



## Original Article

# Effect of fasting on peptic ulcer perforation

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### Abstract

**Background:** Peptic ulcer perforation is a common surgical problem in Bangladesh. For Muslims, the whole of the Ramadan is a time of strictly fasting during day time. Globally near one billion Muslims fast during this month. So it is an opportunity to evaluate the relationship between Ramadan fasting and peptic ulcer perforation. Present study was designed to evaluate the effect of fasting, socioeconomic condition, smoking and inadequate treatment of PUD on peptic ulcer perforation.

**Objectives:** To evaluate the effect of fasting on peptic ulcer perforation.

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### Introduction

As other developing country, peptic ulcer is a common disease in Bangladesh. Perforation of peptic ulcer is also a common surgical emergency till now. A large number of abdominal catastrophes, excluding traumatic one, include perforation of peptic ulcer (incidence 13.4 %) <sup>1</sup>. About 10 % of peptic ulcer patients presented with perforation and life time risk of developing perforation is about 20 %." No one dies because of peptic ulcer in the absence of complication" <sup>2</sup>. The mortality of peptic ulcer is accounted by hemorrhage, obstruction, perforation and sometimes by the surgical procedures. Of these complications perforation is potentially the gravest.

With the introduction of H<sub>2</sub> receptor antagonist in 1976 there is a significant reduction of elective surgical cases carried out for duodenal and gastric ulcers <sup>3</sup>. However the incidence of complications

associated with peptic ulcer disease particularly perforation has not changed appreciably <sup>4</sup>. In recent years in Western countries patients presenting with perforated peptic ulcer have tended to be elderly and chronically ill, taking one or more ulcerogenic drugs. A significant percentage of patients have a H/O PUD, smoking, alcohol abuse and postoperative state. While *H pylori* are recognized as a causative factor of PUD, its exact role in case of perforation has not been established <sup>5</sup>.

The association between the time restricted food and water intake and the variation of gastric p<sup>H</sup> and plasma gastrin level has been known for a long time.

The Ramadan induces an increase of acid & pepsin secretion. These gastric secretion modifications are likely involved in the increase of dyspeptic syndromes observed during the Ramadan. <sup>6,7,8</sup> Few studies, on effect of fasting on the physiological change show decrease in day

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time body temperature, alertness, mood, physical activity and concentration.<sup>9</sup>

Sustained fasting over a period of time is a feature of several major religions. For Islam, the whole of the holy month of Ramadan is a time of strictly observed fasting during the day time. They also abstain from taking oral medication as well as intravenous fluid & nutrients in day time. During night, eating & drinking tendency increases. This type of intermittent eating & fasting is different from other type of fasting or ongoing food deprivation. Globally, nearly one billion Muslims fast during this month. So it is a great opportunity to evaluate the effect of fasting on peptic ulcer perforation. In our center it is observed that the number of admission of peptic ulcer perforation patients were significantly increased in the month of Ramadan. Moreover most of the patients were poor & chronic smoker. There might have association of peptic ulcer perforation with fasting, socioeconomic condition, inadequate treatment and smoking.

### Material and Methods

This is a descriptive cross sectional type of study. Here one hundred & fifty three cases were studied from March/2014 to October/2014 in the Dept. of surgery, Rajshahi Medical college hospital. Samples were taken by purposive non random technique.

### Inclusion criteria

1. Only cases of peptic ulcer perforation were included.
2. The patients were diagnosed with classical features of peptic ulcer perforation and confirmed by free gas under diaphragm and/or surgical exploration.

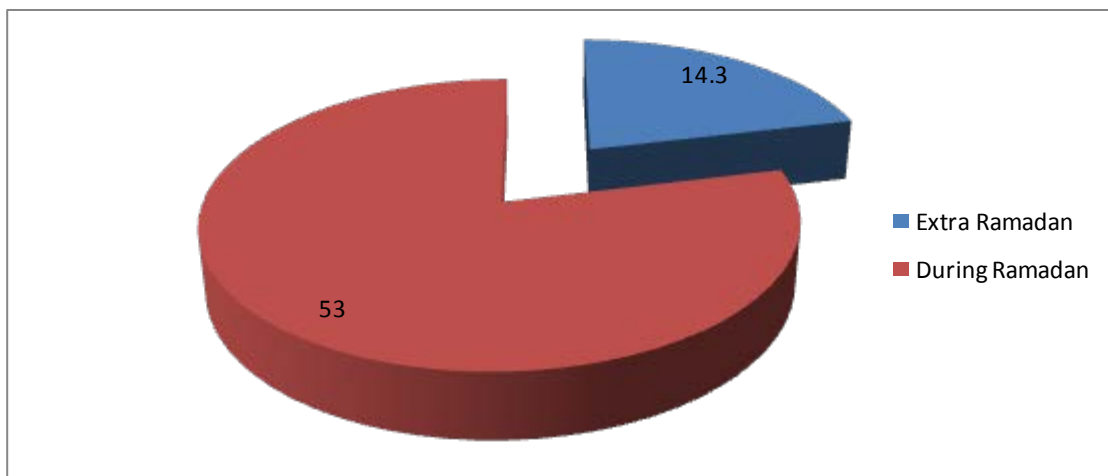
### Exclusion criteria

1. Suspicious cases, without pneumoperitonium cured with conservative management were not includes in this study.
2. Gastric malignant perforation was excluded by histopathology.

