



Intraoperative Findings in Patients of Peptic Ulcer Perforation: A Prospective Study in Correlation with Patient Outcome

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Abstract

Background: *Peptic ulcer perforation is an emergency and requires prompt diagnosis and urgent surgical intervention. Overall, peptic ulcer mortality and hospitalization rates have declined for the past two decades, but complications such as peptic ulcer perforation and bleeding remain a substantial health-care problem.*

Material and Methods: *A prospective 1-year study conducted in 116 cases of peptic perforation admitted in surgical wards of Sanjay Gandhi Memorial Hospital, Rewa M.P. during the study period June 2016-May 2017. All patients suspected of peptic perforation were admitted to surgery ward and underwent emergency exploratory laparotomy. Post-operatively H. pylori serological test to detect IgG antibody was done with patients blood serum. Their findings were recorded in a proforma and master chart. The information obtained was tabulated and analyzed.*

Results: *Incidence of peptic perforation was 116 (1.20%) cases of all surgical admissions, Most common site of peptic perforation was anterior wall of first part of duodenum in 61 (55.4%) cases, omentopexy was most common procedure done i.e. in 106 (91.37%) cases, overall Mortality was 15 (12.93%) cases.*

Conclusion: *Perforated peptic ulcer is a disease of middle aged adults. Delay in hospitalization due to initial treatment by homemade medicines and non availability of essential surgical care further complicates the perforation in this region.*

Perforation is diagnosed on clinical grounds immediately as patient reaches emergency department yet due to delayed hospitalization, time lost in resuscitation of the patient affects the outcome of standard surgical procedure. Selection of appropriate surgical procedure and postoperative care is helpful in early and uneventful recovery. Post operative H. pylori eradication therapy follow up endoscopic facilities in patients found positive for H. pylori can reduce recurrence rates and subsequently the burden of this disease.

Keywords: *Peptic ulcer perforation, intraoperative findings, Outcome.*

Introduction

Peptic ulcer perforation is a common life threatening emergency and requires urgent

surgical intervention.¹ Although the frequency of ulcer disease in general has declined, the number of patients affected by bleeding and perforation

has not changed significantly. The sudden release of gastric or duodenal contents into the peritoneal cavity through a perforation leads to a devastating sequence of events which if not properly managed, is likely to cause death. Studies have suggested that if signs of peritonitis are present the exploratory laparotomy should be done.² This should be done within 12 hours to avoid poor outcome.³ Various surgical options are available and choice depends on duration of peritonitis, size of perforation, past history of symptomatic peptic ulcer disease and co-morbid conditions.⁴ Prompt recognition of the condition is very important and only by early diagnosis and treatment it is possible to reduce the still relatively high mortality.

Material and Methods

The present study "Intraoperative Findings in Patients of Peptic Ulcer Perforation: A Prospective Study in Correlation with Patient Outcome" was carried out in 116 cases admitted in Surgical wards of Department of Surgery, Shyam Shah Medical College and associated Sanjay Gandhi Memorial Hospital Rewa during 1st June 2016 to 31st May 2017.

Patients of peptic perforation were admitted through casualty department, surgical OPD or transferred from other departments. Patients were diagnosed on clinical grounds with classical symptoms like epigastric pain, distension, vomiting, fever, not passing flatus and stools and not passing urine. Patients examined for signs of shock, dehydration. General examination was done for vital status, pallor, jaundice, edema, nutritional status and abdomen was examined for distension, tenderness, rigidity & guarding, obliteration of liver dullness, free fluid, absence of bowel sounds. Also complete personal history was obtained which includes smoking, alcoholism, tobacco chewing, analgesic abuse and history of other comorbidities. All findings were recorded in details.

Investigations like complete blood counts, LFT, RFT, Random Blood sugar, Coagulation Profile,

Blood Grouping, Serum electrolytes, X-ray chest and abdomen erect view was done. After resuscitation and stabilization of vitals, patient is prepared for surgery- Exploratory laparotomy was done to deal with pathology. Post-operatively H. pylori serological test to detect IgG antibody was done with patients blood serum. Patients who tested positive for H. pylori were given Anti H. Pylori Drug Therapy and those who tested negative were advised to take PPIs. Patients managed in wards post-operatively. Regular follow up done in SOPD.

All these data was recorded meticulously in proforma and in master chart for further systematic tabulation for observations and analysis.

Results

Total 116 patients of perforation were included in this study out of which 110 patient underwent exploratory laparotomy. Incidence of peptic perforation was 1.20% of all surgical admissions. Maximum number of peptic perforation cases were found in age group 31-40 years (20.68%). Peptic perforation was more common in male than female patients and male to female ratio was 13.5:1. Most common site of peptic perforation was anterior wall of first part of duodenum in 61 (55.4%) cases, followed by prepyloric region of stomach 47 (42.72%) cases and in body of stomach in 2 (1.81%) cases. The average size of perforation, in 94 (85.4%) cases was less than 1 cm, 1-3cm in 14 (12.72) cases and >3cm in 2 (1.81%) cases. Nature of peritoneal fluid was bilious in 92 (83.6%) cases, bilious + pus in 12(11%) cases and pus in 6 (5.4%) cases.

