

**A CLINICAL STUDY ON GASTRIC OUTLET OBSTRUCTION IN A SOUTH INDIAN TEACHING HOSPITAL**K. Sailaja<sup>1</sup>, G. Rajani Devi<sup>2</sup>, R. Mahalakshmi<sup>3</sup>, P. Balamurali<sup>4</sup>**HOW TO CITE THIS ARTICLE:**

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**ABSTRACT:** Gastric outlet obstruction is defined as a clinical and patho-physiological consequence of any disease process that produces a mechanical impediment to gastric emptying which may be extrinsic or intrinsic. Gastric outlet obstruction can be a diagnostic and treatment dilemma. Endoscopy of upper gastrointestinal tract has been a sensitive and specific investigation to study the status of gastric outlet -the pylorus and has enabled early detection of lesions of both stomach and duodenum. We undertook a prospective clinical study regarding incidence, etiology, investigation and management of cases of Gastric outlet obstruction in adults in a period of three years. In our study the most common cause of GOO is Carcinoma stomach antral region 46.6%, duodenal ulcer 33.3%, corrosive acid ingestion sequel 8.3%, peri ampullary carcinoma 6.6%, Ca pancreas 3.3%%, cholangio Carcinoma 1.6%. Males are more commonly involved in a ratio of M: F=3:1. Surgical procedures done varied from definitive resections to palliative bypass or feeding jejunostomy for enteral feeding.

**KEYWORDS:** Biopsy, CECT-abdomen, Follow-up, Gastric outlet obstruction, Prognosis, Surgical management, UGI endoscopy.

**INTRODUCTION:** Clinical entities that predispose to impaired pyloric emptying and Gastric Outlet Obstruction are generally categorized into two well-defined groups on the basis of etiology as-benign and malignant.<sup>(1)</sup> This classification facilitates discussion of management and treatment. In the past, when acid peptic disease was more prevalent, benign causes were the most common due to chronic cicatrization of duodenum.<sup>(2)</sup> One review shows that only 37% of patients with Gastric Outlet Obstruction have benign disease and the remaining patients have obstruction secondary to malignancy.

The major benign causes of gastric outlet obstruction (GOO) are Acid peptic disease with cicatrizing duodenum, ingestion of caustics with pylorus scarring, congenital duodenal webs, Gastric polyps, Gallstone obstruction (Bouveret syndrome), pancreatic pseudocysts, and bezoars.

Malignant tumors that may obstruct the gastric outlet include: Carcinoma in pylorus and antrum of stomach(advanced), carcinoma of Ampulla of Vater, malignant growths of Duodenum, and malignant growth or stricture in distal common bile duct.<sup>(3)</sup>

The clinical presentation are: 1. Projectile vomiting of undigested food consumed previous day, 2. Palpable hypertrophied stomach, 3. Visible gastric peristalsis. In a later stage, patients may develop significant weight loss due to poor caloric intake.<sup>(4)</sup> Malnutrition is a late sign, but it may be very profound in patients with concomitant malignancy. In the acute or chronic phase of obstruction, repeated vomiting may lead to dehydration and electrolyte imbalance. When

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obstruction persists, patients may develop significant and progressive gastric dilatation. The stomach eventually loses its contractility. Undigested food accumulates and may present a constant risk for aspiration pneumonia. Prolonged vomiting causes loss of hydrochloric (HCl) acid and produces an increase of bicarbonate in the plasma to compensate for the lost chloride and sodium. The result is a hypokalemic hypochloremic metabolic alkalosis. Alkalosis shifts the intracellular potassium to the extracellular compartment, and the serum potassium is increased factitiously.<sup>(5)</sup>

Availability of Proton Pump Inhibitors as the blocking drugs for H<sup>+</sup>K<sup>+</sup> ATPase final common pathway of acid secretion since 1970s and radical treatment of Helicobacter Pylori since 2003, have effectively treated the benign acid-peptic disorder. Thus chronic pyloric cicatrization has become a rare cause in the recent times. However corrosive strictures, polyps, webs and Gastrointestinal stromal tumours and Bezoars form the benign cause for Gastric outlet Obstruction. In 15-25% of patients pancreatic adenocarcinoma with extension to the duodenum or stomach is a common cause of malignant GOO.<sup>6,7,8</sup>

Majority of patients presenting with GOO eventually require surgical intervention. Surgical intervention usually provides definitive treatment of GOO.

