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A CLINICAL STUDY OF GASTRODUODENAL PERFORATIONS

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ABSTRACT

Introduction: Duodenal perforation is one of the most common surgical emergencies. An acute perforation is estimated to occur in 2% to 10% of patients with duodenal ulcer. Perforation is one of the important complications of duodenal ulcer. Duodenal perforation currently accounts for approximately 75% of peptic ulcer perforation. Of note, the mortality rate for perforated ulcer is high in elderly and after gastric than after duodenal perforation. Based on this aim of our study is to study the incidence, age and sex distribution of gastro duodenal perforation, also to study the etiology and clinical features of gastro duodenal perforations, different surgical techniques in the management and factors influencing the outcome of the patients. **Materials and Methods:** This study was conducted in the Department of General Surgery, Tirunelveli Government Medical College Hospital, Tirunelveli, 91 cases of Gastro intestinal perforations were studied during our study period. The diagnosis was established by the Emergency Surgeon provisionally, based on the clinical presentation and supporting radiological evidence, in the ward, and definitive diagnosis established at the time of operation. Based on the time interval between the hospital admission and surgery, the surgery was categorized into, Immediate, Same day, Delayed. Operative details were noted. Tissue biopsies for histologic confirmation were taken in appropriate case. Mortality was defined as death following surgery. Patients with traumatic perforations, Oesophageal perforation/rupture, and other perforation were excluded. **Results and Conclusion:** Duodenal ulcer perforation was the commonest cause of gastrointestinal perforation with a male preponderance. Smoking and alcohol were aggravating factors. Simple closure with omental patch with thorough peritoneal toileting was very much effective. Definitive ulcer surgery was not warranted in the emergency and treatment with H_2 blockers and H. pylori eradication achieved good control over the disease in the follow up period. The prognostic indicates were early hospitalization, adequate fluid replacement and no co-existing medical illness. Closure of recent advances in closing duodenal peroration by laparoscopy and by other means, still simple closure with omental patch is widely practiced in the study group. The most common post-operative complication was wound infection. Deaths were due to septicemia and cardiac arrest.

INTRODUCTION

Gastro duodenal Perforations represent one of the most common acute abdominal emergencies in the surgical field. Differences in the clinical presentation of Gastro duodenal perforations vary from the typical severe acute abdominal pain at one end, to subtle or no symptoms in the hospitalized patients for unrelated illness at the other end[1]. The various atypical presentations that mimic other abdominal conditions throw a real challenge over the diagnosis to the emergency surgeon.

Duodenum is the first, widest and most fixed part of small intestine. It is 10 inches in length, has no mesentery and partially covered by peritoneum. The most common cause of duodenal perforation is peptic ulcer disease with life time incidence of 10%[2]. Peptic ulcer disease is result of imbalance of acid secretion and mucosal defense mechanism. Gastrointestinal perforation constitutes the third most common cause of explorative Laparotomy as an emergency.[3] More than 90% of patients with peptic ulcer disease are infected with H.Pylori and those not associated with H.Pylori are due to alcoholism, smoking, non-steroid anti- inflammatory drugs, defective duodenal acid defense mechanism. Sudden sloughing of unsupported portion of floor of ulcer leads to perforation secondary to slow process of devascularization. Acute perforation can occur in acute and chronic duodenal ulcer. Perforation is common in anterior wall of duodenum due to spurting of gastric content on the anterior wall of duodenum.

A careful medical history, methodical clinical examination and radiological study play a major role in the early diagnosis of this acute abdominal emergency. There are multiple factors that influence the prognosis and outcome of the patient. Preoperative resuscitation,

intravenous administration of broad-spectrum antibiotics and good postoperative care are the mainstay in the management of Gastro duodenal Perforations. The operative management depends upon the cause of perforations.

Based on this aims of this study is to study the incidence, age and sex distribution of gastro duodenal perforation. To study the etiology and clinical features of gastroduodenal perforations. Also to study the different surgical techniques in the management and the factors influencing the outcome of the patients.

MATERIALS AND METHODS

This study was conducted in the Department of General Surgery, Tirunelveli Government Medical College Hospital, Tirunelveli, Ninety one cases of Gastro intestinal perforations were studied during the period of six months. The diagnosis was established by the Emergency Surgeon provisionally, based on the clinical presentation and supporting radiological evidence, in the ward, and definitive diagnosis established at the time of operation. Based on the time interval between the hospital admission and surgery, the surgery was categorized into, Immediate - Less than 4 hours, Same day - 4 to 24 hours, Delayed - more than 24 hours

Operative details included the site of the perforation, size of the perforation, nature and quantity of peritoneal soiling, the gross appearance of the bowel bearing the perforation and the nature of operation performed. Tissue biopsies for histologic confirmation were taken in appropriate case. Mortality was defined as death following surgery. Morbidity was defined in terms of duration of hospital stay and associated complications following surgery.

