

# Frequency of Peptic Ulcer Perforation During Fasting and Without Fasting

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## ABSTRACT

*Objective* To find out the frequency of peptic ulcer perforation during fasting in the month of Ramadan with non-fasting during other months.

*Study design* Descriptive case series.

*Place & duration of study* Department of Surgery Ward-3 Jinnah Postgraduate Medical Center Karachi, from January 2005 to November 2014.

*Methodology* The data of 220 patients who were operated due to peptic ulcer perforation, was analysed. Patients were divided into 2 groups. Group I (n= 139) included patients who were operated in the months other than Ramadan, while group II (n= 81) included patients who were operated during the month of Ramadan. The patients of peptic ulcer due to malignancy were excluded.

*Results* Of the total there were 209 male and 11 female patients. Age range was 12 year to 65 year. Most of the patients (n=178 – 85%) were between 20 year to 50 year of age. Frequency of perforation was highest in Ramadan then in Shawal month and was less in other months of the year. On average patients with peptic ulcer in Ramadan were 8.1 and in non-fasting months 1.2.

*Conclusion* The frequency of perforation in peptic ulcer disease was higher in Ramadan month during fasting state as compared to other months of the year.

*Key words* Perforated peptic ulcer, Ramadan, Fasting.

## INTRODUCTION:

The incidence of peptic ulcer perforation remains relatively constant. The risk factors for peptic ulcer disease (PUD) and perforation include smoking, NSAID use, previous history of PUD, Helicobacter pylori infection and alcohol intake. All these affects the incidence of perforation with additive effects of multiple factors.<sup>1</sup> Ramadan is a month in Hijri calendar during which it is obligatory for all the healthy adult Muslims to observe the Fast from dawn to sunset. Period of fasting varies from 10-19 hours depending

on the season of solar calendar in which Ramadan coincides that year.<sup>2</sup>

The physiological changes during Ramadan are not fully known. In this month at morning before the fast starts usually people consume heavy meals and then follows long hours of fasting and again in the evening at sunset heavy meals are taken. There are significant metabolic changes during fasting like rise in serum cholesterol, uric acid, thyroxine level but no significant change has been observed in gastrin or insulin level in fasting state or half an hour after consumption of the food.<sup>3</sup>

The study conducted in India advocated that Ramadan fasting might prove hazardous to patients with peptic ulcer disease in general and with active chronic ulcers in particular.<sup>4</sup> In another study

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conducted in UAE in 2006, there was no significant difference in the frequency of peptic ulcer cases in Ramadan when compared to the other months.<sup>5</sup> There is still ongoing debate on peptic ulcer patients whether they may fast during Ramadan or not. This study was conducted on this controversial subject. The objective was to find out the frequency of peptic ulcer perforation in fasting during Ramadan and in other non-fasting months.

**METHODOLOGY:**

This study was three years prospective cross sectional and seven years retrospective (from January 2005 to November 2014) review of the data of all the patients who were operated in the Department of General Surgery Ward-3, Jinnah Postgraduate Medical Centre Karachi, with peptic ulcer perforation. All the patients above 12 year of age, both gender, were included. The patients who on histopathology had carcinoma of stomach were excluded. Patients with comorbid like CRF, cirrhosis, and patients on steroids and NSAIDs were also excluded.

Patients were divided into two groups. Group I included non-fasting patients who were operated for peptic ulcer perforation in months other than Ramadan, whereas group II included fasting patients who were operated in Ramadan. Duration of fasting was also recorded. Data was analyzed with SPSS version 14. Categorical variables were presented as numbers and proportions and expressed in 95% confidence interval.

**RESULTS:**

There were 220 patients in this study who underwent exploratory laparotomy for peritonitis due to duodenal perforation. Of the total, 209 patients were males and 11 females. M:F ratio was 19:1. Age range was 12 year to 65 years and 85% (n=178) patients belonged to 20 to 50 year of age (fig I).

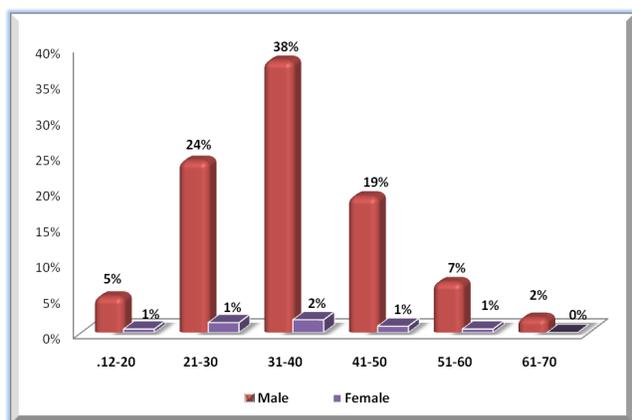


Fig I: Age and gender distribution for peptic ulcer perforation.

Total number of patients with peptic ulcer perforation in Ramadan was 81 and 139 in non-fasting months. Average number of patients of peptic ulcer perforation per month, in Ramadan was 8.1 as compared to 1.2 in other months. The ratio of the peptic ulcer perforation in Ramadan as compared to non- fasting months was 6.5:1. The frequency of peptic ulcer perforation was most common in Ramadan, followed by Shawal and other months (FIG II and Table I).

