottle appearance") without the formation of a discrete mass. The intestinal-type is more common in men, older people in high-risk regions, is of the epidemic type and has a better prognosis. It arises from premalignant lesions such as gastric atrophy and intestinal metaplasia, and is influenced by environmental factors such as H. pylori infection, obesity, and dietary factors. The diffuse-type occurs in the endemic areas, is more frequent in women and younger patients, and is associated with blood group A, indicating genetic susceptibility. Mixed gastric carcinomas composed of intestinal and diffuse components have also been identified in some cases.(Nagini, 2012)

The development of gastric cancer involves a stepwise development through a progression of precancerous lesions. The gastric mucosa undergoes changes including atrophic gastritis with loss of parietal cell mass followed by intestinal metaplasia, and dysplasia that eventually lead to carcinoma. (Naghavi & Malekzadeh, 2020; Nagini, 2012; Napier, Scheerer, & Misra, 2014; Pavithran, Doval, & Pandey, 2002; Shah & Shah, 2016; Sitarz et al., 2018)

Although the etiology of gastric cancer is multifactorial, more than 80% of cases have been attributed to H. pylori infection. The other factors that are contributory are lifestyle factors, dietary habits, genetic, socioeconomic and other lesser factors contribute to gastric

carcinogenesis.(Cherian, Sivaraman, Muthusamy, & Jayanthi, 2007; Deepa, Venghateri, Khajanchi, Gadgil, & Roy, 2019; Dikshit, 2011; Samarasam, 2017)

Endoscopy on the other hand is a very effective tool in diagnosing and treating gastric cancer. Being invented in 1805 by Philip Bozzini, he called it the "Lichtleiter" or the light guiding instrument. In 1853, Antoine Jean Desormeaux developed an instrument designed to examine the urinary tract and the bladder which he called the "Endoscope," and it was the first time this term was used ever. After multiple attempts Adolph Kussmaul of Germany succeeded in taking a look inside the stomach of a living human body for the first time in 1868. The initial gastroscopes were not flexible at all, but finally in 1932, Dr. Rudolph Schindler invented a flexible gastroscope. From then on endoscopes have revolutionised the way we diagnose and treat medical conditions.(Caglar, Baysal, & J, 2014; Javali, Madan, Harendrakumar, & Mahesh, 2015; Napier et al., 2014; Shah & Shah, 2016; Winawer, SHERLOCK, & HAJD, 1976)

Compared to the past there is a general declining incidence of gastric cancer and it may be explained by higher standards of hygiene, improved food conservation, a high intake of fresh fruits and vegetables, and by higher rate of eradication of Helicobacter pylori (H. pylori).(Nagini, 2012)

Hence the aim of this study is to do an endoscopy in patients with GERD symptoms and make an early diagnosis of gastric cancer.

MATERIALS AND METHODS:

A cross-sectional study of all patients attending general surgical outpatient department for GERD and associated symptoms during the year 2019-2020. After institutional ethical clearance, patients written informed consent was obtained after explaining the procedure to them. A through history and examination was done and following this UGI scopy was performed and the findings recorded.

INCLUSION CRITERIA:

1. Dyspepsia and/or GERD like symptoms
2. 18 years or more
3. Consenting to take part in the study
4. Patients attending surgical OPD

EXCLUSION CRITERIA:

1. Below 18 years
2. Refusing consent

Patients were nil by mouth for a period of 8 hours with clear liquids allowed up to 2 hours before the procedure. Patients were sprayed with 4% lignocaine solution in their throat as a local anesthetic. Standard endoscopy was carried out by fiber optic flexible esophago gastroduodenoscopy. During the entire procedure of endoscopic examination abnormal areas like ulcer, growth, bleeding spots, inflammatory areas, varices, areas of reflux esophagitis are properly evaluated and recorded by photography systematically for comparison in future. In case of growths and suspicious ulcers biopsy is taken of those pathological areas.

All the procedures were performed by a single doctor specialized in upper gastrointestinal endoscopies, which facilitated reliability of data and cancelled out inter operator variations.