The most common surgical procedures performed related to chronic duodenal ulcer are vagotomy and antrectomy, vagotomy and pyloroplasty, truncal vagotomy and gastrojejunostomy, pyloroplasty. Vagotomy and antrectomy with Billroth II reconstruction (gastrojejunostomy) seem to offer the best results. Vagotomy and pyloroplasty and pyloroplasty alone, although used with some success, can be technically difficult to perform due to scarring at the gastric outlet.<sup>(9)</sup> A combination of balloon dilatation and highly selective vagotomy has been described, but it is associated with gastroparesis and a high recurrence rate.<sup>(10)(11)</sup>

Malignant growths in antrum and pylorus need distal radical gastrectomy with gastrojejunostomy.<sup>(12)</sup> Palliative drainage procedure of gastrojejunostomy remains the surgical treatment of choice for unresectable growths. Self-expandable metallic stents also have been used for the treatment of GOO in a malignant setting.<sup>(13)</sup> Metallic stents are in use to treat strictures of bile duct, esophagus. Wallstent, FDA approved can be tried for palliation in malignant gastroduodenal obstruction in patients unfit for anesthesia. Significant complications of stent are: malposition, tumor ingrowth or overgrowth, migration, bleeding, and perforation.<sup>(14)</sup>

**STUDY DETAILS:** A prospective study.

**Time Period:** from 2011-2015

**Institute:** Government General Hospital, Rangaraya Medical College, Kakinada.

**No. of Patients:** 60, Male: 43, Female: 17.

Ethics committee clearance and patient consent have been taken.

### OBSERVATIONS AND RESULTS:

Out of 60 cases studied 35 are due to malignant causes out of which 28 are due to Carcinoma stomach, 7 due to other malignancies; 20 cases are due to cicatrizing duodenal ulcer, 5 cases of corrosive acid ingestion with cicatrizing pyloric stenosis as sequelae.

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ETIOLOGY	NO. OF CASES	PERCENTAGE
Ca stomach	28	47%
Cicatrizing ulcer	20	33%
Corrosive acid ingestion	5	8%
Periampullary	4	7%
Ca head of pancreas	2	3%
Cholangio carcinoma	1	2%
<b>Total</b>	<b>60</b>	<b>100%</b>

**TABLE 1: ETIOLOGY**

Most of cases presented in the 5<sup>th</sup> decade of life followed by 6<sup>th</sup> decade. Both malignant and benign etiologies were high in this age group.

AGE DISTRIBUTION	NUMBER	%
21-30	4	6.6%
31-40	12	20%
41-50	7	11.6%
51-60	23	38.3%
61-70	10	16.6%
71-80	4	6.6%

**TABLE 2: AGE DISTRIBUTION**

Out of 60 cases studied 43 cases are males and 17 females with male to female ratio of 3:1. In carcinoma stomach male to female ratio 2:1 and chronic duodenal ulcers are seen in ratio of 6:1.

SEX	NUMBER	Ca STOMACH	DU	OTHERS
MALE	43(71.6%)	19	17	4
FEMALE	17(28.8%)	9	3	3

**TABLE 3: SEX DISTRIBUTION**

Vomiting and epigastric pain are the most common symptoms in this series. The most common clinical features of GOO include vomiting, epigastric pain, abdominal distension and weightloss. Vomiting being spontaneous, projectile and non-bilious seen in 100% patients of cicatrizing ulcer and Ca stomach. Bilious vomiting is found in GOO due to periampullary ca and ca head of pancreas. Other symptoms include anorexia (64%), weight loss (64%), hematemesis (40%), malena (25%).

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<b>SYMPTOM</b>	<b>NUMBER</b>	<b>%</b>
Vomiting	60	100%
Pain	49	81.6%
Anorexia	31	56%
Weight loss	33	60%
Hematemesis	16	29%
Malena	12	22%
Jaundice	9	16%

**TABLE 4: SYMPTOMS**

Visible gastric peristalsis is seen in 30 cases accounting to 63% of total cases. Dehydration is other common presentation seen 54% of cases followed by anemia in 53% of cases. Succussion splash is heard in 36% of cases palpable mass in 25% of cases and ascites in 15% of cases.

<b>SIGNS</b>	<b>NUMBER</b>	<b>%</b>
VGP	35	63%
Pallor	29	53%
Dehydration	30	54%
Succussion splash	20	36%
Palpable mass	14	25%
Ascites	8	15%

**TABLE 5: SIGNS**

Truncal vagotomy and gastrojejunostomy is done 19 cases (34%) of cases. Distal gastrectomy with billroth II reconstruction is done in 13 cases of ca stomach 23% of total cases. Palliative gastrojejunostomy is done in 14 cases (25%). Total gastrectomy in 1 case feeding jejunostomy in one case. Palliative gastrojejunostomy with hepatico Jejunostomy is done in 6 cases and one case palliative cholecystojejunostomy with gastrojejunostomy done.

<b>PROCEDURE</b>	<b>Ca STOMACH</b>	<b>DUODENAL ULCER</b>	<b>Corr. Acid Ingestion</b>	<b>OTHERS</b>
GJ +TV	0	19(31.6%)	0	0
DG+B-II	13(21.6%)	0	0	0
Total gastrectomy	1(1.6%)	0	0	0
Palliative GJ	14(23.3%)	0	0	0
Palliative posteriorGJ	0	0	5(8.3)	0
Feeding jejunostomy	0	1(1.6%)	0	0
Palliative GJ + HJ	0	0	0	6(10%)

**TABLE 6: SURGICAL PROCEDURES**

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**DISCUSSION AND ANALYSIS:** The commonest cause of GOO is malignancy which is seen in 35 cases (58.3%) of which 28(46.6%) are due ca stomach and 7(11.6%) are other malignancies and second common cause being cicatrizing duodenal ulcer seen in 20 cases (33.3%).