Following details were observed from the case sheets and clinical examination. Patients name, age, sex, clinical features and abdominal findings, delay in hours between admission and surgery Operative findings, Procedure done, Post operative complications, Duration of hospital stay

In our study all cases es of acute perforation due to peptic ulcer disease, Cases of traumatic perforations – both blunt and penetrating types. While cases of Oesophageal perforation/rupture, perforations of hepatobiliary system., iatrogenic perforation during laparotomy, and gynecological procedure. ileum and jejunal perforation., appendicular perforation and other locations were excluded. SPSS Version 20 was used for statistical analysis.

RESULTS

Ninety-one cases of Gastro duodenal perforations were studied, Majority of the cases of perforation were the complication of peptic ulcer disease. Anatomically perforations were more common in the duodenum. There were 79 cases of perforation as a complication of duodenal ulcer and rest were gastric ulcer.

Duodenal perforation were more common in the age group of 30-39 years. The youngest case was 17 years and eldest case was 80 years. Average was 44 years. Six female patients of duodenal perforation were inculded in the studywith the Male: Female Ratio of 12:1

Table 1: Pneumoperitoneum in Duodenal Perforation.

Gas under diaphragm	No. of cases	Percentage
Positive	63	79.75
Negative	16	20.25

The plain X-pay abdomen of 63 patients showed gas under diaphragm. In ours study group 16 patients had immediate surgery, 61 patients had surgery within same day and only 2 had delayed surgery.

Four cases had sealed perforations which were reinforced with omental patch. In 5 cases whose general condition did not warrant anesthesia bilateral flank drainage was done. For the other 70 cases, simple closure of the perforation using 2 0 vicryl with live omental patch (Graham‟s patch) was done. The Peritoneal soiling was less than 500 ml in 8 cases. The size of the perforation was $\geq$ 1 Cm in 13 cases. All the cases were advised to continue H_2 blockers or proton pump inhibitors and a course of H.pyroli eradication therapy.

Twelve patients developed post operative complications – wound infection (8 cases), right basal pneumonitis (2 cases), burst abdomen (1 case) and entero – cutaneous fistula (1 case), the fistula closed spontaneously with conservative management.

Table 2: Post-operative complications in duodenal perforation.

Complications	No. of cases	Percentage
Wound infection	8	66.66
Basal pneumonitis	2	16.66
Burst Abdomen	1	8.33
Entero-cutaneous fistula	1	8.33

In our study around 8 cases expired, 5 of which were the cases treated by flank drainage alone.

Coming to gastric perforations were found in 12 cases of the entire study group.most common age group was 50-60 years, 10 male cases and 2 female cases with a male : female ratio of 5 : 1were studied. Plain upright X- ray of the abdomen showed air under the diaphragm in 9 cases among these 12 cases.

Table 3: Operative procedure –morbidity and mortality.

Site	Operative	NO. of Cases	Morbidity	Mortality
Duodenum	Simple Closure with Omental Patch	71	12	3
Duodenum	Lap converted to open surgery Simple closure with omental patch	3	-	-
	B/L flank drain	5	--	5
Stomach	Simple Closure with Omental Patch	11	4	2
	Closure in 2 layers	1	1	--

Among 10 cases in the study expired due to the various reasons Six cases died of Septicemia and Four cases due to Sepsis with Hypovolemic Shock. Among the Ten cases one case was female. The deaths occurred usually on the 2nd or 3rd post-operative day.

DISCUSSION

Duodenal ulcer is a type of peptic ulcer disease that distresses the lining of the duodenum. Duodenal ulcer disease represents a worldwide health problem because of its high morbidity, mortality and economic loss. Globally, the incidence of peptic ulcer disease has fallen in recent years. Despite this and recent advances in both diagnosis and management of peptic ulcer disease, namely the improvement in endoscopic facilities, eradication of H. pylori and the introduction of the proton pump inhibitors, complications such as peptic ulcer perforation remain a substantial healthcare problem.

