A Study of Factors Influencing Prognosis in Perforated Peptic Ulcer.

Sudhir Kumar Mohanty¹, Ramakanta Mohanty²

¹Associate Professor, Department of Surgery, SCB Medical College, Cuttack, Odisha, India.
²Assistant Professor, Department of Surgery, SCB Medical College, Cuttack, Odisha, India.

Received: May 2017
Accepted: May 2017

ABSTRACT

Background: Aim: Peptic perforation is one of the commonest surgical emergencies met with but due to poor socioeconomic status, lack of health consciousness and want of diagnostic & treatment facilities at the peripheral healthcare level, they present considerably late most of the time. Our aim was to study the factors affecting prognosis.

Methods: A prospective review was made in all charts of parameters between the period June 2014 to Dec 2016. After admission detailed history was elicited from the patient and a thorough clinical examination was done and the available investigations were done to approach at the diagnosis. Long term follows up was done & patients lost to follow up were excluded from the study. Results: Gas was present under one or both domes of the diaphragm in 76 (89.4%) cases. In rest 9 (10.6%) cases no free gas under diaphragm was seen. In 77 cases (91.7%) perforation was present in the first part of duodenum (anterior or superior wall). 7 cases (8.3%) had perforation in the pyloric region. 25.7% cases had 1-5 mm size, 35.3% cases had 6-10 mm and 77% cases had perforation more than 10 mm diameter respectively.

Conclusion: Hence from the ongoing discussions it may be concluded that; a common surgical emergency called ‘perforated peptic ulcer’ is associated with a significant mortality. As the variables like age, perforation size and site, co-existent medical diseases are not changeable. It is early intervention that holds the key to lower the mortality of this otherwise fatal condition.

Keywords: Peptic Ulcer, Perforation.

INTRODUCTION

Perforation of peptic ulcer is one of the most dreaded complications which demands emergency surgical intervention virtually in every case. With a lot of lights already thrown on various aspects of this disease and with modern days safe anaesthesia & highly effective antibiotics,¹ Today though the outlook is not that gloomy, still the so called complete cure for every patient and individualisation of treatment modalities for each patient has eluded the surgeons. Today with a more critical appreciation of various aspects of this disease, it has been possible to achieve high cure rates in surgical management of perforated peptic ulcer. But still, diagnosing the condition early in its presentation, preventing or alleviating pre-operative shock and recognising concurrent medical illnesses holds the key to such good outcomes. Earlier, irrespective of the state of presentation; simple closure with omental patch was the standard accepted surgical practice.² But keeping the natural course of the disease in mind and considering the post-operative complications in such cases the balance has tilted in favour of definitive approach over the last two decades. Hence surgical procedures like, truncal vagotomy with gastro jejunostomy of pyloroplasty, parietal cell vagotomy and partial gastrectomy have emerged as the more preferable modalities in the treatment protocol of this disease as these procedures take care of original disease process.³ In this Institution, simple closure is done in patients with risk factors; definitive procedures being, undertaken where the condition of the patient is suitable and stable. In our Institution, peptic perforation is one of the commonest surgical emergencies met with but due to poor socioeconomic status, lack of health consciousness and want of diagnostic & treatment facilities at the peripheral healthcare level, they present considerably late most of the time.

MATERIALS AND METHODS

This study has been taken up on the cases of perforated peptic ulcer that have been admitted from casualty, Surgical O.P.D and also on perforation that have arisen as a complication while the patient was in the hospital for surgical treatment of peptic ulcer or taking medicinal treatment in medical ward. The
patients who were operated for some other indications and found to have peptic perforation were also included in the study. A prospective review was made in all charts of parameters between the period June 2014 to Dec 2016. After admission detailed history was elicited from the patient and a thorough clinical examination was done and the available investigations were done to approach to the diagnosis. Long term follow up was done & patients lost to follow up were excluded from the study. All the cases of perforated peptic ulcer were examined under the following proforma, Name, Age, Sex, Address, Occupation, regd. No., Date of admission and discharge/death, period of stay, complications, if any. The presenting complains with their time and duration were recorded in chronological order: pain, vomiting. The time of perforation was taken as suggested by sudden onset of abdominal pain. Duration of perforation denotes time from perforation to start of operation. Past history of Acid peptic disease, if present the duration & treatment received if any, ingestion of ulcerogenic drugs, alcohol, steroids, anti-arithmetic, analgesics etc., associated other illness (relating to the organ systems viz. HTN, DM, IHD, PTB etc.) Socio-economic status, single/married, addiction (Alcohol/smoking/Tobacco), dietary habit (type of diet and regularity Facial expression, Tongue, Anaemia, Pulse, Temperature, Blood Pressure, Respiration, other systems. All the cases were examined thoroughly eg. Inspection, Palpation, Percussion, Auscultation, per rectal digital examination, to arrive at a definite clinical diagnosis with an eye to exclude the other acute abdominal conditions by differential diagnosis.