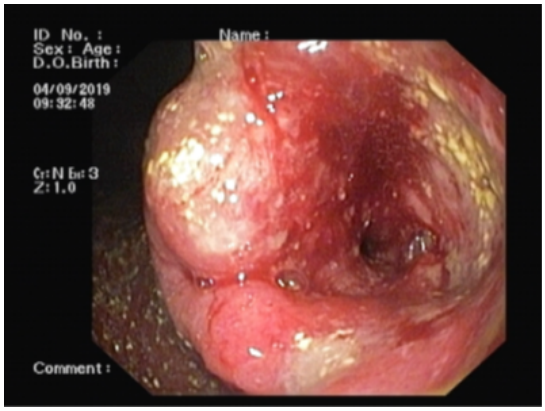

Figure 1-Ulceroproliferative growth in the body of stomach:

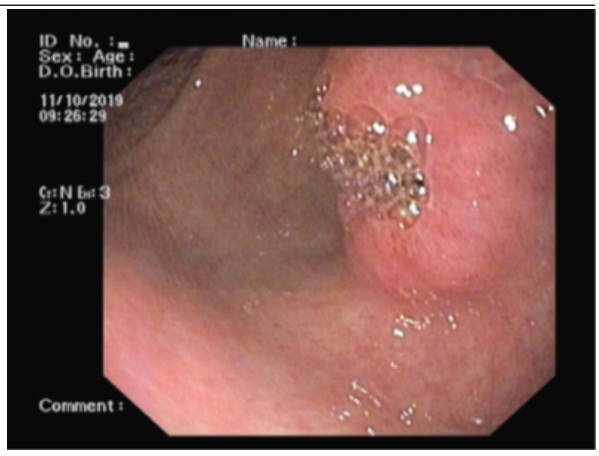

Figure 2 - Antral growth causing gastric outlet obstruction:

RESULTS:

There were a total of 2038 patients in this study. Of these 58% were males.32% of the population were below 40 years of age, 50% of them were 40 – 60 years and the rest 18% were above 60 years.

About 58% of patients had symptoms for 1 to 6 months. About 22% had symptoms for less than a month. 13% of the patients have had symptoms for 6 months to a year. While only 6% of our patients had symptoms for more than a year.

Only 80% of our patients satisfied the American Society of Gastrointestinal Endoscopy (ASGE) appropriate indications for endoscopy and there were no patients with a family history of gastric cancer.

Table I - Various Diagnoses And Their Occurrence:

DIAGNOSIS	NUMBE	PERCENTAGE
NORMAL STUDY	86	4.21%
STRICTURE CRICOPHARYNX	2	0.09%
REFLUX ESOPHAGITIS	281	13.78%
ESOPHAGEAL CANDIDIASIS	76	3.72%
ESOPHAGEAL VARICES	88	4.31%
CORROSIVE ESOPHAGITIS AND GASTRITIS	2	0.09%
HIATUS HERNIA	34	1.66%
ESOPHAGEAL POLYP	8	0.39%
RADIATION ESOPHAGITIS	16	0.78%
ANTRAL GASTRITIS	538	26.39%
PANGASTRITIS	809	39.69%
BILE GASTRITIS	7	0.34%
ISOLATED FUNDAL ULCERS	6	0.29%
ANTRAL ULCERS	48	2.35%
PORTAL HYPERTENSIVE GASTROPATHY	55	2.69%
GASTRIC VARICES	3	0.14%
GASTRIC OUTLET OBSTRUCTION WITHOUT A GROWTH	18	0.88%
DUODENAL ULCERS	52	2.55%
DUODENITIS	218	10.69%
DUODENAL VARICES	4	0.19%
CA PHARYNX	3	0.14%
CA ESOPHAGUS	57	2.79%
CA STOMACH	82	4.02%
PERIAMPULLARY GROWTH	4	0.19%

About 7.2% of patients were diagnosed with malignancies. Of these 63.3% were males and the rest 36.2% were females.

DISCUSSION:

The clinical indications for endoscopy of the upper gastrointestinal tract include symptoms like upper abdominal pain refractory to treatment, hematemesis, dysphagia, dyspepsia, vomiting, and unexplained weight loss. UGI endoscopy is a relatively safe procedure and there is no absolute contraindication to it. Major but rare

complication include perforation or aspiration. UGI endoscopy (UGIE) is a very useful tool to identify lesions, both benign and malignant conditions. In our study the yield was 95.78% with normal findings in just 4.21% substantiating the symptom driven approach to perform an UGIE.

