

# Effect of Ramadan Fasting on Peptic Ulcer Disease and Peptic Perforation

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## ABSTRACT

**Objective:** To compare the frequency of patients presenting with peptic ulcer disease (PUD) and peptic perforation during holy month of Ramadan with those presenting the month after Ramadan (Shawwal) in the Hijrah calendar and to assess the effect of risk factors on PUD and peptic perforation such as smoking, non-steroidal anti-inflammatory drugs usage, a previous history of acid peptic disease and the age groups and gender of patients.

**Study Design:** Observational / descriptive study

**Place and Duration of Study:** This study was carried out in Medical and Surgical Units of KTH (Khyber Teaching Hospital) Peshawar from 2012 to 2014..

**Research Methodology:** A total of 213 patients were included in this study presenting during this three years period. Patients were included or excluded according to a pre-set "inclusion or exclusion criteria".

**Results:** 62%(132) of all the patients presented during the three months of Ramadan as compared to 38%(81) of the patients presented three months after the Ramadan,  $\chi^2=8.193$ , P value is 0.004205 and result is significant at  $p<0.05$ . Ninety six(46%) patients were smokers, 132(62%) of the patients were in the 20 to 40 year age group and male to female ratio was 5:1. Symptoms associated with peptic ulcer disease found in patients during Ramadan is more than after Ramadan.

**Conclusions:** This study clearly showed the increased frequency of peptic ulcer disease and peptic perforation during the Holy month of Ramadan stresses on the need of precaution especially for smokers, non-steroidal anti-inflammation drugs users and patients with the history of acid peptic disease during this month.

**Key words:** Ramadan fasting, peptic ulcer disease and perforation, risk factors

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## INTRODUCTION

Sustained fasting over a period of time or has been a feature of several of the world's major religions. For Islam, the whole of the holy month of Ramadan is a time of strictly observed fasting during the daylight hours. Globally, nearly 1 billion Muslims are obliged to abstain from eating and drinking from sunrise to sunset. They must also abstain from taking oral medications as well as intravenous fluids and nutrients<sup>1,2</sup>. During night hours of Ramadan, eating and drinking tend to increase<sup>1,3</sup>. This pattern of intermitted eating and fasting is different from other types of fasting or ongoing food deprivation<sup>4</sup>.

The incidence of peptic ulcer disease and its complications especially perforation has declined over the past several years because of the introduction of

anti-ulcer medication and helicobacter eradication therapy<sup>5,6</sup>.

### Inclusion criteria:

- 1 Already diagnosed patients of peptic ulcer disease presented in emergency with symptoms..
2. Patients diagnosed in surgical and medical units of KTH.

### Exclusion Criteria:

1. Patients not giving their consent for being included in the study.
2. Patients having hepatic, gall-bladder, and pancreatic disease. Etc.

## MATERIALS AND METHODS

Patients with peptic ulcer disease and peptic perforation were included in this study. A complete history and physical examination was done, especial emphasis was placed on the history of cigarette smoking, lifestyle habits of eating, drinking, previous surgery for perforated peptic ulcer and previous history of acid peptic disease, use of non-steroidal anti-inflammatory drugs, age and gender of the patients was noted on especially designed proforma. Data were collected

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from the medical and surgical units of admitted and diagnosed patients. Patients were diagnosed either in surgical units by x-rays abdomen erect position (perforation) or post operatively by laparotomy for perforation while in medical units, upper gastrointestinal endoscopy with or without biopsy and blood H-Pylori tests and other investigations like blood complete picture, blood sugar, serum urea and creatinine were done for diagnosis and resuscitation with subsequent surgical and medical treatment.

## RESULTS

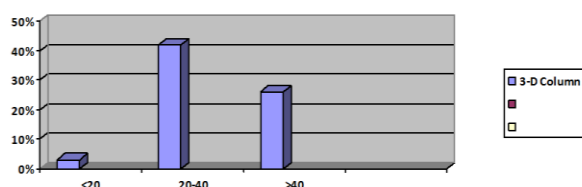
The total number of patents presenting with peptic ulcer disease in the KTH during three years was 213. Out of these patients 62 % (n=132) presented in the three months of Ramadan in three years and 38% (n=81) of the patients presented in three months (Shawwal) after the Ramadan,  $\chi^2=8.193$ , P value is 0.004205 and the result is significant at  $p<0.05$ . If we breakdown these cases years wise we see that in 2012 the number of patients that presented with the peptic ulcer disease was 33% (n=71), where in the month of Ramadan they were 35% (n=46) and 40% (n=32) during the next month. In 2013, 30% (n=64) patients were presented with ulcer disease from which 33% (n=44) were during Ramadan and 28% (n=23) in the next month. During 2014, 37% (n=78) patients presented with peptic ulcer disease from which 32% (n=42) were in Ramadan and 32% (n=26) during the next month.

All the patients were also stratified age wise into groups; the first group was less than 20 years the second

was between 20 and 40 years of age; whereas the third group had patients more than 40 years of age and 74(35%) patients were more than 40 years of age, as shown in figure 1.