ETIOLOGY	PRESENT STUDY	JAKA et al	ESSOUN & DABUKO	RANKA KSHITIZ et al
	%	%	%	%
CA STOMACH	46.6	42.9	55	59
CDU	33.3	28.3	25	22.5
OTHERS	20	28.8	13.8	18.5

**INCIDENCE IN VARIOUS STUDIES**

AGE DISTRIBUTION	PRESENT STUDY	ESSOUN & DABUKO	RANKA KSHITIZ et al	JAKA et al
	%	%	%	%
21-30	7	1.8	5	6
31-40	12	11.2	7.5	14.1
41-50	12	23.3	17.5	20.7
51-60	41	18.6	40	23.9
61-70	18	28.9	30	12
71-80	7	9.3	0	3.8

**AGE DISTRIBUTION IN VARIOUS STUDIES**

STUDIES	SEX	PERCENTAGE OF GOO	CA STOMACH	DU
		%	%	%
PRESENT STUDY	MALE	71.6	67	85
	FEMALE	28.8	33	15
RANKA KSHITIZ ET AL	MALE	70	73	66
	FEMALE	30	27	33
JAKA ET AL	MALE	66.3		
	FEMALE	33.7		
ESSOUN & DABUKO	MALE	68.22		
	FEMALE	31.77		

**SEX DISTRIBUTION**

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SYMPTOMS	PRESENT STUDY	RANKA KSHITIZ et al	JAKA et al
	%	%	%
VOMITING	100	100	100
PAIN	80	89	56
ANOREXIA	56	84	
WEIGHT LOSS	60	84	93
HEMATEMESIS	29		
MALENA	22	35	

**DISTRIBUTION OF SYMPTOMS IN GOO**

SIGNS	PRESENT STUDY	JAKA et al
	%	%
VGP	63	
PALOR	53	80
DEHYDRATION	54	54.9
SUCCUSSION SPLASH	36	78.3
PALPABLE MASS	25	25

**DISTRIBUTION OF SIGNS**

PROCEDURE	PRESENT STUDY	RANKA KSHITIZ et al	ESSOUN & DABUKO
	%	%	%
GJ +TV	34	12	25
DG+B-II	23	38	13
TOTAL GASTRECTOMY	2	0	0
PALLIATIVE GJ	25	28	30
FEEDING JEJUNOSTOMY	2	10	0
PALLIATIVE GJ + HJ	10	0	0

**SURGICAL PROCEDURES DONE**

### SUMMARY:

- 1) Most common cause of Gastric outlet obstruction is malignancy 64% of which Ca stomach 51%, periampullary carcinoma 7%, Ca pancreas 3%, Cholangio Carcinoma 1.5% and most common benign cause is duodenal ulcer 36%.
- 2) Males are more commonly involved M>F=3:1.
- 3) Most common presenting symptoms are vomiting and pain abdomen, and signs being anemia, dehydration and VGP.
- 4) Smoking and alcohol are associated with Ca stomach.

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- 5) VGP and Succussion splash are more observed in benign cause than malignant.
- 6) 14(25%) cases of GOO present with mass per abdomen. Presence of mass favors malignancy.
- 7) 14(50%) cases of Ca stomach were resectable by the time they develop GOO. Remaining were inoperable and underwent palliative procedure.
- 8) The surgical procedure done in all the cicatrised duodenal ulcer patients is truncal vagotomy and posterior gastro jejunostomy and there were no recurrence of symptoms in any of the cases on follow up till date.
- 9) Periampullary carcinomas and Ca pancreas developing GOO is inoperable cases and so underwent palliative procedure and indicates poor prognosis.

### CONCLUSIONS:

- The present study gives an insight into presentation of GOO and its etiology.
- Commonest cause of GOO in adults is carcinoma stomach followed by cicatrizing duodenal ulcer, thus there is a shift in incidence from benign to malignant etiology.
- GOO is common in males in 5th decade.
- Corrosive acid injury is to be followed up periodically and repeated endoscopies help to evaluate benign gastric outlet obstruction.
- Upper GastroIntestinal tract Scopy is the investigation of choice.
- Malignant GOO had poor prognosis and mostly palliation procedures are done. It focuses on the fact that there is delayed presentation with patients of upper gastro intestinal malignancy.
- Upper Gastrointestinal Scopy can be proposed as a screening modality to identify the condition at an early stage. Availability of UGI scopy in a tertiary care centre with teaching hospital is an asset for evaluation.
- Neo-dyspepsia should form one of the important indication for screening scopy evaluation.
- Basic training of surgeons in Endoscopy helps to cater to the needs of patients and helps in early detection of suspicious gastric ulcers and antral growths.

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