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Original Article

Evaluation of Etiology of Gastric Outlet Obstruction by Endoscopy in a Study in Bangladesh

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Abstract:
Background: Gastric outlet obstruction (GOO) is a common finding during endoscopyof upper GIT. Due to the changing lifestyle of people causes of GOO are also changing day by day. **Objective:** This retrospective study was designed to see the etiology of gastric outlet obstruction in Sylhet (north eastregion) of Bangladesh. **Methods:** In this retrospective study 104 diagnosed cases of gastric outlet obstruction (GOO) were retrieved from endoscopy registrar of a private diagnostic center in Sylhet, Bangladesh from January 2018to September 2020. **Results:** Among 104 GOO subjects 84(80.77%) were male and 20(19.23%) were female. Endoscopic examination revealed antral growth in 51(49%), chronic duodenal ulcer disease in 48(46.2%), antral ulceration with recent history of corrosive ingestion in three (2.9%), duodenal growth in one(1.0%) and nodularity and ulceration at duodenum in one(1.0%) patients. **Conclusion:** Antral gastric carcinoma is more common than chronic duodenal ulcer in gastric outlet obstruction.

Key words: Gastric outlet obstruction, Aetiology, Gastric carcinoma

Introduction:
Gastric outlet obstruction (GOO) is complete or partial narrowing of pyloro-duodenal region mechanically impeding gastric emptying[1]. This may be due to obstructing mass lesion, external compression or chronic scarring and fibrosis with or without edema[2]. Clinical conditions that cause GOO are categorized as benign and malignant. Most common causes are consequence of chronic duodenal ulcer disease and gastric neoplasm. Previously the first one was commoner[3]. Reports before 1970 showed that majority of causes of GOO were benign whereas neoplasm consisted 10-39%[2,4]. But this scenario has been changed after introduction of proton pump inhibitor with alteration of ratios between benign and malignant causes of GOO[2,5]. Recent reports show that about 50-60% of cases of GOO are due to malignancy[4,5]. Distal gastric cancer is the most common malignant condition of GOO[6]. Other malignant causes include pancreatic cancer, periampullary tumors and lymphoma[7]. GOO is more common among males and most of the patients with GOO are of middle age group[8]. With this back ground this retrospective study was done to see etiology of GOO in north eastern part of our country.

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Methods:
This retrospective study was done in a private diagnostic center in Sylhet, a city in north eastern part of Bangladesh. All endoscopically diagnosed patients with gastric outlet obstruction from January 2018 to September 2020 were included in this study.

During the study period, total 8,184 subjects underwent endoscopic examination of upper gastrointestinal tract. Among them 104 were diagnosed as GOO. Data of patients with GOO were retrieved from endoscopic registrar. Patients' age, sex, indications and endoscopic

findings and histopathology reports of cases (where biopsies taken) were analyzed using statistical package for social science (SPSS version 20) by*chi* square test to see significance of association between variables. *p* value of less than 0.05 was taken as significant.

Results:

During the study period, total 8,184 subjects underwent endoscopic examination of upper gastrointestinal tract. Among them 104(0.13%) were diagnosed as GOO. Age of them varied from 12 years to 93 years (mean 52.88 and SD 15.34) (Table I). In this series 84(80.77%) were male and 20(19.23%) were female with male female ratio 4:1. Mean age of males was 52.23 and SD 14.7 and mean age of females was 55.6 and SD 17.93 in this series.

Table I: Age and sex distribution (n=104)

	Age range	Mean	SD
Patients	12 -93	52.88	15.34
Male	12-90	52.23	14.7
Female	25-93	55.6	17.93
Antral carcinoma	26-93	58.03	13.17
Chronic DU	12-75	49.25	15.25

Commonest presenting complains were vomiting in 93(89.4%) and abdominal pain in 40(38.5%) patients (Table II).

Endoscopic examination revealed antral growth in 51(49%), chronic duodenal ulcer disease in 48(46.2%), antral ulceration with recent history of corrosive ingestion in three (2.9%), duodenal growth in one (1.0%) and nodularity and ulceration at duodenum in one (1.0%) patients (Table III). Histopathology of all antral growths, duodenal growth was adenocarcinoma, while histopathology of duodenal nodular ulceration was granulomatous lesion consistent with tuberculosis. In this series, incidence of antral carcinoma was the commonest etiology of GOO and followed by chronic duodenal ulcer disease.

