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Gastric Outlet Obstructions and its Management in a Tertiary Care Hospital

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Abstract

Background: Gastric Outlet Obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions. In adults, mechanical obstruction due to ulcers, tumors or gastric polyps are common causes of gastric outlet obstruction. Until introduction of effective ulcer therapy duodenal ulcer was the commonest cause of gastric outlet obstruction and malignancy was attributed to only 20% of the cases. ***Objectives:*** To study the modes and presentation of presentation of gastric outlet obstruction among patients suffering from Duodenal ulcer diseases. ***Materials and Methods:*** A Hospital based Prospective study was conducted at Tertiary Care Centrefrom October 2017 to September 2019. A total of 100 cases of Gastric outlet obstruction were diagnosed during the study period. An elaborate study of these cases with regard to the history, clinical features, routine and special investigations, pre-operative treatment, operative findings, postoperative management and complications in post-operative period is done. ***Results:*** A total of 100 cases with gastric outlet obstruction were analyzed in our study. Out of the 100 cases with gastric outlet obstruction, 28 (28%) were diagnosed with cicatrizes duodenal ulcer and 72 (72%) of them had carcinoma antrum. Majority of the study subjects presented with pain, vomiting and anorexia on admission. Pallor was seen in nearly 68% of the study subjects followed by 56% of the cases with VGP and 54% with succession Splash. Only 28% of the subjects had palpable mass on palpation. ***Conclusion:*** Upper Gastro intestinal endoscopy should be mandatory in all suspected cases of gastric outlet obstruction. It can diagnose the cause of obstruction very effectively than any other investigative modality. Effective treatment in carcinoma stomach depends on early diagnosis.

Keywords: Gastric Disease; Outlet Obstruction; Endoscopy; Ulcer.

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Introduction

Gastric Outlet Obstruction implies complete or incomplete obstruction of the distal stomach, pylorus or proximal duodenum. This may occur as an obstructing mass lesion, external compression or as a result of obstruction from acute edema, chronic scarring and fibrosis or a combination of both.[1]

Gastric outlet obstruction is not a single entity; it is the clinical and pathophysiological consequence of any disease process that produces a mechanical impediment to gastric emptying.

Gastric Outlet Obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions. In adults, mechanical obstruction due to ulcers, tumors or gastric polyps are common causes of gastric outlet obstruction.[2] Until introduction of effective ulcer therapy duodenal ulcer was the commonest cause of gastric outlet obstruction and malignancy was attributed to only 20% of the cases. But, now in the

era of H2 blockers and proton pump inhibitors, incidence of duodenal ulcer has been decreasing as symptomatic ulcer begin to respond to medical treatment, although this has not reflected to changes of complication like bleeding and perforation.[3]

This study has been taken up to review the changes in presentation of gastric outlet obstruction in view of changing trends in the management because of new drugs and investigatory modalities.

Objectives

To study the modes and presentation of presentation of gastric outlet obstruction among patients suffering from Duodenal ulcer diseases.

Materials and Methods

A Hospital based Prospective study was conducted at Tertiary Care Centrefrom October 2017 to September 2019. A total of 100 cases of Gastric outlet obstruction were diagnosed during the study period.

Inclusion Criteria

- Patients presenting with gastric outlet obstruction who are treated on inpatient basis.
- Patients willing for investigations and treatment.

Exclusion Criteria

- Patients aged 20 years and below.
- Patient with recent history of any abdominal surgeries.

An elaborate study of these cases with regard to the history, clinical features, routine and special investigations, pre-operative treatment, operative findings, postoperative management and complications in post-operative period is done.

In history, details were noted about presenting complaints, duration, history of acid peptic disease, features of metabolic disturbances, occupation and personal history including diet, bowel and bladder habits, smoking and alcoholism.

Thorough analysis of the findings of physical examination done, which included hydration status, VGP, mass, succession splash, hepatomegaly and ascites. Associated conditions like anemia, hypertension and diabetes were managed before surgery with physician's advice wherever required.

Hemoglobin level, bleeding time, clotting time, routine urine examination, chest screening, ECG, blood grouping, fasting and post prandial blood sugar, blood, urea, serum creatinine, serum electrolytes were estimated as a part of general work-up for surgery. Special investigations like Upper GI Endoscopy, USG abdomen, CECT abdomen were done.

Management of Cases

Pre-operative treatment included correction of dehydration, metabolic status, anemia, IV H2 blockers; liquid diet and antacids were given along with twice a day stomach wash for a minimum of three days. According to the investigation reports and operative findings, definitive surgery was undertaken.

Surgeries performed

- Truncal vagotomised with gastrojejunostomy
- Billroth II gastrectomy.
- Billroth II gastrectomy with feeding jejunostomy.
- Posterior Gastrojejunostomy.
- Total gastrectomy with Roux-en-Y anastomosis.
- Anterior gastrojejunostomy alone.
- Anterior gastrojejunostomy with limbal anastomosis.

Anaesthesia

For all cases general anesthesia was given.

Post–operative management

The patients were managed by Ryle's tube aspiration and Intravenous fluids till the 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. Regular monitoring of the temperature, pulse, respiratory rate and blood pressure was done.