**Investigations**

1) Blood - CBC, Blood sugar, Blood urea, Serum Creatinine & Bilirubin. Electrolytes, Serum Protein, Blood grouping & Rh typing in selected cases.
2) Urine - Routine & microscopic examination Culture & sensitivity if needed.
3) Plain X-Ray of abdomen - In erect posture including both domes of diaphragm/lateral decubitus.
4) Abdominal four quadrant paracentesis
5) Peritoneal fluid culture was done in all cases.

**Diagnosis**

Diagnosis was made by history and typical physical findings of peptic perforations; reinforced by investigations like plain X Ray of abdomen in erect posture and four quadrants peritoneal tap.

**Pre-Operative Measures**

After assessing the patient, early resuscitation was done by intravenous fluid infusion depending on individual case. Nasogastric aspiration & a broad spectrum antibiotic was started. All patients received an injection of 0.5ml of Tetanus toxoid on admission. The condition of the patient was reviewed at frequent intervals.

**Operative Findings**

After the patient was fully resuscitated, laparotomy was done by an upper midline or right upper paramedian incision under General Anaesthesia and the time of operation & operative findings were noted.

1) Peritoneal contents — bilious. fibrinous flakes, food particles, pus
2) Characteristics of the ulcer — Site, size, sealed or not, associated pathology in the form of bleeding, stenosis or malignancy

**Procedure**

Except very few critically ill patients almost all the cases were exposed for-surgical treatment. In patients undergoing surgery, perforation was closed with sutures (Vitryl 2.0) followed by omental patch. Primary definitive surgery (in the form of TV+GJ alone) was done in selected cases according to the following criteria: Patients fit to undergo a major surgical procedure, no frank pus in the peritoneum on laparotomy, Patients with outlet obstruction or in whom closure of perforation was to produce obstruction, Evidence of chronic duodenal ulcer in the form of history of ulcer dyspepsia of more than 3 months and/or fibrosis and scarring in pyloroduodenal region. Thorough peritoneal toileting was done & flank drainage in form of corrugated PVC drain was given in all cases.

**Post-Operative Management**

Patients were watched for recovery from anaesthesia and vital parameters were recorded at frequent intervals. Intravenous fluids were administered according to the requirement of the patients an antibiotics eg. ciprofloxacin, metronidazole started. Frequent Ryles tube aspiration was done to decompress the upper G.I tract. Daily thorough examination was done. Ryles tube was removed and oral fluids encouraged on return of bowel sounds usually after 48-72 hrs. Patients were encouraged for early ambulation & respiratory exercise. Any complication during this period was recorded and managed accordingly. After removal of stitches patients were discharged if found fit with the advice to attend the hospital for follow up.

**RESULTS**

**AGE**

In our series of 85 cases the highest incidence of peptic perforation was in the age group of 41 — 50 years being 28 (33.0%), next was in age group 51-60 yrs. Being 19(22.3%) and third was 31- 40 years i.e. 18 (21.2%). No case of perforation was recorded below 21 years and above 75 years in the series. The youngest patient was of 22 years and oldest of 75
Frequancy of positive culture with passage of time: +ve & gram -ve and then gram +ve only. 

Highest 17 (35.4%). Next in order were both gram polybacterial group, gram negative culture was the Streptococcus & Staphylococcus. Majority cases had found out were E. Coli. Klebsiella, Proteus, obtained in 48 (56.5%) cases. Type of organisms Peritoneal fluid culture: Positive culture was factors like age, duration of perforation preoperative association may not be absolute because other cases had 6-10 mm and 77% cases had perforation morbidity: 25.7% cases had 1-5 mm size, 35.3% size of perforation and related mortality & was 16 mm. Size of perforation and related mortality & morbidity: It was observed that mortality and immediate post-operative morbidity in the form of complication and hospital stay (> 14 days) increased with increase in diameter of perforation. 

Size of perforation and related mortality & morbidity: 25.7% cases had 1-5 mm size, 35.3% cases had 6-10 mm and 77% cases had perforation more than 10 mm diameter respectively. This association may not be absolute because other factors like age, duration of perforation preoperative shock, medical illness also come into play. Peritoneal fluid culture: Positive culture was obtained in 48 (56.5%) cases. Type of organisms found out were E. Coli. Klebsiella, Proteus, Streptococcus & Staphylococcus. Majority cases had polybacterial group, gram negative culture was the highest 17 (35.4%). Next in order were both gram +ve & gram -ve and then gram +ve only. Frequency of positive culture with passage of time: Only 25% of cultures were positive in patients with duration of perforation less than 12 hrs which increase to 31.3% in patients with duration of perforation thin 13-24 hrs, whereas positivity approached 100% in patients coming after 5 days. Relationship between culture and mortality: Majority (62.5%) in the mortality group had positive culture and all had polybacterial flora. In 37.5% cases there was mortality in spite of negative culture status. Effect of preoperative shock and coexistent medical illness on mortality: Out of the total 85 patients 22 (25.9%) patients had preoperative shock. In our series, 8 patients who died, all of them had preoperative shock (36.36%).