Data were collected from the patients by interviewing the patients immediate after admission. The information gathered includes data on sociodemographic characteristics of the patients (age, sex, socioeconomic status) and other information collected including fasting, habit of eating, drinking, cigarette smoking, H/O previous PUD and H/o medication. Data were processed and analyzed using SPSS in version 12.

### Results

Total 153 patients with peptic ulcer perforation were recorded, among them 53 patients were admitted during Ramadan and one hundred patients were recorded for a period of seven months (53 pt/month vs. 14.3pt/month). So total number of patients in fasting group is about 3.5 times higher than non fasting group.



**Figure1: Incidence of perforation during Ramadan and extra Ramadan.**

In this study highest incidence was recorded in the 2<sup>nd</sup> 10 days of Ramadan (38.46 %)

Decade	Number	%
1 <sup>st</sup>	14	26.92
2 <sup>nd</sup>	20	38.46
3 <sup>rd</sup>	18	34.61

**Table1: Variation in incidence of perforation during Ramadan.**

In this study most of the peptic ulcer perforation occurred just before sunset that is 69.23% of patients during Ramadan.

Time	Duration of fasting in hour	Number of patient	%
Before noon	3-8	15	28.84
After noon	9-14	36	69.23
After iftar	0.5	1	1.92

**Table 2: Incidence of perforation according to duration of fasting.**

Age varies from 17 yrs to 82 yrs. Average age was 44yrs. Maximum number of patients fall into 5<sup>th</sup> decade of life (30.20%). Maximum number of patients in extra Ramadan group fall into 4<sup>th</sup> decade (31%).

Age in years	During Ramadan		Extra Ramadan	
	No.	%	No.	%
14-20	1	1.89	6	6
21-30	6	11.32	19	19
31-40	12	22.64	31	31
41-50	16	30.20	22	22
51-60	14	26.40	15	15
61-70	3	5.66	5	5
More than 70	1	1.89	1	1
Total	53	100	100	100

**Table 3: Age incidence of the patients with peptic ulcer perforation**

All of the 53 patients during Ramadan were male. In the extra Ramadan group, out of the 100 patients 98 were male and only 2 were female .

During Ramadan, out of 53 cases 46 patients (86.80%) belong to poor socio-economic group and 7 patients (13.20%) came from average group. In extra Ramadan group, 91% from poor socio-economic group and 9% came from average group of people.

Socio-economic Condition	During Ramadan		Extra Ramadan	
	No.	%	No.	%
Poor	46	86.80	91	91
Average	7	13.20	9	9
Rich	0	0	0	0
Total	53	100	100	100