**Table No.1: Yearly distribution of patients presenting with peptic ulcer disease.**

Years	No of patients n=213	Ramadan n=132 (62%)	Next month n=81 (38%)	This result is significant at $P<0.05$
2012	71(33%)	46(35%)	32(40%)	
2013	64(30%)	44(33%)	23(28%)	
2014	78(37%)	42(32%)	26(32%)	



**Figure No.1: Age groups and percentage of patients in each age group**

In gender distribution the ratio between male and female was 5:1 in favor of male. 46% (n=96) out of the total number of patients has a history of smoking whereas 54% (n=117) were non-smokers. 10% (n=22) patients of perforated duodenal ulcer has history of regular use of non-steroidal anti-inflammatory agents.

**Table No.2: Symptoms associated with peptic ulcer disease found in patients during after Ramadan (2012-2014).**

Variables	During Ramadan (n=132)	After Ramadan (n=81)	X <sup>2</sup>	P-values	
Previous history of PUD (Dyspepsia)	94(124.08%)	21(17.01%)	13.6188	0.000224	$P<0.05$
Pain epigastrium	112(147.84%)	36(29.16%)	7.4861	0.006221	$P<0.05$
Associated symptoms (Anorexia)	72(95.48%)	23(18.63%)	5.6086	0.017837	$P<0.05$
Perforations	22(29.04%)	4(3.24%)	5.1844	0.02279	$P<0.05$
Medicine used (NSAID/aspirin) Anti peptic ulcer drugs	34(44.88%)	8(6.48%)	5.5627	0.01834	$P<0.05$

## DISCUSSION

There is some evidence from EI-Hazmi MAF and Hakkou F et al that although a reduction in eating frequency during Ramadan, but that each meal is nutritionally denser than meals taken outside of Ramadan<sup>7,8</sup>.

In spite of these and our previous reports suggesting a reversible increase in acid and pepsin secretion, which may be involved in the increase of dyspeptic symptoms seen during the Ramadan<sup>2,8</sup>. Change in lifestyle, which may be associated with an increase of the gastric acidity mainly in the diurnal phase<sup>9,10</sup>.

In our series the result were quite conclusive in showing that the number of patients that presented

during the holy month of Ramadan was for more than those who presented during the rest of the month. In total about 62% of the patients presented in the three months of Ramadan and only 38% presented during the three months after Ramadan. This clearly showed that there were some factors, which along with fasting results in increase number of patients in peptic ulcer disease and its complications. It means that there is an elevated risk for duodenal ulcer perforation at the time of Ramadan and they have suggested that higher risk patients with dyspepsia and/or a history of PUD in whom active H. pylori infection has been excluded should be considered for prophylactic acid suppression therapy before embarking on fasting in Ramadan<sup>17,18</sup>.

During the history taking of these patients, especially emphasis was placed on charting the risk factors for peptic ulcer disease. The results in the end concluded that factors like a previous history of acid peptic disease was seen in 124% in the holy month of Ramadan while 17% had a history of acid peptic disease month after Ramadan which is an important finding. Similarly we found that in total 46% of the entire patient were smokers, and that the percentage of smokers who presented with a peptic disease and perforation during the holy month of Ramadan was more than 17% while 10% was noted in the rest of the months. In our study we noted that non-steroidal anti-inflammatory drugs were taken regularly by 45% of the patients either for pain relief or for a cardiac disease during the holy month of Ramadan, further cementing our conclusion that risk factors like a history of acid peptic disease, regular smoking and use of non-steroidal anti-inflammatory drugs during the month of Ramadan increases a patients predispositions to peptic ulcer disease and perforation.

Worldwide the gender, which is favored by peptic ulcer disease and perforation, is male. Our results are in agreement with Abu Farsakh<sup>11</sup>, who reported that male gender is a risk factor for peptic ulcer perforation. Donderici et al<sup>12</sup>, reported an increase in peptic ulcer complications during Ramadan, particularly among women. We did not find this and in fact peptic ulcer disease and complications were more frequent in the month of Ramadan but reported more in male gender and in our series the male to female ratio for perforated duodenal ulcer and peptic disease was 5:1. In a number of western studies like the one by column et al<sup>13</sup>, or the one by Walt et al<sup>14</sup>, show ratio 4:1. Cuscheri et al<sup>15</sup>, have shown a lower ratio that is ranging from 2:1. Lastly we also recorded the predominant age group in which the patients presented to us and the result showed that most of the patients presented in the age group between 20 and 40 years that is around 62% patients. In more than 40 year's group, there were 35% patients which is also a quite significant percentage. These results show that peptic ulcer is predominant an adult disease with its predominance around 40 years age bracket. According to predominant age group in the west is also between 40 and 49 years, thus our results were similar to those in the western literature<sup>16</sup>.

## CONCLUSION

It is concluded that during the holy month of Ramadan people who are regular smokers, who have a history of acid peptic disease and the ones regularly use of non-steroidal anti-inflammatory drugs are at increased risk of peptic ulcer disease and its complication. These patients should take necessary precautions like use of

H2 blocker, cessation of smoking and dietary restriction especially the fatty and spicy diets (especially pakoras, samosas and pickles etc) during holy month of Ramadan. Further research using intra gastric pH monitoring would further substantiate the findings of this series.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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