



A STUDY OF CASES OF GASTRIC OUTLET OBSTRUCTION: OUR EXPERIENCE

General Surgery

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ABSTRACT

This is a prospective observational study comprising of 40 cases of gastric outlet obstruction with an aim to understand the incidence, causation, medical and surgical management of gastric outlet obstruction cases and surgical outcomes. The patients for the research have been selected from Gandhi medical hospital Secunderabad Telangana attached to Gandhi medical college from August 2016 to August 2018. The surgical treatment of gastric outlet obstruction varies in different clinical scenarios depending on the patient's pathology and general condition. Prompt correction of dehydration, electrolyte imbalance, anaemia with definitive surgical procedure is the main stay of treatment in cases of gastric outlet obstruction.

KEYWORDS

Gastric outlet obstruction, electrolyte imbalance, Carcinoma pyloric antrum

INTRODUCTION:

Gastric outlet obstruction is more often placed immediately proximal to the pyloric sphincter in carcinoma or more distally in the duodenal bulb in a duodenal ulcer cicatrixation. The patients commonly present with hypokalemic, hyponatremic metabolic alkalosis due to loss of significant amounts of acidic fluids in vomitus.

This study has been taken up to review the medical and surgical procedures in management of gastric outlet obstruction cases in a tertiary care teaching hospital.

MATERIAL AND METHODS:

This is a prospective observational study comprising of 40 cases of gastric outlet obstruction. The patients for this research have been selected from Gandhi medical hospital attached to Teaching Institute Gandhi medical college from August 2016 to August 2018.

The cases are selected who are willing to undergo surgery with following inclusion and exclusion criteria.

Inclusion Criteria

Adult patients with gastric outlet obstruction due to

- Carcinoma Pyloric antrum,
- Peptic ulcer disease,
- Corrosive acid ingestion.

Exclusion Criteria

- Paediatric age group.
- Adult patients with
 - Hypertrophic pyloric stenosis in adults
 - Gastroduodenal tuberculosis
 - Benign neoplasm of the stomach
 - Extrinsic compression of the stomach by pancreatic cysts, tumours, hydatid cyst, and other pathologies causing obstruction.

MANAGEMENT:

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

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

Thorough physical examination was done, which included hydration status, visible gastric peristalsis (VGP), mass, succussion splash, hepatomegaly and ascites.

Routine investigations as a part of general work-up for surgery were done. Special investigations like serum electrolytes, barium meal study, upper GI endoscopy with biopsy and ultrasonography of the

abdomen and pelvis were done. The clinical presentation along with upper GI endoscopy biopsy mainly helped to confirm the diagnosis.

MANAGEMENT OF CASES

In adults pre-operative treatment included correction of dehydration, electrolyte imbalance, metabolic alkalosis. Isotonic saline replacement was done for the correction of dyselektrolytemia. It restored the volume of extracellular fluid and plasma, and hence renal blood flow. Potassium supplementation was done with reference to serum K⁺ levels.

Blood transfusion for the correction of anaemia, i.v 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:

- Gastric carcinoma: Partial gastrectomy with Billroth II reconstruction or Anterior gastrojejunostomy alone depending on the staging.
- Post duodenal ulcer cases: Truncal vagotomy with posterior gastrojejunostomy.
- Corrosive acid ingestion: Billroth I, Billroth II, Posterior Gastrojejunostomy were done.
- Postoperatively patients were monitored with Ryle's tube aspiration, temperature, pulse, blood pressure monitoring, electrolyte supplementation. Orals were resumed on the return of the bowel sounds. Potassium supplementation was given from 40-100 milli equivalents per day, according to need with not more than 20 milliequivalents per hour.
- Adults were kept nil orally for 4-5 days and oral sips were allowed after the removal of Ryle's tube and gradually shifted to solids from semi-solids.
- Sutures were removed by 8-10 days after operation.
- The follow-up period ranged from three months to six months.

RESULTS:

INCIDENCE: The maximum number of cases of gastric outlet obstruction were observed in cases of carcinoma of pyloric antrum followed by peptic ulcer disease and corrosive acid ingestion. Refer fig 1.

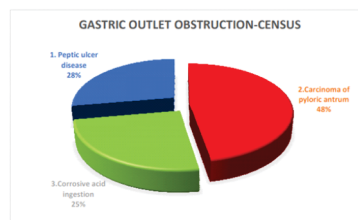


FIGURE 1: INCIDENCE OF GASTRIC OUTLET OBSTRUCTION AS PER CAUSE.

The age incidence of the patients in this study ranged from 22 to 65 years with a mean of 46.6 years. Maximum age incidence was between 40-49 years (54.54%). The youngest patient having duodenal ulcer obstruction was 22 years. Male to female ratio noted in our study was 4:1.42 %of patients were smokers and 55% gave history alcohol consumption.

SYMPTOMS:

Vomiting was the main symptom in all the patients; vomitus contained mainly undigested food and was non-bilious.

Abdominal pain was the next main symptom. It was mainly in the upper abdomen. It was present in 20 out of 40 patients. Pain was of continuous nature, getting aggravated by food and relieved by vomiting.

Serum Electrolytes:6(54%) of duodenal ulcer and 10(52%) patients of carcinoma pyloric antrum showed hypokalemia, 4(21%) of carcinoma pyloric antrum,4(36%) of duodenal ulcer showed hyponatremia. Electrolyte and fluid correction was done accordingly. Refer figure 2.

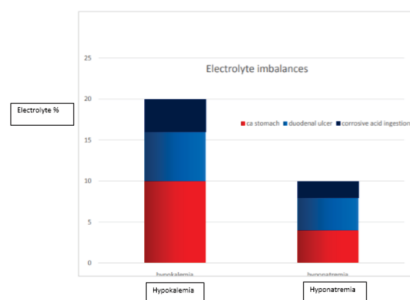


Figure 2..Incidence of hypokalemia and hyponatremia in Gastric outlet obstruction.

