

Clinical Study of Peptic Ulcer Perforation - Evaluation of Perforation Operation Interval as Prime Prognostic Factor.

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Background: Perforation still remains as one of the most common complication of a peptic ulcer. Operative intervention is the treatment of choice and Graham's patch repair is an established procedure in modern literature. Delay in operative intervention significantly influences mortality and morbidity.

Aims and objectives: To evaluate the influence of surgical delay in clinical outcome of the patients with perforated peptic ulcer.

Material and Methods: A prospective study was conducted on 150 patients diagnosed with perforated peptic ulcer at a tertiary care Centre of Bangalore to study the clinical profile and clinical outcome of peptic ulcer perforation patients post operatively from July 2018 to July 2019.

Results: A total of 150 patients were included, majority of patients presented in the 4th decade of life and 88.67% were males. 33.33% presented with gastric perforation and 66.67% presented with duodenal perforation. 76.67% of the total patients had positive history suggestive of peptic ulcer disease and 36.66% patients had associated co morbidities, (36.67%) had severe dehydration, 20% patients presented with hypotension, with a systolic blood pressure of less than 90mmHg. In 23.2% of patients surgery was performed within 2 days of symptoms, had no post operative complications. 44.67% patients presented after 48 hours, 27.13% patients presented after 72 hours with severe contamination of the peritoneal cavity.

Amongst the patients who presented after 48 hours, 30% patients suffered from post operative wound infection and 30% patients suffered from post-operative respiratory infections. 16.67% patients presented with post operative sepsis. The mortality rate in this study was 10%.

Conclusion: Perforated peptic ulcer is one of the commonest acute abdominal emergencies. The outcome of the patient depends on the age of the patient, associated co morbidities, timely resuscitation, contamination of the abdomen and post operative sepsis. Perforation operation interval found to be the most important mortality indicator.

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I. Introduction

The incidence of perforated peptic ulcer in western countries is 7-9/1, 00,000 population per year.¹ The incidence of perforation of duodenal ulcers in young and middle aged patients appear to be falling but in contrast, there is currently a marked increase in the numbers of elderly.² Perforation peritonitis is the most common surgical emergency in India and duodenal ulcer perforation remains the leading cause. The number of elective operations for chronic peptic ulceration has decreased substantially with the widespread use of proton pump inhibitors. The majority of perforations (65 per cent) are now of acute ulcers and therefore are unlikely to be prevented by improved therapy for chronic peptic ulceration¹. Early surgical intervention under the cover of broad spectrum antibiotics preceded by adequate aggressive resuscitation and correction of electrolyte imbalances is imperative for good outcomes minimizing morbidity and mortality.³

II. Aims And Objectives

- To study the clinical spectrum of perforated peptic ulcers
- To evaluate the **perforation operation interval** as the prime prognostic factor in peptic ulcer perforations

III. Materials And Methods

- STUDY DESIGN – Prospective observational study
- STUDY PERIOD : July 2018 – July 2019
- PLACE OF STUDY : Hospitals attached to Bangalore Medical college and research institute (Victoria and Bowring and Lady Curzon Hospitals)

INCLUSION CRITERIA

- Patients willing to give informed consent
- Patients of either sex aged above 18.
- Patients with intra operative findings of perforated ulcer on antro-pylorus of stomach and first part of duodenum.

EXCLUSION CRITERIA

- Patient not willing to participate in the study
- Perforations due to malignancies, traumatic ulcers, other associated ulcers.

Data collected was entered in MS excel worksheets. Statistical analysis was performed with XL STAT software in MS excel sheets.

Incidence, clinical presentation , intra op findings, post operative outcomes with respect to perforation operation interval were analyzed

IV. Observations And Results

A total of 150 patients who presented with peritonitis due to perforated peptic ulcer underwent emergency laparotomy and Graham’s patch repair were studied.

TABLE 1 : DISTRIBUTION OF PATIENTS AS PER SEX

SEX	NO.	FREQUENCY (%)
MALES	133	88.34
FEMALES	17	11.66

TABLE 2: AGE DISTRIBUTION OF PATIENTS

AGE (years)	NO. OF CASES	PERCENTAGE
<20	16	10.66
20 – 29	23	15.34
30 – 39	31	20.67
40 – 49	52	34.67
50 – 59	19	12.66
>60	09	6

TABLE 3 : ASSOCIATED RISK FACTORS

RISK FACTORS	NO.	FREQUENCY (%)
ALCOHOL USE	122	81.33
CIGARETTE SMOKING	130	86.67
USE OF NSAIDS	93	62
PREVIOUS H/O PEPTIC ULCER DISEASE	67	44.67

TABLE 4 : PRESENTING SYMPTOMS IN PATIENTS WITH PEPTIC PERFORATION

SYMPTOMS	NO.	FREQUENCY (%)
Pain Abdomen	142	94.67
Vomiting	102	68
Fever	86	57.34

Constipation	42	28
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TABLE 5 : PHYSICAL SIGNS IN PATIENTS WITH PEPTIC PERFORATION

