

The Effect of Ramadan Fasting on Duodenal Ulcer Perforation

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ABSTRACT:

BACKGROUND:

Fasting during the month of Ramadan is one of the five holy pillars in the Islamic faith and is an important annual ritual practiced by all Muslims. This involves fasting from dawn to dusk, followed by a break of fast at designated times. The length of fasting varies from ten to 19 hours, depending on the season in which the fasting month of Ramadan falls and the geographical locations.

OBJECTIVE:

1st to evaluate the relation between Ramadan fasting & duodenal ulcer perforations & 2nd to assess the risk factors of this complications .

PATIENTS & METHODS :

This is a prospective study in Baghdad Teaching Hospital – Medical City . Data from 231 consecutive patients with perforated duodenal ulcer from the period of October 2007 to December 2010 were collected & analyzed & all the patients were managed surgically after resuscitation in emergency unit .

RESULTS :

(96/231, 41.6%) of patients with perforated duodenal ulcer during Ramadan vs. (135/231, 58.4%) during the rest of the years . (96/490, 19.5%) of patients with perforated duodenal ulcer from the total number of all patients with acute abdominal surgeries during Ramadan. 43 % of patients smoking & 47 % of patients had a previous history of acid peptic disease in Ramadan. 54 % of patients were in between (20 to 40) years age group and the male to female ratio was 6 :1 . 15% patients of perforated duodenal ulcer had history of regular use of non steroidal anti inflammatory drugs.. Erect chest x-ray demonstrated gas under the diaphragm in 86% . Only 2 patients had a previous surgery of duodenal ulcer perforation .

CONCLUSION:

This study suggests that the incidence of duodenal ulcer perforation is relatively high in Ramadan among the people, who are fasting & have predisposing factors (smoking , history of acid peptic disease , non steroidal anti-inflammatory drugs) and need special precaution during this month .

KEY WORDS : perforated duodenal ulcer, ramadan fasting , baghdad.

INTRODUCTION :

Fasting during the month of Ramadan is one of the five holy pillars in the Islamic faith and is an important annual ritual practiced by all Muslims. This involves fasting from dawn to dusk, followed by a break of fast at designated times. The length of fasting varies from ten to 19 hours, depending on the season in which the fasting month of Ramadan falls and the geographical locations. In countries located near the equator, the length of fasting is generally around 12–14 hours. Prolonged

fasting during Ramadan has been shown to affect body metabolism & human behavior^(1,5).

In addition to changes in eating & sleep schedules, medications schedules also have to be changed & this can affect the control of medical conditions^(6,7) Gastrointestinal disorders can be precipitated or exacerbated by prolonged fasting . To date, there have only been few studies looking at the impact of Ramadan on Gastrointestinal disorders and these have shown different results^(8,10).

The association between the time-restricted food & water intake , and the variations of gastric PH , plasma gastrin level has been known for a long time^(11,12,13) . An epidemiological study has shown an increase in digestive disturbance during the 1st week of Ramadan⁽¹⁴⁾. Further , there has been a

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debate whether the patients with active duodenal ulcer can fast during Ramadan^(14,15,16).

Perforated peptic ulcer continues to account for about 10 % of all hospital admissions⁽¹⁷⁾. It is also estimated that this complication develops in about 10% of all duodenal ulcer patients⁽¹⁸⁾.

The aim of this study is to evaluate the relation between Ramadan fasting and duodenal ulcer perforations and to assess the risk factors of this complications.

PATIENTS & METHODS:

A prospective study done from a period of October 2007 to September 2010 in Medical City – Baghdad Teaching Hospital. A total number of 246 patients of suspected perforated duodenal ulcer presented in the emergency room. A complete history and physical examination was done, special attention was placed on the history of smoking, use of non-steroidal anti-inflammatory drugs by the patients and a previous history of acid peptic disease. Age and gender of the patient was noted and this was recorded on a specially designed form. We also recorded whether these patients presented in the Holy month of Ramadan or during the rest of the year. To confirm our diagnosis investigations like x-ray abdomen & chest erect position were done in emergency room. Other investigations like blood complete picture, blood sugar, serum urea and creatinine were done to the patients with resuscitation and subsequent surgical treatment. 231 of these patients were operated through a midline laparotomy and the findings of perforated duodenal ulcer were confirmed, all of these patients were treated by a Graham's patch also known as patch omentoplasty. Post operatively these patients were managed either in the wards or in the ICU. Ten patients out of the 246 presenting in the emergency died before surgery, most of these were in hypovolemic & cardiogenic shock and died within hour of their presentation in the emergency & 5 patients refused surgery & discharge on their responsibility. As the diagnosis of perforated duodenal ulcer is only confirmed after surgical exploration so these 15 patients were excluded from this study.

RESULTS:

The total number of patients presenting with perforated duodenal ulcer in the emergency during 3 years was 231. (96/231,41.6%) presented in the month of Ramadan. (135/231,58.4%) of the patients presented in the rest of the months in these 3 years.