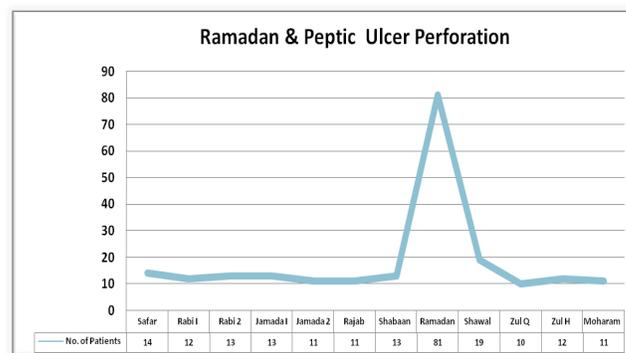


Fig II: Frequency of peptic ulcer perforation in Ramadan and other months.

**DISCUSSION:**

Ramadan is the month in which Muslims observe Fast from dawn to sunset. Period of fasting is variable depending upon geographical location and month of the Gregorian year. Fast may be of 15 – 17 hours duration in Summer months in Pakistan. Duration is short in winter.<sup>6</sup> In Ramadan usually people take two large meals at dawn and at sunset. This may effect the usual metabolism pattern of an individual.<sup>7</sup> There is no significant change in fasting in serum gastrin and insulin levels but significant rise of serum cholesterol, uric acid and thyroxine levels has been observed.<sup>8</sup>

Duodenal ulcer perforation is more common in males and its ratio with gastric ulcer is 17.1:1.<sup>9</sup> Same observations were found in this study. A Turkish study showed that peptic ulcer disease was more common during fasting month, and complication such as hemorrhage and perforation were also common.<sup>10</sup> Our study showed the same results. In contrast a study based on Arab population showed that frequency of peptic ulcer disease was less during fasting month and more in the month following the fasting month.<sup>11</sup> This may be due to dietary factors of that region. During fasting, usage of medication schedule changes and it may affect the frequency of perforation. Behavior of patients also changes during Ramadan. Blood pressure, bodyweight, kidney function and diabetes control are also affected during fasting.<sup>12</sup>

**Table I: Comparison of Frequency of Peptic Ulcer Perforation in Ramadan with other Months**

Months	1426 Hijri	1427 Hijri	1428 Hijri	1429 Hijri	1430 Hijri	1431 Hijri	1432 Hijri	1433 Hijri	1434 Hijri	1435 Hijri	Total	%	95% CI
Safar	1	3	2	0	1	3	1	0	1	2	14	6	4% - 10%
Rabi Awwal	1	0	1	1	2	2	2	1	2	0	12	5	3% - 9%
Rabi Sani	1	1	0	2	3	3	0	3	0	0	13	6	3% - 10%
Jamadi Awwal	2	1	2	2	0	2	2	0	1	1	13	6	3% - 10%
Jamadi Sani	1	1	1	3	0	1	1	0	2	1	11	5	3% - 9%
Rajab	2	1	1	1	1	0	1	1	1	2	11	5	3% - 9%
Shabaan	1	2	1	1	2	1	1	3	0	1	13	6	3% - 10%
Ramadan	7	8	8	9	9	7	8	10	8	7	81	37	30% - 44%
Shawal	2	2	3	0	1	4	2	2	1	2	19	9	5%- 13%
Zul Qaeda	0	2	1	1	0	1	2	0	1	2	10	5	2% - 8%
Zul Haj	1	0	1	3	1	2	1	2	0	1	12	5	3% - 9%
Moharram	2	1	1	1	3	0	2	0	1	0	11	5	3% - 9%
<b>Total</b>	21	22	22	24	23	26	23	22	18	19	220	100%	

A study has shown that serum gastric acid level increases during Ramadan.<sup>13</sup> A 45% rise in 24 hours activity was observed during Ramadan compared with period before Ramadan. The same study also found a 23% elevation in 24 hours hydrogen ion in the month after Ramadan compared with the value before Ramadan. Donderici et al showed higher peptic ulcer complication during Ramadan compared with period before and after Ramadan.<sup>14</sup> The high acidity during fasting aggravates severity of preexisting gastrointestinal disease like peptic ulcer and gastritis.<sup>15</sup> In this study ratio of patients of perforated peptic ulcer during Ramadan versus after Ramadan was 6.5:1.1 which is quite noticeable. It may be due to change in drugs intake schedule, high acidity or high serum gastrin level. During Ramadan acidity is increased due to metabolic effect. Patients are also under stress as change in schedule of work place occurs and sleep disturbance is also common. The frequency of perforation may be increased due to these reasons.

Whether peptic ulcer disease patients should be recommended not to fast is a difficult question to answer. The physiological changes during Ramadan are not precisely known. In modern era of H<sub>2</sub> receptor blockers, proton pumps inhibitors and eradication of Helicobacter pylori, the treatment for peptic ulcer disease had already led to a sharp decline in complications. One study indicates that fasting mainly affects duodenum than other parts of gastrointestinal tract.<sup>16</sup> This issue is still controversial

as a Saudi Arabia study showed no significant difference in frequency of peptic ulcer cases in Ramadan when compared to months after Ramadan, although occurrence of ulcer perforation was higher after Ramadan.<sup>11</sup> Our study also showed result against this observation.

**CONCLUSIONS:**

Frequency of perforated peptic ulcer was high in Ramadan during fasting as compared to other months of non-fasting. Patients with dyspeptic symptoms and history of previous peptic ulcer disease should be considered for prophylactic treatment to prevent ulcer recurrence and complication of peptic ulcer during fasting in Ramadan.

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