Results

A total of 100 cases with gastric outlet obstruction were analyzed in our study. Out of the 100 cases with gastric outlet obstruction, 28 (28%) were diagnosed with cicatrizes duodenal ulcer and 72 (72%) of them had carcinoma antrum.

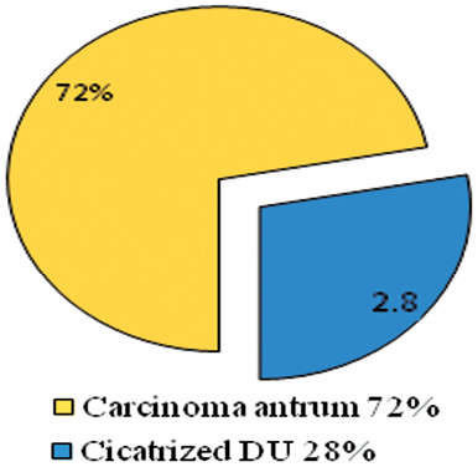


Fig. 1: Causes of Gastric Outlet Obstruction.

Table 1: Demographic characteristics of the study subjects.

		Frequency	Percentage
Age group	20-29	2	2%
	30-39	6	6%
	40-49	20	20%
	50-59	38	38%
	60-69	26	26%
	70-79	8	8%
Gender	Male	72	72%
	Female	28	28%
Occupation	Labourer	44	44%
	Farmers	32	32%
	Housewife	24	24%
Diet	Mixed	90	90%
	Veg	10	10%
Smoking	Present	68	68%
	Absent	32	32%
Alcohol Present	Present	66	66%
	Absent	34	34%

In our study the majority of the cases were in the age group of 50 years and above. Nearly 72% of the subjects were male. 90% of patients were taking mixed diet and 10% patients were taking vegetarian diet. 78 patients (78%) had history of irregular diet habits.

68% of the patients were smokers in this series and 32% were non–smokers. 66% of the patients in this series gave history of consuming alcohol.

Table 2: Signs and Symptoms of the patients presenting as Gastric outlet obstruction.

		Total Number of Cases	Percentage
Symptoms	Pain	96	96%
	Vomiting	96	96%
	Anorexia	84	84%
	Weight loss	72	72%
	Post prandial fullness	68	68%
	Melena	64	64%
	Constipation	48	48%
Signs	Pallor	68	68%
	VGP	56	56%
	Succussion Splash	54	54%
	Palpable mass	28	28%
	Dehydration	62	62%

Majority of the study subjects presented with pain, vomiting and anorexia on admission. Pallor was seen in nearly 68% of the study subjects followed by 56% of the cases with VGP and 54% with succession Splash. Only 28% of the subjects had palpable mass on palpation.

Table 3: Distribution of blood group in Gastric Outlet Obstruction.

Blood Group	Total Number of Cases	Percentage
A	48	48%
B	12	12%
AB	6	6%
O	34	34%

The blood group A was found to be most common blood group among all the study subjects with 48% followed by O blood group of 34% and B group of 12% and AB was seen in only 6% of the study subjects.

Done in all cases. 72 cases of pyloric carcinoma diagnosed and confirmed with biopsy. 28 had cicatrized duodenal ulcer.

Ultra-sonographic examination was Done in all cases. Carcinoma pyloric region with ascites was present in four cases. Ascites with liver secondaries was present in 2 case. The rest showed normal study. In present series, all patients were subjected

to serum electrolyte estimation, out of them 18 patients showed electrolyte imbalance.

All patients underwent pre-operative treatment to get the optimum metabolic status. The pre-operative treatment included liquid diet, liquid antacid and intravenous ranitidine. Stomach wash using no 16 Ryle's tube with normal saline was given twice a day for three days' prior surgery.

Table 4: The types of surgical Procedures underwent by the patients.

Procedure	Number of Cases	Percentage
Truncal vagotomised with Gastrojejunostomy for Duodenal Ulcer	28	28%
Billroth II gastrectomy	6	6%
Roux-en-Y anastomosis after total gastrectomy	8	8%
Anterior gastrojejunostomy with limbal anastomosis	32	32%
Billroth II gastrectomy with feeding jejunostomy	16	16%
Anterior gastrojejunostomy	10	10%

In our study Truncal vagotomy with Gastrojejunostomy was performed on all the 28 cases which had duodenal ulcers, Billroth II gastrectomy was done in 6 cases and Roux-en-Y anastomosis after total gastrectomy was perfomed on 8 cases. Anterior gastrojejunostomy with limbal anastomosis was done on nearly 32 cases. Billroth II gastrectomy with feeding jejunostomy was done on 16 cases and Anterior gastrojejunostomy was performed in 10 cases.

All the patients were kept nil orally and on Ryle's tube aspiration for duration varying from 3 to 10 days. Oral sips were allowed after removal of Ryle's tube. IV fluids were stopped on the 5th to 10th post-operative day and patients started on semisolid diet. The patients were put-on broad-spectrum antibiotics, intravenous H2 receptor blockers and analgesics.