In our study, maximum patients with upper abdominal pain and discomfort were diagnosed with either antral gastritis (26.3%), pangastritis (39.6%) or duodenitis (10.6%). Common reasons were alcohol intake, smoking, intake of spicy foods and Helicobacter pylori infections. These patients were treated with proton pump inhibitor and were advised to quit smoking. This helped with a decline in peptic ulcer perforations and gastric outlet obstruction which are common surgical conditions in Tamilnadu.

Reflux esophagitis was observed in 13.7% patients. It is notorious as it creates disturbing symptoms, poor quality of life and there are a few studies which say it can lead to metaplasia progressing to dysplasia and carcinoma of esophagus.

Hiatus hernia was detected in 10 patients which causes reflux of acid into esophagus. These patients were treated medically or surgically depending on the severity of symptoms.

Esophageal candidiasis was found in 3.72% of patients often presenting as odynophagia occurs in diabetics and immuno-compromised patients and these patients were treated with systemic antifungal medications.

Esophageal varices were found in 88 patients, portal hypertensive gastropathy in 55 patients, gastric and duodenal varices in four patients which identified the severity of liver cirrhosis. A total of 13 patients required banding of esophageal varices reiterating the therapeutic use of endoscopy.

Dyspepsia originates from anatomic or functional disorders of the upper GI tract. Dyspepsia includes a variety of symptoms such as epigastric discomfort, bloating, anorexia, early satiety, belching or regurgitation, nausea, and heartburn. Rome III criteria defines dyspepsia as 1 or more of the following 3 symptoms for 3 months within the initial 6 months of symptom onset: (1) postprandial fullness, (2) early satiety, and (3) epigastric pain or burning. (Shaukat et al., 2015) these patients are advised to undergo endoscopy.(Cherian et al., 2007; Padma & Murugan, 2018; Rajan, Amaranathan, & Lakshminarayanan, 2019)

7.2% of our patients were diagnosed with malignancies. The youngest age of carcinoma was 28 years for carcinoma stomach and 31 years for carcinoma esophagus. This was found to be in contrast to the conventional belief that upper gastrointestinal malignancies usually occur in older age group. This highlights the importance of endoscopy on patients with mild symptoms. Malignancies in the pylorus and/or antrum of the stomach causes gastric outlet obstruction and were hence identified earlier. In contrast to this, malignancies of the body and/or fundus of the stomach do not produce symptoms until advanced stages. Hence patients presenting with persistent dyspepsia are advices to undergo endoscopy.

Previous studies have established that patients having symptoms of GERD every week increased the odds of developing esophageal adenocarcinoma by five-fold, while those with daily symptoms had a seven-fold increase. Esophageal cancer is aggressive malignancy due to its anatomy, lymphatic drainage and biology with overall five-year survival ranging from 15% to 20%. Most of the esophageal malignancies are diagnosed in the later stages. Carcinoma of upper and middle esophagus was referred to chemoradiotherapy while lower esophageal carcinomas required multimodal management.(Abbas & Krasna, 2017; Debbarma et al., 2017; Ghosh, Manna, & Chakraborty, 2018; Padma & Murugan, 2018; Saha, Maitra, & Hazra, 2013)

Padma et al, in 2018 had published that, there was a positive yield of 94%, with male, female distribution of 61.78% and 38.21% respectively. Malignancy distribution was less in their study with carcinoma stomach being 1% and carcinoma oesophagus 2.1%. In comparison to this, our study showed a higher incidence in carcinomas being diagnosed by endoscopy.(Cherian et al., 2007; Javali et al., 2015; Rajan et al., 2019; Shah & Shah, 2016; Shaukat et al., 2015; Toneto & Viola, 2018)

This emphasizes and establishes the need for a judicious use of endoscopy in arriving at a diagnosis earlier, in order to facilitate patient treatment.

CONCLUSION:

Endoscopy is an effective and appropriate approach for initial investigation to assess patients with upper gastrointestinal symptoms. Endoscopy is probably the only way to identify mucosal lesions which cannot be supplanted by any other method. It enhances the early diagnosis and therefore helps early treatment. This is minimally invasive hence can be done with ease as an outpatient procedure. We can therefore say that upper gastrointestinal endoscopy is an effective tool that is both diagnostic and therapeutic and can help with arriving at a diagnosis earlier.

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