(Table-1). Serology for *H. pylori* infection was positive in 25 cases (41%) of duodenal perforation and in 11 cases (22.44%) of prepyloric perforation. Among *H. pylori* positive cases, in 69.4% cases site of perforation was first part of duodenum, and in 30.6% site of perforation was prepyloric area of stomach (Table- 2).

Table-1 Distribution of cases according to Intra Operative Findings

S. No.	Intra operative findings	No. of cases	Percentage(%)
1	Site of perforation		
	1 st part of Duodenum	61	55.4
	Prepyloric region	47	42.72
	Body of Stomach	2	1.81
2	Size of perforation		
	Upto 1 cm	94	85.4
	1-3 cm	14	12.72
	>3 cm	2	1.81
3	Peritoneal Fluid		
	Bilious	92	83.6
	Pus	6	5.4
	Bilious+ Pus	12	11

Table -2 Incidence of *H. pylori* positive cases in peptic perforation according to site of perforation

S. No.	Site of Perforation	Total Cases	No. of positive cases	Percentage(%)
1	First part of Duodenum	61	25	41%
2	Prepyloric area of stomach	49	11	22.44%

In present series, 110 cases underwent surgery out of which omentopexy was done in 106 (91.37%) cases, omentopexy with gastrojejunostomy was done in 3 cases(2.58%) and omentopexy with feeding jejunostomy was done in 1 case.

The commonest post operative complication was wound infection (41.8%) followed by Pulmonary complications (31.8%) (Table -3).

Table-3 Distribution of cases according to Postoperative complications

S. No.	Complication	Cases of Peptic Perforation	
		No. of cases	Percentage(%)
1	Pulmonary	35	31.8
2	Toxaemia	13	11.8
3	Renal	5	4.5
4	Cardiovascular	9	8.2
5	Neurological	5	4.5
6	Surgical Site		
	Wound infection	46	41.8
	Wound Dehiscence	13	11.8
	Burst Abdomen	4	3.6
	Biliary leak	3	2.72
7	None	9	8.2

Intraperitoneal contamination was more in patients presented to hospital after 72 hours of onset, these patients also had more postoperative complications and more mortality.

Biliary leak seen in 3 cases, out of which Re-operation done in 2 cases. Among 3 cases:-

One patient presented with biliary leak on 3rd postoperative day, patient was in septicaemic shock, his general condition was poor and was not a suitable candidate for re-exploration, patient expired on postoperative day 5.

In other 2 patients, re-exploration was done. In one case, primary closure of peptic perforation

with Gastrojejunostomy was done. In other case primary closure with gastrojejunostomy with feeding jejunostomy was done as that patient was already in a state of prolonged fasting and early enteral feeding needed for faster postoperative recovery.

Overall Mortality was 15 (12.93%) cases. Mortality was more in 61-80 years age group (24%). Mortality was maximum (19.04%) in cases presenting >72 hours after onset of symptoms (Table-4).

Table- 4 Mortality of cases in relation to duration of onset of symptoms to presentation at hospital

S. No.	Duration	Total cases	Total Death	Percentage(%)
1	<24 hours	21	2	9.52
2	24-72 hours	53	5	9.43
3	>72 hours	42	8	19.04
	Total	116	15	12.93

Average hospital stay was maximum (22 days) in patients treated by omentopexy with Gastrojejunostomy with feeding jejunostomy. Average hospital stay was 6.8 days in patients

treated conservatively and about 10.6 days in patients treated with omentopexy. Overall average duration of stay was 10.54 ± 5.90 days (Table-5).

Table-5 Distribution of cases according to Hospital Stay

S. No.	Procedure done	No. of cases	Avg. Stay(in days)
1	Conservative	6	6.8
2	Operative	110	10.5
	Intraperitoneal drainage followed by Exp. Lap.	13	15.1
	Omentopexy	106	10.6
	omentopexy with Gastrojejunostomy	3	14
	omentopexy with Gastrojejunostomy with feeding jejunostomy	1	22

Discussion

Perforation peritonitis is a frequently encountered surgical emergency. Perforated peptic ulcer is a serious complication of PUD with potential risk of grave complications.

Incidence of peptic perforation was 1.20% of all surgical admissions. Dakubo (2009) reported an incidence of 1.6% of peptic ulcer perforation.⁵ Maximum number of peptic perforation cases were found in age group 31-40 years (20.68%). Analgesic abuse and addiction to tobacco was responsible for high incidence in this age group. Mean age of presentation was 45.81 ± 16.17 years. This is similar to that of Parameshwara Chaldiganahalli Munikrishna (2016).⁶ A M Al-Marsoumi (2012) reported peak incidence in 31-50 age group.⁷ Peptic perforation was more common in male than female patients and male to female ratio was 13.5:1. A possible explanation for these findings may be that some behaviors, such as Tobacco chewing, smoking and drinking alcohol, are more frequent among men, thus increasing the risk of PUD and perforation, especially in young adults.