Patients with major coexistent medical illness and related mortality: Out of the 3 (3.5%) patients having cardiovascular disease 2 (66.7%) died. One had severe degree of hypertension and other had MS, MR, CHF. Three patients had respiratory disease in form of COPD and Br. Asthma. Two patients had both CVS & Respiratory diseases both of whom died. The number of cases treated by different procedures and the mortality there of: In our series only one case (1.2%) was treated conservatively. Due to severe degree of shock and associated medical illness. The patient died within 24 hrs of presentation to the hospital.

• Four types of operative procedure were employed in rest 84 (98.8%) cases.
• In 2 (2.4%) cases only toileting was done as the perforation was sealed. There was no mortality.
• In 46 (54.1%) cases simple closure of perforation with omental patch and peritoneal toileting and bilateral flank drainage was done. In this group 6 (13.0%) cases died.
• In 11 (12.9%) cases closure of perforation followed by gastojejunostomy was done. This procedure was applied in old patient died in this group.
• In rest 25 (29.4%) cases closure followed by Truncal vagotomy and gastrojejunostomy was done. This procedure was done in suitable and stable patients without any risk factor. There was no mortality in this group. Overall mortality in definitive surgery group was 1 out of 36 (2.8%) whereas mortality in those undergoing simple closure was 6 out of 46 (13.1%). [Table 1]

Relationship between the duration of perforation with different surgical procedures: Out of 36 cases who had undergone definitive surgery in 23 (63.9%) case the perforation was of more than 24 hrs duration with only 1 (4.3%) mortality. In these cases, patients had a stable haemodynamic status which is very important rather than duration of perforation. Status of operating surgeon versus mortality: Mortality is 10.5% in the group of cases operated by junior resident, 7 % in cases operated by senior resident surgeons and 12.5% in cases operated by consultants. Consultant’s participation was limited to a small number of complicated cases only.
Table: 1 Showing Post-Operative Complications in Different Treatment Groups.

| SL No. | Complication               | Defective Surgery | Simple Closure |
|--------|----------------------------|-------------------|----------------|
|        | No. of cases | % | No. of cases | % |
| 1      | Fever > 3 days | 2 | 5.6 | 4 | 8.3 |
| 2      | Chest infection  | 7 | 5.6 | 3 | 6.3 |
| 3      | Post-operative shock | - | - | 3 | 6.3 |
| 4      | Wound infection | 4 | 11.1 | 5 | 10.4 |
| 5      | Wound Dehiscence | 1 | 2.8 | 2 | 4.2 |
| 6      | Billiary Fistula | 2 | 5.6 | 5 | 10.4 |
| 7      | Diarrhoea | 1 | 2.8 | 4 | 8.3 |
| 8      | Post-operative obstruction | - | - | 1 | 2.1 |
| Total  | 12 | 33.3 | 28 | 58.3 |

Table: 2 Showing Duration of Hospital Stay In Different Treatment Groups.

| SL No. | Hospital stay | Definitive surgery | Simple Closure | Peritoneal toileting |
|--------|---------------|--------------------|----------------|----------------------|
|        |               | 7-14 days | 27 | 24 | 2 |
| 1      |               | 15-21 days | 7 | 11 | - |
| 2      |               | 22-28 days | 1 | 5 | - |
| 3      |               | Total     | 35 | 40 | 2 |

Follow UP

Patients undergoing definitive surgery were followed up and result assessed according to the Visick's grading system (Goligher's modification 1968).

Grade - I - System free-excellent result
Grade - II - Mild occasional systems controlled by minor adjustment in the diet-good result
Grade - III - Mild or moderate symptoms not controlled by diet but not seriously interfering with day-today work - satisfactory result.
Grade - IV - Moderate or severe symptoms or recurrence - Poor Result.

Out of 35 cases 26 (74.3%) cases have been classified to be having excellent result, 8 (22.9%) having good result, and 1 (2.8%) patient having satisfactory result till date.

Forty-two patients underwent either simple closure or conservative treatment and were given H2 Blockers or proton pump inhibitors post operatively and after discharge. They are being followed up till date and their complaints being noted under various headings viz. relapse of ulcer symptoms, haematemesis/ melena, pyloric stenosis and reperforation.

