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General Surgery

A CLINICO PATHOLOGICAL STUDY ON GASTRIC OUTLET OBSTRUCTION IN AN ADULT POPULATION ATTENDING TERTIARY CARE HOSPITAL, KURNOOL

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ABSTRACT

BACKGROUND: Gastric outlet obstruction is a group of clinico-pathophysiological consequence of mechanical impediment of gastric emptying. Clinical entities that can result in gastric outlet obstruction are characterized into benign and malignant causes. The proximal stomach is now the most common site for gastric carcinoma in the west, but in Japan and developing countries like India, the distal gastric cancer (antrum 13% and pylorus 7%) still predominates. Diagnosis of gastric outlet obstruction depends on different features and specific investigations. The definitive treatment involves surgical relief of gastric outlet obstruction. The correct surgical procedure to be adopted is planed according to the cause of obstruction and condition of patients. This is an observational study aimed for characterization of gastric outlet obstruction in terms of benign and malignant and their relation to its causes, sites and other related factors in the tertiary care centre (GOVERNMENT GENERAL HOSPITAL, KURNOOL).

METHODS: This is an observational study of 30 patients of gastric outlet obstruction admitted in the Department of Surgery GGH KURNOOL. The provisional diagnosis was based on detailed clinical history, thorough physical examination, and some radiological examinations.

RESULTS: a majority of patients of gastric outlet were malignant lesions of the stomach, and very few are benign. Antral carcinoma of the stomach was found to be commonest etiology of gastric outlet obstruction followed by pyloric stenosis secondary to acid peptic disorders. Most of the patients were in the age group 40 to 60 years. Males were affected more than females.

CONCLUSION: Gastric outlet obstruction in adults, a surgical problem of either sex, results commonly due to antral carcinoma or pyloric stenosis secondary to acid peptic disorder.

KEYWORDS : Carcinoma of the stomach, Malignant, and benign gastric outlet obstruction, Peptic ulcer disease.

INTRODUCTION :

Gastric outlet obstruction is a group of clinico-pathophysiological consequence of mechanical impediment of gastric emptying. Clinical entities that can result in gastric outlet obstruction are categorized into two well- defined groups of causes - benign and malignant.

In the past when peptic ulcer disease was more prevalent, benign causes were the most common, however, the scenario has changed dramatically with the advent of potent medical treatments like H2 receptor antagonists, proton pump inhibitors and other drugs, reducing the incidence of peptic ulcer and its complications substantially. At the same time, the incidence of antral carcinoma of stomach producing gastric outlet obstruction has comparatively increased, which may due to increased early diagnosis of the condition with the help of flexible fiber optic endoscope.

The procedure of choice is truncal vagotomy and posterior gastrojejunostomy. An alternative procedure is highly-selective vagotomy with posterior gastrojejunostomy where propulsive activity of antrum is preserved. Other option is truncal vagotomy with pyloroplasty. [1,2,3.]

The patients who have identifiable cause that could be treated with balloon dilations have long term results with median of 5 dilatations. Dilatations with lifetime acid suppression have good long term results.[3.]

This study has been taken up to review the changes in the presentation of gastric outlet obstruction in view of changing trends in the management because of new drugs and investigatory modalities in adult population attending to government general hospital, Kurnool.

AIMS AND OBJECTIVES :

1) To identify the causes of Gastric outlet obstruction in the adult population admitted in the Department of General Surgery, Government General Hospital, Kurnool.
2) To evaluate the diagnostic methods and management strategies of Gastric outlet obstruction in adults.

MATERIALS AND METHODS :

This dissertation is based on the study of 30 cases of gastric outlet obstruction in adults due to various causes. Patients for the study were selected from the surgical units of Kurnool Medical College and Govt. General Hospital during the period from june 2017 to July 2019.

The pre-requisites for selecting a patient in this study were as follows.

1) One or more of the following clinical features ; projectile vomiting, especially persistent vomiting of undigested food; gastric succussion splash heard 3-4 hours after the last meal ; visible gastric peristalsis or presence of a palpably distended and hypertrophied stomach.
2) Fasting overnight gastric aspirate more than 200 c.c.
3) Saline load test (Goldstein) : The volume of saline remaining half an hour after instillation of 750 ml of 0.9% solution. Any volume more than 250 ml. was considered significant.
4) Upper Gastro intestinal endoscopydemonstration or Radiological demonstration of gastric outlet obstruction.
5) Demonstration at operation of gross narrowing of the gastric outlet.