Post-operative complications

Wound infection developed in two patients who were treated by repeated dressing and appropriate antibiotics. In four patients' respiratory tract infection developed which was treated by chest physiotherapy and review of antibiotics. 30 patients of antral carcinoma were treated postoperatively by chemotherapy with 5-fluoro uracil. Rest of the patients had an uneventful post-operative period. Post-operativehospitalization ranged from 7 to 40 days with an average of 11 days.

Discussion

The commonest cause of gastric outlet obstruction is carcinoma of pyloric antrum. The next commonest cause is cicatrized duodenal ulcer. These observations reveal that the incidence of gastric outlet obstruction secondary to chronic duodenal ulcer has come down while that of malignancy has relatively increased.

In this study most, patients were in the sixth and seventh decade. In chronic duodenal ulcer cases the maximum incidence seen in the age group of 31-40 years. The average age being 47.52 years with a span from 22 to 73 years. Men outnumbered women by 10.5:1. In the series of Fisher et al.[4] the average age was 54 with a span from 20–89 years and men outnumbered women by 2:1.

52% of the patients were manual laborers who gave a history of irregular diet habits, which seemed to contribute to disease process. The series of Donald D. Kozoll and Karl A. Meyer[5] also showed the same pattern with the non-skilled day laborer group listed most frequently with obstruction.

In this series 68% of patients had history of smoking and 66% had history of alcohol intake. Donald D. Kozoll and Karl A Meyer[5] reported this to be 76.2 and 52.3% respectively. This points to the commonly observed fact that a higher incidence of use of alcohol and tobacco is seen in these patients and are significant risk factors.

Post–prandial vomiting and epigastric pain are the main symptoms (96%) in this series. Vomiting is usually spontaneous and projectile type containing partially digested food particles. Other symptoms included anorexia (84%), weight loss (72%), post prandial epigastric fullness (68%), haematemesis (24%), melena (64%) and constipation (48%). In the series of Michael L. Schwartz et al.[6] post prandial vomiting was the commonest symptom (91%). Other symptoms included epigastric pain (86%) and weight loss (52%).

In the series of Yogiram and Chowdhary[7] epigastric pain was the commonest symptom (87%). Other symptoms included post–prandial vomiting (80%) and constipation (30%). Keith A. Kelly[8] in his series, reported intractable vomiting and weight loss in 54% of patients and upper gastro intestinalhemorrhage in 34%. Weight loss was seen in 59.5% of patients in the series of Donald D. Kozoll and Karl A. Meyer[5] and 32% in the series of Harvey J, Dworken and Harold P. Roth.[9] Thus weight loss seemed to be significant in patients with pyloric obstruction and this points to the long standing nature of the disease and the need for

proper pre-operative nutritional supplementation in these patients.

The surgical procedures done in our study were based on type, stage and site of the disease. All the surgical procedures done in our study were as per the standard protocols.[10-12]

Conclusion

The commonest causes of gastric outlet obstruction in adults are carcinoma stomach with antral growth producing gastric outlet obstruction (52%) and cicatrized duodenal ulcer (46%). majority of cases, the diagnosis can be established clinically. Upper Gastro intestinal endoscopy should be mandatory in all suspected cases of gastric outlet obstruction. It can diagnose the cause of obstruction very effectively than any other investigative modality. Effective treatment in carcinoma stomach depends on early diagnosis.

References

1. Samad A, Whanzada TW, Shoukat I: Gastric outlet obstruction: change in aetiology. Pak J Surg 2007, 23:29–32.
2. Tendler DA: Malignant gastric outlet obstruction: bridging another divide. Am J Gastroenterol 2002, 97:4.
3. Suerbaum S, Michetti P: Helicobacter pylori infection. N Engl J Med 347:1175, 2002
4. Fisher et al., 1967, Obstructing peptic ulcers results of treatment, Arch. Surg., Vol. 945
5. Kozoll D.D and Meyer K.A., 1964, Obstructing gastroduodenal ulcers: symptoms and signs, Arch. Surg., 89:491
6. Schwartz M.C. et al., 1982, Gastric outlet obstruction in peptic ulcer disease, an indication for surgery, Am. J. Surg., 143:90.
7. Yogiram B. And Choudhary N.V.S. 1983 Jan, "Duodenal (ulcer) stenoses in Andhra Pradesh: A ten year study", Indian Journal of Surgery p. 12.
8. Kelly K.A. et al., Post operative gastric atony after vagotomy for obstructing peptic ulcer, Am. J. Surg., 1989, 89:491.
9. Dworken, Harvey J. And Roth, Harold P., Pyloric obstruction associated with peptic ulcer. A clinicopathological analysis of 158 surgically treated cases, JAMA, 1962; 180:12-85,1007.
10. Ellis H. et al., Surgery of the stomach and duodenum, 4th edition, Little Brown Publications, Boston, 1986, p. 475.
11. Michael P. Jones, KalyaniMaganti, A systematic review of surgical therapy for gastroparesis; The American Journal of Gastroenterology 98, 2122-2129 (October 2003).
12. Way Lawrence W. Et. Al., current surgical diagnosis and treatment, 11th edition, Appleton and Lange, Connecticut, chapter 24, 2003. P 533.