PHYSICAL SIGNS	NO.	FREQUENCY (%)
Guarding and Rigidity	140	93.34
Abdominal Distension	32	21.3
Abdominal tenderness	142	94.6
Absent bowel sounds	84	56
Hypotension	30	20
Tachycardia	90	60
Tachypnea	84	56

TABLE 6 : PERFORATION OPERATION INTERVAL

TIME INTERVAL	NO.	FREQUENCY (%)
0-24 hrs	08	5.34
24- 48 hrs	48	32
48-72 hrs	67	44.66
>72 hrs	27	18

TABLE 7 : INTRA OPERATIVE FINDINGS

TYPE OF PERFORATION	NO.	%
GASTRIC	51	34
DUODENAL	99	66

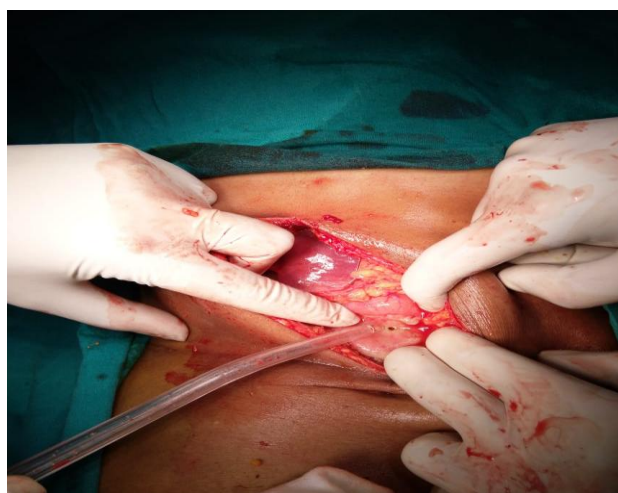


FIG. 1 Prepyloric gastric perforation

TABLE 7 : POST OPERATIVE COMPLICATIONS

POST OP COMPLICATIONS	NO.	FREQUENCY (%)
WOUND INFECTION	89	59.33
INTRA ABDOMINAL COLLECTION	13	8.6
PULMONARY INFECTION	10	6.6
BURST ABDOMEN	2	1.3

SEPTICEMIA	32	21.3
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TABLE 8 : COMPARISON OF MORBIDITY AND MORTALITY IN STUDY GROUPS

GROUP	TIME PRESENTATION OF	NO. OF PATIENTS	MORATLITY	MORBIDITY
A	0-24 hrs	08	0	01
B	24-48 hrs	48	02	13
C	48-72hrs	67	05	22
D	>72 hrs	27	07	18

V. Discussion

Peak age of the patients suffering from peptic ulcer perforation was compared across various studies and was found similar to the present study.

	Peak age in years
Turner (1951)	30 – 50
James et al (1961)	30 – 50
S.B Mishra et al (1982)	35 – 55
Weinganker	20 – 40
Kuldeep et al (2015)	30 - 50
Present series	30 - 50

The sex distribution or the Male to Female ratios was compared across various studies and found that males had a higher risk compared to females and similar results was found in the present study^{4,5}.

AUTHORS	MALE : FEMALE RATIO
Mark JBD (1969)	29:1
Jordan P H et al (1976)	8.1:1
S.R Varghese et al (1977)	19:1
S.B Mishra et al (1982)	49:1
J. Boey et al (1982)	6.6:1
Present series	9:1

- RISK INCREASED BY 10 FOLD IN SMOKERS OF BOTH SEX
- Studies suggest Prevalence of smoking and alcohol in 85-90% patients of perforated peptic ulcer
- 5-8 times increased risk in NSAID users

The perforation operation interval was compared in other similar studies, in De Bakey series, patients presented within 6 hours of presenting symptoms and in all the other studies including the present majority of the patients presented after 12 hours of initial symptoms.

PERFORATION OPERATION INTERVAL IN VARIOUS STUDIES^{6,7,8}

Duration (in hours)	De Bakey series (1940)	Bharathi Ramesh et al C	Kuldeep et al	Present study
0-6	50.83%	12%	12.85%	5.34
6-12	13.02%	12%	17.15%	
12-24	4.73%	24%	17.15%	94.66

>24	13.60%	64%	52.85%	
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POI affecting morbidity and mortality was studied in similar articles, significant mortality seen in patients presenting 48 hours after the initial symptoms.

PERFORATION OPERATION INTERVAL AFFECTING MORBIDITY AND MORTALITY IN VARIOUS STUDIES

DURATION (in hrs.)	Madhu et al	Sushama et al	Present study
	MORBIDITY AND MORTALITY		
0-24	4%	NIL	<1%
24 -48	32%	1%	27%
>48	74%	99%	71.8%

VI. Conclusion

Perforated peptic ulcer disease remains a frequent clinical problem associated with a significant postoperative mortality. Age, delayed surgery, presence of shock, ASA risk and definitive surgery are factors significantly associated with fatal outcomes in patients undergoing emergency surgery for perforated Peptic Ulcer. Decreasing the delay in intervention and improving access to medical care may improve the outcome of patients undergoing surgery for perforated peptic ulcer. High-risk patients are those who present with shock and co-morbid illness.

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