After admission of the patient a detailed clinical history was taken. Physical examination was carried out in detail, noting the state of hydration and nutritional status. Particular attention was paid to abdominal examination for the presence of visible peristalsis, tenderness, palpable masses and succussion splash. Saline load test performed bedside in every patients Upper Gastro Intestinal Endoscopy was done in all the cases to confirm the diagnosis . Barium meal study was also taken up in all cases. Other routine investigations which were carried out in all patients included Hemoglobin percentage, Blood grouping, Blood urea, serum creatinine, serum electrolytes, stool examination, urinalysis etc. Anemia and hypoporteinuria were corrected using Blood transfusion.

Anaesthesia: General Anaesthesia.
Surgery : All the surgical findings were recorded meticulously.
Post – operative management: The patients were managed by Ryle's tube aspiration and Intravenous fluids till the stomach recovered its

normal tone and bowel sounds appeared. Oral feeding with fluids was then commenced, solids being given later. Early ambulation was encouraged, especially in elderly patients. Routine antibiotics were given during the immediate post operative period.

OBSERVATION AND RESULTS :

The present study is a clinico-pathological study of gastric outlet obstruction in an adult population attending to Government General Hospital, Kurnool. 30 cases of gastric outlet obstruction studied between periods of June 2017 to July 2019 has been selected for the study.

Out of 30 cases, 18 cases (60%) had malignant growth in the antrum and 12 cases (40%) had cicatrised duodenal ulcer as the cause for gastric outlet obstruction. Of 30 patients, 18 cases (60%) are in 40- 60 years age group, minimum age being 32 years and maximum age being 74 years. In present study, out of 30 patients, 23 patients (76.6%) are males and 7 patients (23.33%) are females.

Among the patients presented with gastric outlet obstruction, vomiting is the predominant symptom present in 28 patients (93.33%) followed by loss of weight in 26 patients (86.66%), loss of appetite in 26 patients (86.66%). Abdominal distension is most common sign noted in 19 patients (63.33%) out of 30 patients and 26 patients (86.66%) are noted with pain. Out of 30 patients subjected to barium meal examination , filling defect noted in 12 patients (40%) and huge dilatation of stomach noted in 24 patients. Out of 30 patients subjected to upper gastrointestinal endoscopy , mass or growth is noted in 18 patients (60%) and cicatrized ulcer noted in 12 patients (40%)

Table-1 : Investigations

Investigations	No of cases	Malignancy	Ulcer
(a) Barium meal	**30**		
Filling defect	12 (40%)	12(40%)	0
Huge dilatation	24(80%)	11(36.66%)	13(43.33%)
(b) UGIE	**30**		
Mass or growth	18(60%)	18(60%)	0
Cicatrised ulcer	12(40%)	0	12(40%)

Surgical operations :

18 patients (60%) of gastric outlet obstruction is operated with Billroth II operation and 12 patients (40%) is operated with truncal vagotomy with gastrojejunostomy.

Postoperative complications:

In 30 cases operated for gastric outlet obstruction, 4 cases (13.3%) has showed wound infection and respiratory tract infections are seen in 3 patients (10%)

Fig-1 : Gastric cancer of antrum

Fig-2 : Pyloric stenosis due to cicatrised duodenal ulcer

DISCUSSION :

Gastric outlet obstruction implies complete or incomplete obstruction of the distal stomach, pylorus, or proximal duodenum. This may occur as an obstructive mass lesion, external compression or as a result of obstruction from acute enema, chronic scarring, and fibrosis or a combination of both. Gastric outlet obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions.