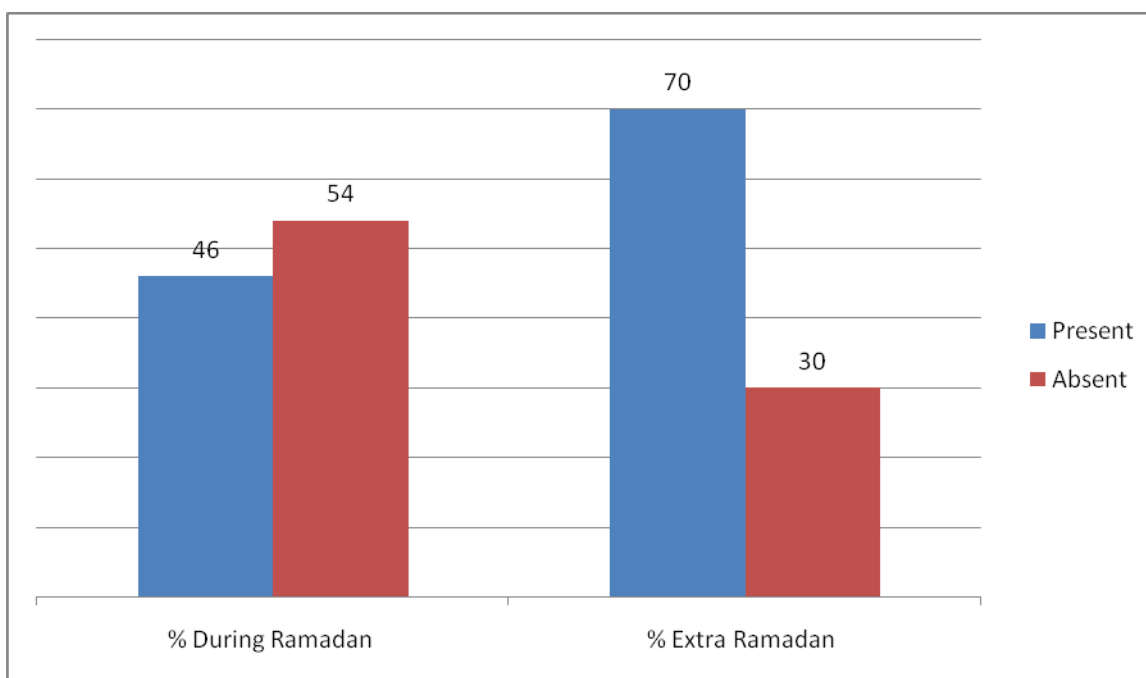
**Table 4: Socio-economic status.**

In Ramadan group, 69.23% patients were chronic smokers and 5.77% patients gave the history of both smoking and taking NSAIDs. On the other hand, in extra- Ramadan group, 58% patients gave the history of only smoking and 33% patients were both smokers and took ulcerogenic drugs. A significant number (23.08%) of patients had not known any predisposing factor in Ramadan group.

Predisposing Factors	During Ramadan		Extra Ramadan	
	No.	%	No.	%
Smoking	36	69.23	58	58
Smoking+ NSAIDs	3	5.77	33	33
NSAIDs & steroids	1	1.92	2	2
Unknown	12	23.00	7	7
Total	52	100	100	100

**Table 5: Incidence of predisposing factors.**

Symptoms suggestive of peptic ulcer were present in 46% and 70% of cases in Ramadan and extra Ramadan groups respectively. A large number of patients (54%) had no peptic ulcer like symptoms in Ramadan group, representing perforation of so called silent ulcer or acute peptic ulcer.



**Figure 2: Previous ulcer disease in percentage.**

### Discussion:

In the latest treatment protocol of H<sub>2</sub> blocker or proton pump inhibitor and *H. pylori* eradication treatment for peptic ulcer disease, there has already been sharp decline in the elective treatment of such disease. But there has been no fall in the rates of peptic ulcer perforation which has great potential risk of morbidity and mortality.

In this study, incidence of peptic ulcer perforation in fasting group was significantly higher than non-fasting group (53 Vs 14.3 patients per month). This finding is similar with that of A. Bener et

al.<sup>10</sup>, Kucuk HF et al.<sup>11</sup>, Donderici O<sup>12</sup> who reported that perforation is higher during Ramadan. The incidence was the highest at the second decade of Ramadan (38.46%) and the incidence also increased as the duration of fasting increased and the highest incidence was just before sunset (69.23%).

In Ramadan group, the peak age of incidence was the 5<sup>th</sup> decade (30.20%) and in the extra Ramadan group, it was the 4<sup>th</sup> decade. The frequency of peptic ulcer perforation was the highest in the

patient between 30-50 years, as also reported by A. Bener et al. and Kucuk HF et al.

Men were dominant in both groups. There was no woman patient in Ramadan group and only 2 in extra Ramadan group. It was unknown whether it was an incidental finding or men had a higher risk for peptic ulcer perforation than women. Abu Farsakh<sup>13</sup> reported that male gender is a risk factor for peptic ulcer perforation.

In present study, most of the patients of both groups are poor (77% Vs 93%). This may be due to poor nutritional status, higher incidence of *H. pylori* due to poor hygiene, lack of consciousness or inadequate treatment of PUD due to poverty and illiteracy.

We have observed that most of the patients of both groups (82.7% Vs 93%) had one of the predisposing factors (smoking, dyspepsia and the use of NSAIDs). However, Kucuk et al<sup>11</sup> observed that incidence of the predisposing factors in Ramadan group 84.0% Vs 56.2% in the other periods of year. In the present study, smoking is the most prevalent predisposing factor, 75.5% in Ramadan group and 91% in extra Ramadan group. But Kucuk concluded that there was no statistically significant difference prevalence of smoking between Ramadan group and extra Ramadan group. In the present study, presence of *H. pylori* was not evaluated, though it is one of the predisposing factors of PUD in our country. However, Kucuk HF et al. reported presence of *H. pylori* did not show any difference between two study groups. We found no significant predisposing factor in 17.3% in Ramadan group (except fasting) and 7% in extra Ramadan group. Whether it is due to fasting or incidental was not confirmed.

A recent study has concluded that Ramadan fasting increases the risk of peptic ulcer complications including hemorrhage and perforation.

Some studies suggest that patients with active peptic ulcer should not fast even when on treatment. But in this study, it is shown that patients having symptomatic PUD is 46% in Ramadan group and 70% in extra Ramadan group.

All patients of perforation with previous symptoms of PUD had the history of inappropriate /inadequate treatment. So, symptomatic PUD does not carry any extra risk of perforation in fasting people than non-fasting one. However, previously in various studies had showed symptomatic PUD been more prevalent in fasting group than non fasting group.

### Conclusion:

Peptic ulcer perforation is significantly higher in Ramadan among the fasting people and more prevalent in poor socioeconomic status having predisposing factors and those patients having symptomatic peptic ulcer were treated inadequately before perforation. We suggest that, people with predisposing factors should be informed before making a decision to fast.

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