Table II: **Presenting symptoms (n=104)**

Symptom	Number	Percentage
Vomiting	93	89.42
Abdominal pain	40	38.5
Lump	12	11.5
Anorexia	7	6.7
Anaemia	6	5.8
Weight loss	6	5.8

In this series out of 51 cases of gastric cancer 37(72.55%) were male and 14(27.45%) were female and difference was significant (*p*= 0.037) (Table IV).In this series incidence of both gastric cancer and chronic duodenal ulcer disease was higher above the age 45 years. But mean age of patients with gastric cancer was 58.03 (SD 13.16) years and that of chronic duodenal ulcer disease 49.25 (*SD* 15.25) years. Corrosive induced ulcer leading to GOO, although very small in number, was found in younger patients.Association of age with etiology was statistically significant in this series (*p*=0.002).

Table III: Aetiological pattern of GOO (n=104)

Age	Antral carcinoma	Chronic DU	Corrosive ulcer	Duodenal cancer	Duodenal TB	*p* value
Up to 30y (7)	1	4	2	0	0	0.002
31-45y (26)	8	16	1	0	1	
46-60 (43)	25	18	0	0	0	
≥61	17	10	0	1	0	

Table IV: Variation of major causes of GOO between sexes (n=104)

Variables	No of cases	Male (%)	Female (%)	p value
Antral carcinoma	51	37(72.55)	14(27.45)	0.037
Chronic DU	48	44(91.66)	4(8.34)	0.009

Again among 48 patients of chronic duodenal ulcer disease 44(91.66%) and 4(8.34%) were males and females respectively and difference was significant (p=0.009). Among males, incidence of chronic duodenal ulcer disease was higher than gastric cancer as etiology of GOO (44 vs 37 and p=0.00). While among females gastric cancer was higher (14 vs 4 and p=0.003) than chronic duodenal ulcer disease as etiology of GOO (Tablel V).

Table V: **Relation of major causes within sex (n=104)**

Sex	Chronic DU (n)	Antral carcinoma (n)	p value
Male	44	37	0.002
Female	4	14	0.003

Discussion:

The term gastric outlet obstruction (GOO) is usuallyused to mean pyloric stenosis as a sequel of chronic duodenal ulcer disease. Up to early 70's peptic ulcer was the cause of GOO in about 90% of cases[4]. One study conducted from 1970-79 found that 81% of GOO were due to chronic duodenal ulcer disease[9]. In our series etiology of 50% of GOO is malignancy mostly gastric antral cancer. It is slightly higher than chronic duodenal ulcer disease. Reports from India[1,9-13], Pakistan[14] and one report from our country[15] also found malignancy as predominant cause of GOO and incidences were more higher than ours. Our study includes only endoscopic data of a single private diagnostic center in north eastern region of the country. Patients of all economic groups might not have access to private center.Again our sample size is also small which may explain this finding.

Vomiting is the main presenting symptom in our series which is consistent with other reports[10-15].

In our series GOO was more prevalent among males which is consistent with other reports[10,12-14,16]. Mean age of patients in our series is slightly higher than another report from our country[15], but slightly lower than Indian reports[12,14]. This variation may be due to difference between regional, social, economic and environmental differences.

Mean age of patients with GOO due to malignant cause in our series is higher than that of another Bangladeshi report[15], but lower than other reports[10,12,14]. Small sample size and regional difference might influence this findings.

On the other hand mean age of patients of GOO due to is slightly higher than report from India[14], but similar to that of another Bangladeshi report[15] as etiology of GOO, gastric cancer and chronic duodenal ulcer disease is higher among males in our series. It may be due to small sample size.In our study GOO including both malignant and benign causes was higher among males which is consistent with other reports[14-16]. It also signifies that diseases causing GOO are commoner among males[3].

In our series, corrosive ingestion and duodenal tuberculosis constituted small part which is consistent with other reports. Corrosive ingestion may be related to emotional factors which may be common in young people. As like other malignancy only one case of duodenal carcinoma in our series was also belonged to older age group.

Conclusion:

GOO is a challenging disease occurring due to both malignant and benign causes. It is more common among males. Antral gastric cancer is the emerging etiology followed by sequel of chronic duodenal ulcer disease. Other causes i.e. corrosive induced stricture, tuberculosis and duodenal cancer constitute small number of cases. Most of malignant causes occur in relatively older age group of patients.Overall benign and malignant causes of GOO are equal in our series which may be due to single private diagnostic center based study with small sample size.

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