In our study 30 cases of gastric out let obstruction was observed. The disease is spread from minimal age of 32 years to maximum age of 74, but most of the patients are between the 40 to 60 years accounts to 18 (60%) ,of them 12 cases (40%) are due to antral malignancy , and 6 patients (20%) are due to cicatrized ulcer. In the present series, 23 cases (76.6%) are males and 7 cases (23.3%) are females. The male: female ratio is approximately 3:1. Out of these, 13 male cases (43.3%) are due to antral malignancy and 10 cases (33.3%) of cases are due to cicatrized ulcer . In female cases, out of 7 cases (23.3%) , 5 cases (16.66%) are due to antral malignancy and 2 cases (6.66%) are due to cicatrized ulcer. The cause of more cases in low socioeconomic group might be irregular diet habits which seemed to contribute to disease process.

Alcohol consumption present in 20 cases (66.6%), of which 11 cases (36.66%) shown malignancy symptoms and 9 cases (30%) shown ulcer symptoms. Tobacco chewing present in 23 cases (76.66%) , of which 13 cases (43.33%) shows malignancy symptoms and 10 cases (33.33%) shown ulcer symptoms. These points to the commonly observed fact that a higher incidence of the use of alcohol and tobacco is seen in these patients and are significant risk factors

In present series, out of 30 patients, 28 patients (93.33%) are shown vomiting as the main symptom . Of these , 16 patients (53.33%) were having malignancy and 12 patients (40%) were having duodenal ulcer. Pain in upper abdomen is seen in 25 patients (83.3%) . Among them, 15 cases (50%) are due to malignancy and 10 patients (33.3%) are due to duodenal ulcer .Loss of weight observed in 26 patients (86.6%). Of these, loss of weight seen in 15 cases (50%) were due to malignancy and 11 cases (36.6%) were due to duodenal ulcer. Loss of appetite is seen in 26 patients (86.6%). Of these, 16 cases (53.3%) were due to malignancy, and 10 cases (33.3%) were due to duodenal ulcer. Constipation was present in 10 cases (33.3%). Of these , 6 cases (20%) were having malignancy and 4 cases (13.3%) were having duodenal ulcer. Lump abdomen was seen in 18 cases (60%) . of these, 8 cases (26.6%) were having malignancy and 10 cases (33.3%) were having duodenal ulcer.

Heaviness in upper abdomen after having meal was seen in 16 cases (53.3%). Of these, this symptom was present in 6 cases (20%) of malignancy cases and 10 cases (33.3%) of duodenal ulcer cases.

Table-2: Presenting Symptoms

Symptoms	Present study (30)			Kumar A et al [4]
	Malignancy	Ulcer	No of cases	
Vomitings	16 (53.33 %)	12 (40 %)	28 (93.33 %)	92%
Pain upper abdomen	15 (50 %)	10 (33.33 %)	25 (83.33 %)	88%
Loss of weight	15 (50%)	11 (36.66 %)	26 (86.66 %)	44%
Loss of appetite	16 (53.33 %)	10 (33.33 %)	26 (86.66 %)	48%
Constipation	6 (20 %)	4 (13.33 %)	10 (33.33%)	72%
Lump abdomen	8 (26.66 %)	10 (33.33%)	18 (60 %)	60%
Heaviness in upper abdomen after taking meal	6 (20 %)	10 (33.33 %)	16 (53.33 %)	52%

Table –3 : Signs

Signs	Present study			Kumar A et al [4]
	Malignancy	Ulcer	No of cases	
Abdominal distension	12 (40 %)	7 (23.33 %)	19 (63.33 %)	-
Succussion splash	6 (20 %)	6 (20%)	12 (40 %)	56%
VGP	9 (30 %)	9 (30 %)	18 (60 %)	60%
Pallor	14 (46.66 %)	12 (40 %)	26 (86.66 %)	-
Palpable mass	5 (16.66 %)	0	5 (16.66 %)	64%
Hepatomegaly	2 (6.66 %)	0	2 (6.66 %)	-
Ascites	2 (6.66 %)	0	2 (6.66 %)	-

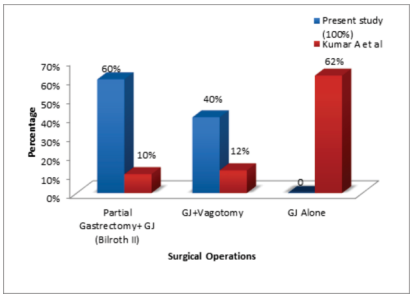
All the cases in present series was subjected to barium meal x-ray of stomach and duodenum. In out of 30 cases, 12 cases shown filling defects which all are cases of antral malignancy and huge dilatation of stomach is seen in 24 cases (80%) , of which 11 cases (36.6%) due to antral malignancy and 13 cases (43.3%) are due to cicatrized duodenal ulcer.

