

## Original Article

### CLINICAL STUDY FOR THE OBSERVATION OF EPIDEMIOLOGICAL TRENDS IN PEPTIC ULCER PERFORATION

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#### ABSTRACT:

**OBJECTIVE:** To observe the Epidemiological Trends of perforated Peptic ulcer disease.

**STUDY DESIGN:** Retrospective Analytical Study.

**DURATION OF STUDY:** October 2016 to February 2018.(16 months)

**SETTING:** Department of surgery, Liaquat ward, DHQ Teaching Hospital Faisalabad.

**METHODOLOGY:** Over a period of 16 months, 50 cases of peptic ulcer perforation were reported and managed in surgical emergency Department. Record of all these cases was preserved in the form of history, Lab reports and operation notes. Data was then analyzed, interpreted and observed for Age distribution, Gender distribution, Socioeconomic status, History of peptic ulcer disease, History of NSAIDS intake, Smoking Habits, Urban and Rural and Air under diaphragm.

**RESULTS:** Age distribution shows that peptic ulcer perforation is prevailing disease in age >60 years with 38%, 78% of patients were male giving a male to female ratio of 4:1, Lower socioeconomic class was more affected (60%), Mostly patients had a history of peptic ulcer disease (70% of the cases). 57% of the patients were smokers, 28% patients were taking NSAID, 60% were urban patients and Air under diaphragm was observed in 85% of the cases.

**CONCLUSION:** It was concluded that elderly people with age more than 60 years with a previous history of peptic ulcer disease and NSAID intake, specially males of urban lower class are affected by peptic ulcer perforation disease in our study.

**KEYWORDS:** Peptic ulcer perforation, Trends, Epidemiology

#### INTRODUCTION:

Peptic ulcer disease includes both gastric and duodenal ulcers which posed a major threat to the world's population over the past two centuries with a high morbidity and mortality<sup>[1,12]</sup>. Perforated peptic ulcer is a serious, high mortality complication of Acid peptic disease associated with high mortality<sup>[7,15,16]</sup>. The incidence of perforation in Acid peptic disease is 2–14%<sup>[2,3]</sup>. Usually the perforation is found at the lesser curvature of stomach or on the anterior surface of the 1<sup>st</sup> part of duodenum<sup>[4]</sup> which results in a leakage of gastric/duodenal contents into the peritoneal cavity causing peritonitis and subsequently sepsis. Perforation is one of the commonest causes of emergency hospitalization and surgery in peptic ulcer disease<sup>[5,6]</sup>. Perforated peptic ulcer is a frequent emergency condition

in all the world which has mortality up to 30%<sup>[7]</sup>. Helicobacter pylori and use of non-steroidal anti-inflammatory drugs are the most common risk factors of perforated peptic ulcers. Different demographic data on age, gender, perforation location and etiology is available between different regions and countries, so is for the mortality<sup>[7]</sup>. Clinical prediction rules are used, but accuracy varies with study population. Early surgery, either by laparoscopic or open repair, and proper sepsis management are essential for good outcome<sup>[7]</sup>.

The objective of this study is to identify the of

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patients which are under greater threat of peptic ulcer perforation. So that they are dealt with higher index of suspicion in clinics and hospitals.

## METHODOLOGY:

**Study Design:** Retrospective Analytical Study.

**Inclusion Criteria:** Patients with perforated peptic ulcers.

**Exclusion criteria:** peritonitis due to other causes.

**Place of Study:** Liaquat Ward, D.H.Q. Teaching Hospital, Faisalabad.

**Duration of study:** October 2016 to February 2018.

**Method:** A total of 50 cases were reported during the surgical emergency duties of Liaquat ward over a period of 16 months. All the patients were operated and diagnosis was confirmed as peptic ulcer perforation. All the patients were recorded for their ages, Residential (urban/rural), smoking habits, previous history of any disease for which they are taking medicines, history of heart burn, gender, their socioeconomic status was determined. Graham omentopexy was done in most of the cases. Air under diaphragm was

noted in initial examination and investigations. A complete Perfora was made and all data collected and entered.

Mean and standard deviation was calculated for quantitative variables, frequency and percentage was calculated for qualitative variables.

## RESULTS:

Patients age ranged from fourteen to eighteen years old were included in the present study.

While the peak incidence was reported in patients with age > 60 years (38%). Second highest age group was 50-59 years being 16% of the cases.

Peptic ulcer perforation was more prevalent in males. Thirty nine out of fifty patients were male, 11 females were recorded making male to female ratio 4:1.

Most of the patients were from poor socioeconomic class, 30 patients making 60% of the toll. Upper class is affected the least having only 6 patients making 12% of the cases.

Reported cases from urban areas were 30 and reported cases from rural areas were 20.