Follow up of patients undergoing simple closure/conservative treatment: Seventeen patients (40.5%) had relapse of ulcer symptoms within this period of follow up, out of which 7 cases underwent definitive ulcer cure surgery. Rest 10 cases put on medical management. 1 (2.4%) patient had pyloric stenosis, both of them underwent definitive surgery. [Table 2]

DISCUSSION

The present study is confined to 85 cases of perforated peptic ulcer who were treated in our Hospital from July 99 to June 2001, out of which. Males: Females - 9.62: 1, This male preponderance was marked by all workers. Age incidence peak - 41-50 yrs. Feliciano (1992) and Dev (1994) reported similar age incidence. Next in the incidence was the age group 51-60 yrs. Svanes (1993) in their retrospective study between. 35-90 showed that median age has increased from 41 to 62 years. This increase in age incidence, between 51-60 years in our study can be explained by the fact that young fit patients are being operated more and more in periphery hospitals and only old/complicated cases are being sent to this referral hospital. Above the age of 50 yrs mortality (25%) and postoperative complications were higher compared to those below 50 yrs (3.5%). Irvin TT (1989) and Blamergain (1997) found the mortality to be 30.35% in elderly patients. The highest incidence of perforation in the poor socio-economic status group (69.4%). This is due to their irregular dietary habits, addictions and lack of health consciousness. Similar observation has been made by Jones (1960) and Brozin (1977). Perforated duodenal ulcers have been classified into acute and chronic on whether there is a history of dyspepsia for less than or more than 3 months (Peel ALG 1981) which has been further modified by taking operative. findings of chronicity into account, thus allowing for the fact that duodenal ulcer may be an asymptomatic disease (Bailey & Love 1995). In our series previous ulcer history ranging from 1 to 15 years was present in 57.6% cases. Operative finding of chronicity could not be detected because of severe degree of surrounding inflammation due to late presentation. According to Christopher Watsell (1995), in 60% cases there is often a long history of peptic ulceration. This previous ulcer history decided the further course of surgical management. (Simple closure or definitive treatment). In our study, in majority (63.5%) of the patients duration of perforation ranged from 25-72 hrs. This delay in presentation is due to lack of health consciousness, want of facilities and poor economic status. As the duration of perforation increases it leads to increased severity of peritonitis and poor general condition of the patient. There was no death within 12 hrs which increased to 33.3% by 7 days. Similar increase in mortality & morbidity correlated to increase in
Mohanty & Mohanty; Perforated Peptic Ulcer

CONCLUSION

The mortality and morbidity were higher in elderly patients with prolonged duration of perforation, increased size of perforation, with presence of pre-operative shock, coexisting medical illness and positive peritoneal fluid culture while status of operating surgeon had no correlation with the outcome. The overall mortality was 9.4%. In the group of 46 patients undergoing simple closure, 19 had unsatisfactory result (recurrence of ulcer.
symptoms (hematemesis/ melena/pyloric stenosis) out of which 9 required definitive surgery while in the definitive surgery group all were asymptomatic till date. As the variables like age, perforation size and site, co-existent medical diseases are not changeable; it is early intervention that holds the key to lower the mortality of this otherwise fatal condition. Adequate pre-operative resuscitation to alleviate shock and coverage of broad spectrum antibiotics are a must as presence of preoperative shock and positive peritoneal fluid culture are associated with higher mortality and morbidity.

REFERENCES

1. Br . Medical Jurnal 58 ; 42 , 1971 . Avery Jones P. Parson's . White P. J. Aetiology of Duodenal ulcer .Br. Medical Journal 1 : 211 , 1952.
2. Auchincloss H. Immediate subtotal gastectomy for acute perforated peptic ulcer. Ann Surg 13 : 134 , 1952.
3. Aird Ian. A companion in Surgical Studies. Vol-2:733-740, 1958.
4. Anselline P. Perforated peptic ulcer : an analysis of 246 cases, Aust NZJ Surg 47:81-85, 1977.
5. Ananthakrishnan N Anganu K.Is ulcer recurrence ; after simple closure of perforated peptic ulcer predictable? Ind. J. Gastroent 12:80, 1993.
6. Ahallat M Baroudis. Renamar A. et al: place of super selective vagotomy in the treatment of perforated duodenal ulcer. J Ds Chirurgie 130:173, 1993.
7. Ananthakrishnan N : Controversies in the Management of Perforated Duodenal Ulcer. Recent advances in surgery Vol 5:107-118, 1995.
8. Booth RAD. Williams JA : Mortality of duodenal ulcer treated by simple suture.

How to cite this article: Mohanty SK, Mohanty R. A Study of Factors Influencing Prognosis in Perforated Peptic Ulcer. Ann. Int. Med. Den. Res. 2017; 3(4):SG25-SG30.

Source of Support: Nil. Conflict of Interest: None declared