All the 30 cases are subjected to upper gastrointestinal endoscopy , of which 18 cases (60%) have shown growth or mass and all the cases are due to malignancy and 12 cases (40%) have shown cicatrized duodenal ulcer. [5]

According to **Godadevi and reddystudy ,** in barium meal examination, 57% of cases are showing filling defects and 42.8% of cases are showing dilated stomach. Upper gastrointestinal endoscopy is done in all the cases , 52% cases diagnosed as antral growth and 46% of cases diagnosed as cicatrized duodenal ulcer.

In the present series , all 18 cases (60%) diagnosed as antral carcinoma are treated with partial gastrectomy with gastrojejunostomy in all 12 cases(40%) and in cicatrized duodenal ulcer cases treated with truncal vagotomy and gastrojejunostomy.

According to **Kumar A et al [4] study,** 62% of cases were treated with gastrojejunostomy alone . of them , 40% treated with anterior gastrojejunostomy with malignant lesions and 8% cases are having benign lesions. 14% cases are treated with posterior gastrojejunostomy , 10% are treated with partial gastrectomy and 12% cases are treated with truncal vagotomy with gastrojejunostomy.



Graph – 1: Treatment

In the present series , 4 cases (13.33%) of patients developed wound dehiscence and 3 cases (16%) developed upper respiratory tract infection. No anastomotic leak is observed.. According to **Kumar A et al,** 4.7% cases developed wound dehiscence and 2.3% cases developed respiratory tract infections. No anastomotic leak is seen in these series.

SUMMARY :

Gastric outlet obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions. This study has been taken up to review the changes in the presentation of gastric outlet obstruction in view of changing trends in management because of new drugs and investigatory modalities. The clinical material for the study is taken up from Kurnool Medical College and hospital, Kurnool, during June 2017 to July 2019 consisting 30 cases. A brief introduction and historical review of incidents happened in case of gastric outlet obstruction have been presented with detailed review . In the present series, case discussed in aspects of age and sex distribution, food habits and socioeconomic status and personal habits of patients. A detailed history about symptoms, presenting signs and investigations was noted . Then patient was offered treatment with available options and post operative follow up has been done. Majority of the patients are lost to follow up after 3 months and an attempt has been made to compare the results with previous studies.

The following findings has been made through the study:
60% of the cases are belonged to age group of 40 – 60 years. Men outnumbered female patients with 3:1 ratio. Low socioeconomic group is the most affected. Smoking, tobacco chewing , addiction to more than one observed in most of the cases . Majority of the patients showing vomiting as the predominant symptom. Abdominal distension is the most common sign followed by visible gastric peristalsis. All the patients are subjected to upper gastrointestinal endoscopy. Antral malignancy cases were treated with partial gastrectomy with gastrojejunostomy, and cicatrized duodenal ulcer cases were treated with truncal vagotomy and gastrojejunostomy

CONCLUSION :

Since the study has been based on a small number of cases, with a limited follow-up, it is rather difficult to come to definite conclusions. However, some of the conclusions which can be drawn from this series are as follows:

- The most common causes of gastric outlet obstruction in adults are carcinoma stomach with antral growth producing gastric outlet obstruction are 18 cases (60%) and cicatrized duodenal ulcer are 12 cases (40%) An aggressive investigative approach in the very beginning in all cases of dyspepsia above 40 years will probably help diagnosing many of gastric malignancy cases before they produce the gastric outlet obstruction because majority of the patients are from 40 to 60 years age group.In the vast majority of cases, the diagnosis can be established clinically. Upper gastrointestinal endoscopy should be mandatory in all suspected case of gastric outlet obstruction. It can diagnose the cause of obstruction very effectively than any other investigative modality The incidence of cicatrized duodenal ulcer is decreasing as the cause of gastric outlet obstruction and antral malignancy is increasing.Early diagnosis and effective treatment in cases of carcinoma stomach reduces morbidity and increases the survival rate.

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