**Table No 1: Demographic features of the patients**

Age	Frequency	Percentage
<19 yrs	5	10%
20-29 yrs	6	12%
30-39yr	7	14%
40-49yrs	5	10%
50-59yrs	8	16%
>60 yrs	19	38%
Total	50	100
Gender	Frequency	Percentage
Male	39	78
Female	11	22
Total	50	100
Class	Frequency	Percentage(%)
Poor	30	60
Middle	14	28
Upper	6	12
Total	50	100
Population	Frequency	Percentage %
Urban	30	60
Rural	20	40
Total	50	100

**Chi square test values applied on Gender distribution:**Significance level  $P < 0.0001$ 

The value of significance exhibits a real difference in gender distribution as male gender is more affected .

**Chi square test values applied on socioeconomic status:**Significance level  $P < 0.0001$ 

A significant difference can be seen in the socioeconomic classes as poor class has the greater toll.

**Chi square test values applied on urban and rural status:**Significance level  $P = 0.0466$ 

As seen in the significance level unremarkable difference is present between the urban and rural population.

**Table no 2: Risk factors**

H/O Smoking	No. of Cases	Percentage %
Smokers	28	56
Non-Smokers	22	44
Total	50	100
H/O Peptic ulcer disease	NO. of cases	Percentage
Present	35	70
Absent	15	30
Total	50	100
H/O NSAID Intake	Frequency	Percentage %
Present	14	28
Absent	36	72
Total	50	100
Presence of Air Under Diaphragm	No. of Cases	Percentage%
Present	43	86
Absent	7	14
Total	50	100

**Chi square test values applied on smoking:**Significance level  $P = 0.2325$ 

History of smoking was not a relatively high observation in the patients .

### Chi square test values applied on NSAID intake:

Significance level	P < 0.0001
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History of NSAID intake was a relatively higher finding as can be seen by the value of P.

56% of the cases were smokers and 44% were non smokers.

Incidence of perforation in the patients of known case of peptic ulcer disease was 70%.

Patients taking NSAID in our study were found to 28%. While 72 % were not reported taking NSAIDs.

All cases in our study presented with peritonitis and air under diaphragm was present in 86 % and it was absent in 14% cases.

### DISCUSSION:

Peptic ulcer perforation is a common surgical emergency requiring urgent surgical management<sup>[8]</sup>. 50 patients were treated in the given period and > 60 years was the peak age group with 38% cases. Similar results were found in the studies by Thorsen Ket al<sup>[9]</sup>, patients with old age having PPU were found 68% in this study. Developed countries also have same age group involved as developing countries and that is indicated by the comparison of our study and the report by Thorsen K et al<sup>[9,13,14]</sup>. While somewhat different results were seen by Memon A.A. in Sindh region and peak incidence of peptic ulcer perforation (PPU) was seen in 45 to 60 years age group where as 18% were over 60 years of age<sup>[10]</sup>. Male to female ratio was found to be similar by Aijaz A. Memon (5:1). While male to female ratio found by Kenneth Thorsen et al is 1:1.5 pointing a higher incidence of PPU in females in USA while M:F found in this study is 4:1<sup>[9,10]</sup>.

A study in india reported frequency of Air under diaphragm (pneumoperitoneum) as 96%<sup>[8]</sup>.

While in another study by Chung KT pneumoperitoneum was found in 75 percent of the cases<sup>[17]</sup>. Thus majority of such cases have air under diaphragm on plain radiographs.

Patients reported taking NSAIDs in our study were 28% most of them were elderly and this

result is very close to the results by Kumar P where they found a total 29% taking NSAIDs<sup>[19]</sup>.

Association of smoking was 56% in our study while Sabhnani G. et al reported an association with smoking of about 65 percent<sup>[8]</sup>.

While in another study it was found that 85% percent of the patients with PPU were smokers and further more that smoking increases the risk of perforation up to 10 folds<sup>[18]</sup>.

Most of the patients were poor patients, mostly those having a monthly income less than 15000 PKR. In this study, it was determined by the occupational status of the patients, similar study was done by Noola GS et al in India which reported 66% patients belonged to a low socioeconomic status<sup>[11]</sup>. Another study in Uttarkhand India reported that 97% of the patients were from lower socioeconomic class and high class was reported with no case at all<sup>[19]</sup>. It is a known that as the society develops, awareness and use of medicine decrease the incidence of PPU<sup>[7]</sup>.

Population from the urban centers had a slightly increased number of Perforated Peptic Ulcer in our study, it was around 60% in urban dwellers while in a study in India by Kumar P shows that 45% of the patients were from urban centers<sup>[19]</sup>.

### CONCLUSION:

According to the results of our study after the age of 50 years, population from urban areas with previous history of peptic ulcer disease and NSAIDs intake from lower class are more prone to perforation of peptic ulcer and should be treated aggressively to avoid disastrous complications.

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