Perforation site in 55.4% cases was anterior wall of 1st part of duodenum and in 42.72% cases the

site of perforation was prepyloric region of stomach and in 2 cases (1.81%) perforation was found in body of stomach. The perforation site usually involves the anterior wall of the duodenum (60%), although it might occur in antral (20%) and lesser-curved gastric ulcers (20%).⁸ Among *H. pylori* positive cases, in 69.4% cases site of perforation was first part of duodenum, and in 30.6% site of perforation was prepyloric area of stomach.

Timely diagnosis of peptic ulcer with detection and eradication of *H. pylori* can reduce unnecessary burden on health infrastructure and its life threatening complications and subsequent mortality and can improve the quality of life for thousands of patients.

It is well known that the bigger the size of perforation the more likely is the development of complications due to increased peritoneal contamination.⁹ The presence of pus in the peritoneal cavity indicates late presentation and bacterial peritonitis with higher risks of complications. In present series, 85.4% cases the site of perforation was less than or equal to 1cm in diameter and in 12.72% cases the size of perforation was between 1cm to 3cm, in 2 cases

(1.81%) the perforation size was > 3 cm. The nature of intraperitoneal fluid was bilious in 83.6% cases, pus mixed with bile in 11% cases.

110 out of 116 cases underwent exploratory laparotomy, it includes 15 cases which were treated initially by peritoneal drainage. In 106 cases Omentopexy was done (91.37%), of which 11 cases(9.48%) expired. Also 3 cases underwent omentopexy with gastrojejunostomy and Feeding jejunostomy was done in 1 case. Patients in whom perforation size was <1 cm, general condition was fair, omentopexy was done. In patients who had larger perforation, poor general condition, omentopexy with Gastrojejunostomy and omentopexy with Feeding jejunostomy was done. Duodenal ulcer perforations less than 1 cm in greatest diameter, and as such, are amenable to closure by omentopexy.¹⁰ Operative procedures were chosen on the basis of perforation size, peritoneal contamination and fragility of gut.

In present series, wound infection was the most common complication (41.8%), followed by pulmonary complications (31.8%), wound dehiscence in 13 cases (11.8%) and burst abdomen in 4 cases(3.6%). pulmonary complications are due to delayed mobilization, whereas Gross intraperitoneal contamination, poor nutrition and anaemia are responsible for wound infection, wound dehiscence and burst abdomen. Biliary leak seen in 3 cases. Chalya PL (2011), study has shown the commonest post-operative complications were surgical site infections (48%) and pneumonia (28%).¹¹

Many patients (36.2%) presented late to the hospital i.e. more than 72 hours after the onset of symptoms. This is attributed to poverty and lack of awareness of the disease by the patient and relatives and poor index of suspicion by some managing clinicians.

In present study overall mortality was 12.93% of cases of peptic perforation. Mortality was highest (24%) in patients of 61-80 years of age which is similar to Chalya 2011 and V Srinivas Goud (2016) as patients in this age group have poor nutritional status and associated comorbidities.^{11,12}

In present series, 13 out of 15 deaths observed in cases which presented > 24 hours after onset of the symptoms as postoperative complications are more in patients presenting late to the hospital.

Average hospital stay in patients with omentopexy was 10.5 days. Average hospital stay was maximum in patient treated by omentopexy with gastrojejunostomy with feeding jejunostomy (22days). Average hospital stay was 15.1 days in cases treated by peritoneal drainage followed by exploratory laparotomy. This is due to the fact that these patients were initially having poor general condition and operated after improvement of general condition and also these patients generally developed wound infection postoperatively, prolonging the hospital stay.

In the present series, it was observed that omentopexy gives better results as compared to other procedures in terms of hospital stay and mortality. As most of these patients were presented early and there was less contamination found intraoperatively which is a major factor in postoperative recovery.

Conclusion

Perforated peptic ulcer is a disease of middle aged adults. More commonly affects males than females. Tobacco chewing, smoking, alcohol, inadvertent use of analgesics and *H. pylori* infection are most common predisposing factors for peptic ulcer disease and patients inability to get proper and complete treatment is responsible for peptic perforation. Delay in hospitalization due to initial treatment by homemade medicines and non availability of essential surgical care further complicates the perforation in this region.

Perforation is diagnosed on clinical grounds immediately as patient reaches emergency department yet due to delayed hospitalization, time lost in resuscitation of the patient affects the outcome of standard surgical procedure. Selection of appropriate surgical procedure and postoperative care is helpful in early and uneventful recovery. Early diagnosis of peptic ulcer disease and detection of *H. pylori* infection,

prompt eradication therapy and avoidance of various predisposing factors can help to reduce the morbidity and mortality associated with this global disease.

Post operative *H. pylori* eradication therapy follow up endoscopic facilities in patients found positive for *H. pylori* can reduce recurrence rates and subsequently the burden of this disease.

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