In this study of duodenal perforation in Tirunelveli Medical College and Hospital for a period of one year, the various etiological factors, adverse habits are taken into account and the various intra operative findings and complications of the patients are analyzed in the post operative period. These are summed up and compared with literature studies. Incidence of duodenal perforation was more in males compared to females in a ratio of 9:1. Elderly people were more prone for duodenal perforation than younger and middle aged. In previous studies too Perforation is usually seen in 3rd and 4th decades with a male preponderance and the epidemiological trend is not the same worldwide. Smokers had higher incidence of perforation than nonsmokers. Smoking and alcohol were aggravating factors and have been mainly implicated as strong independent risk factor in pathogenesis of peptic ulcer disease and its complication.[4] Smitha S Sharma et al[5] in the study of peptic ulcer perforation found an association of smoking and peptic ulcer perforation in 28 percent of patients, while 72 percent of patients were nonsmokers. ABMA Hannan et al,[6] showed that 13 percent of patients had NSAIDS used, whereas 87 percent were not taking NSAIDS. It has been estimated that more than 50% population is infected by H.pylori infection the most important factor responsible for peptic ulcer disease, so eradication of H.pylori can reduce the incidence of perforation.

Duodenal ulcer perforation was the commonest cause of gastrointestinal perforation with a male preponderance. More common in the fourth decade of life. Elderly people were more prone for duodenal perforation than younger and middle aged. While gastric perforations were common in the sixth decade.

Perforation was the first manifestation of peptic ulcer disease in a small percentage of patients. Shaffer et al,[7] found pnemoperitonium in 70% of the patients with duodenal ulcer whereas study done by Noola GS et al,[8] showed 91.67%. The role of nonsteroidal anti-inflammatory drugs as the cause of perforation was little in this study group. Radiological evidence of penumoperitoneum could not be established in nearly one third of the patients. Simple closure with omental patch with thorough peritoneal toileting was very much effective.

Definitive ulcer surgery was not warranted in the emergency and treatment with H_2 blockers and H. pylori eradication achieved good control over the disease in the follow up period.

The most common post-operative complication was wound infection. High complications rate was reported by Montalvo-Javé et al.[9] This difference in complication rates can be explained by differences in antibiotic coverage, meticulous preoperative care and proper resuscitation of the patients before operation, improved anesthesia and somewhat better hospital environment. In keeping with other studies surgical site infection was the most common complication.

Deaths were due to septicemia and cardiac arrest. The actual mortality was higher than the mortality in the study group since cases of delayed presentation with shock and septicemia did not warrant anesthesia and were exclude from the study group. The mortality rate was 11% mainly due to septic shock. Factors such as advanced age, pre operative shock, post operative sepsis and delay in presentation and operation have been identified as risk factors. There is a significant association between age of the patients and outcome. As the age of the patient increases the risk of mortality significantly increases. However, the presence of pre operative shock was found to be significantly associated with mortality.

CONCLUSION

The incidence of hollow viscous perforation is on raise due to increase in addiction habits such as smoking, alcohol, injudicious use of non-steroidal anti-inflammatory drugs, malnutrition and stress. Thus, life

style modification like abstinence from smoking and drinking alcohol can help reduce the disease burden.

BIBLIOGRAPHY

1. O' Ricordans Ds, O' Dwyer PJ, O' Higgins NJ. Perforated duodenal ulcerin elderly patients. J R Coll Surg Ednib, 1990; 35: 93-94.
2. David M. Mahvi and Seth B. Krantz., Stomach. In, Courtney M. Townsend. sbiston, Textbook of surgery the biological basis of surgical practice, 19th edition, Philadelphia, Elsevier, 2012; 1191-2.
3. Kellog LC. A treatise on peptic perforation. Surgery, 1939; 6: 524-30.
4. Smedley f, Hickisht, Taubem, Yale's,Leachr, Wastell. Perforated duodenal ulcer and cigarette smoking. Jrsoc med, 1988; 81: 92-4.
5. Sharma SS, Mamtani MR, Sharma MS, Kulkarni H. A prospective cohort study of postoperative complications in the management of perforated peptic ulcer. *BMC Surg*, 2006; 6: 8. Published 2006 Jun 16. doi:10.1186/1471-2482-6-8.
6. Hannan, A.A., Islam, B., Hussain, M.B., Haque, M.E., & Kudrat-E-Khuda, M. Early Complications of Suture Closure of Perforated Duodenal Ulcer: A Study of 100 Cases. *Taj: Journal of Teachers Association*, 2009; *18*: 122-126.
7. SCHAEFFER RL. Perforated gastric and duodenal ulcer; review of cases. J Int Coll Surg, 1950 Sep; 14(3): 333-8. PMID: 14774564.
8. Noola GS, Shivakumar CR. A clinical study of duodenal ulcer perforation. Int Surg J, 2016; 3: 711-3.
9. Montalvo-Javé EE, Corres-Sillas O, Athié-Gutiérrez C. Factors associated with postoperative complications and mortality in perforated peptic ulcer. Cir Cir, 2011 Mar-Apr; 79(2): 141-8.