Surgical procedures: Vagotomy with gastrojejunostomy was done for post peptic ulcer strictures, palliative anterior gastrojejunostomy in 63.1%cases of carcinoma antrum, Billroth resection for 80% of the cases of the corrosive acid ingestion cases .Refer table 1.

TABLE 1. Surgical procedures in gastric outlet obstruction cases.

	Procedure	Number of cases	Percentage
1.	Duodenal ulcer cases:		
	Truncal vagotomy with posterior gastro Jejunostomy	10	90.9
	Lap truncal vagotomy with anterior gastro jejunostomy	1	9.1
2.	Carcinoma antrum cases:		
	Billroth II gastrectomy	7	36.8
	Palliative Anterior gastrojejunostomy	12	63.1
3	Corrosive acid ingestion		
	Billroth I	4	40
	Billroth II	4	40
	Posterior GJ	2	20

Postoperative Complications: Wound infection developed in five patients, who were treated by repeated dressing and appropriate antibiotics. In three patients, respiratory tract infection developed which was treated by chest physiotherapy and review of antibiotics. One patient of gastric carcinoma died due to renal failure. Rest of the patients had an uneventful postoperative period. Postoperative hospitalization ranged from 8 to 12 days with average of 10 days. Follow up for a period of 3 months to 6 months was done

DISCUSSION:

In this study conducted over a period of two years, the incidence of Carcinoma pyloric antrum as the cause of gastric outlet obstruction was more common than cicatrized duodenal ulcer, while in study by Harold Ellis¹ series and Balint Spence² series incidence of gastric outlet obstruction secondary to cicatrized duodenal ulcer⁷ was more common than Carcinoma Pyloric Antrum. The values in our study are close to the values observed by Tejas A. P. et al³ which were Carcinoma stomach with antral growth and cicatrized duodenal ulcer (both 41.5%) were the most common cause of gastric outlet

obstruction, similar to Debabrata Singha at all¹ series where out of 70 cases, 42(60%) cases had malignant growth in the gastric antrum ,24(34%) cases had cicatrized duodenal ulcer.

Misra et al⁸ reported higher incidence of carcinoma as a cause of obstruction. The incidence of gastric outlet obstruction secondary to cicatrized duodenal ulcer in Ballint and Spence study² is 80.5%.

Post – prandial vomiting in all cases(100% incidence) and abdominal pain are the main symptoms observed in our study . In the series of Michael L. Schwartz et al.⁵ post prandial vomiting was the commonest symptom (91%). Other symptoms included epigastric pain (86%) and weight loss (52%) in the series of Yogiram and Chowdhary⁶

ELECTROLYTE IMBALANCES

In this series,50% had hypokalemia,25% had hyponatremia. In Tejas A. P., et al series³, 29(70.7%) patients had abnormal serum electrolytes (hyponatremia, hypokalemia and hypochloremia) of which, 88.3% (15 of 17 patients) of duodenal ulcer had abnormal serum electrolytes and 8 of 17 (47.1%) patients of carcinoma pyloric antrum showed electrolyte imbalance. Electrolyte disturbance is more pronounced in outlet obstruction secondary to ulcer disease than the malignancy in in Tejas A. P., et al series³. In the series of Maichel L Schwartz⁵ electrolyte imbalance was present in 30%.

SURGICAL PROCEDURES

In the present series, 100% of cicatrized duodenal ulcer patients underwent truncal vagotomy with gastrojejunostomy, of which one case was done by laparoscopy,anterior gastrojejunostomy whereas rest of patients were operated with posterior gastro jejunostomy. 94.1% patients of Cicatrized duodenal ulcer underwent truncal vagotomy with posterior gastrojejunostomy and 5.9% underwent truncal vagotomy with antrectomy Tejas A. P., et al series³.

In carcinoma antrum cases, 7 patients (36.5%) underwent Billroth II gastrectomy and 12 patients (63%) underwent anterior gastrojejunostomy. 4 cases (21%) underwent Roux-en-Y anastomosis after total gastrectomy while 15 cases (78.9%) underwent Anterior gastrojejunostomy with limbal anastomosis.

Where as in Tejas A. P., et al series³,58.8% patients of carcinoma stomach, underwent distal gastrectomy with ante-colic Roux-en-Y gastro- jejunostomy, 12.1% patients underwent subtotal gastrectomy with ante-colic and Roux-en-Y gastro jejunostomy and 4.8% patients underwent palliative gastrojejunostomy, most common surgical operation done was Truncal vagotomy with posterior gastro-jejunostomy for cicatrized duodenal ulcers followed by Billroth II gastrectomy for antral carcinoma in Debabrata Singha at all series⁴.

In this series Bilroth I was done in 40% of cases of corrosive acid ingestion , which was similar to Tejas A. P. et al series³ ,in which Billroth I gastrectomy was done for corrosive antral stricture.

CONCLUSION :

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 when compared and contrasted to the other similar studies. Preparation of the stomach and correction of fluid and electrolyte imbalances in the preoperative period is a must prior to surgery for gastric outlet obstruction.

- Prompt correction of dehydration, electrolyte imbalance in postoperative period is the main stay of treatment in cases of gastric outlet obstruction which would further result in early post-operative recovery.

Patients with gastric outlet obstruction due to cicatrized duodenal ulcer require truncal vagotomy with posterior gastrojejunostomy. Antral carcinoma cases require curative or palliative surgery depending on the stage of the disease, corrosive acid ingestion require Bilroth I, Bilroth II or a Roux-en-y gastro jejunostomy

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