If we break down these cases year wise we see that in 1st year (Oct 2007- Sep 2008) the number of patients that presented in the emergency was (61/231, 26.4%) of the total number. Out of these (26/96,42.6%) were in the month of Ramadan and (35/135, 57.4%) during the rest of the year.

In 2nd year (Oct 2008 -Sep 2009), (70/231, 30.3%) patients with presented perforated duodenal ulcer from which (29/96, 41.4%) were during Ramadan and (41/135, 58.6%) in the rest of the year.

During the 3rd year (Oct 2009-Sep 2010), (100/231, 43.3%) patients presented with perforated duodenal ulcers out of which (41/96, 41%) were in Ramadan and (59/135, 59%) during the rest of the year, as shown in table (1).

According to the results of 490 patients presenting with acute abdomen in the month of Ramadan & 5687 patients with acute abdomen in the rest of years, we compare the percentage of 231 patients with perforated DU, the results were in 1st year (26/160, 16%) during Ramadan & (35/1151, 3%) in the rest of year, 2nd year (29/157,18.5%) during Ramadan & (41/1205, 3.4%) in the rest of year, 3rd year (41/173, 24%) during Ramadan & (59/1666,3.5%) during the rest of year, the total were (96/490, 19.5%) patients in Ramadan & (135/4022, 3.3%) during the rest of year as shown in table 2 & 3.

All the patients were also stratified age wise into groups, first group was less than 20 years, the 2nd was between 20 & 40 years of age whereas the 3rd group had patients more than 40 years of age. A total of 9 patients presented in the first group, whereas 125 patients presented in the group aged between 20 and 40 years of age and 97 patients were more than 40 years of age, as shown in Fig 1.

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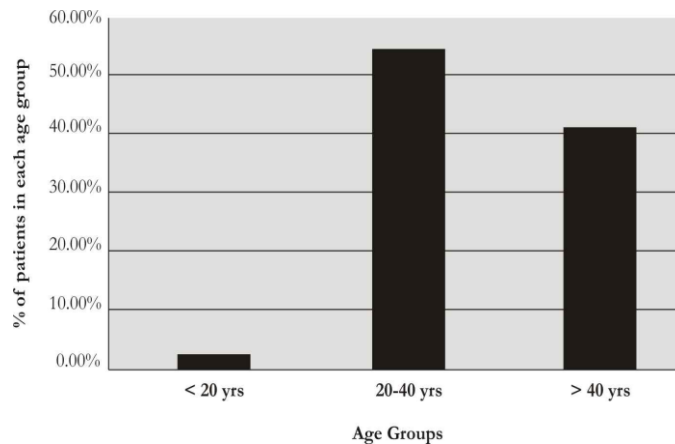


Figure 1:Age distribution of patients presented with perforated duodenal ulcer .

In gender distribution of study group , the male to female ratio was 6 : 1 (198 : 33) in favor of males . (100/231, 43%) out of the total number of patients had a history of smoking whereas (131/231, 57%) were non-smokers ,the patients presenting during

the month of Ramadan (41/231, 43%) had a history of smoking whereas during the rest of the year (135/231, 47%) of the patients gave a history of smoking regularly as shown in table 4 .

Table1: Patients presenting with perforated duodenal ulcer during 3 years study

Years	No. of patients	Ramadan	Rest of year
1 st year Oct 2007 – Sep 2008	61(26.4 %)	26(42.6%)	35(57.4%)
2 nd year Oct 2008 – Sep 2009	70(30.3%)	29(41.4%)	41(58.6%)
3 rd year Oct 2009 – Sep 2010	100(43.3%)	41(41%)	59(59%)
Total	231(100%)	96(41.6%)	135(58.4%)

Table 2:The percentage of patients presenting with perforated DU from other acute abdominal surgeries during Ramadan.

The year	Acute Abdomen Ramadan Perforated DU	Acute Abdomen Ramadan Total	Percentage
1 st year	26	160	16%
2 nd year	29	157	18.5%
3 rd year	41	173	24%
Total	96	490	19.5%

Table 3:The percentage of patients presenting with perforated DU from other acute abdominal surgeries during the rest of year.

The year	Acute Abdomen Rest of year Perforated DU	Acute Abdomen Rest of year Total	Percentage
1 st year	35	1151	3%
2 nd year	41	1205	3.4%
3 rd year	59	1666	3.5%
Total	135	4022	3.3%

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Table 4: The percentage of patients with history of smoking in perforated DU during Ramadan & rest of the year .

The year	Smoking during Ramadan	Smoking during Rest of year
1 st year	10 from 26 (40%)	16 from 35 (45%)
2 nd year	13 from 29 (44%)	19 from 41 (47%)
3 rd year	18 from 41 (45%)	29 from 59 (49%)
Total	41(43%)	135(47%)

Overall (138/231, 59.7 %) of the patients gave a history of acid peptic disease. Out of the patients who presented during the month of Ramadan (45/96, 47 %) had a history of acid peptic disease whereas during rest of the year (93/135, 69 %) patients had a history of acid peptic disease as shown in table 5 .

Table 5: The percentage of history of acid peptic disease in patient with perforated DU during Ramadan & rest of the year .

The year	History of acid Peptic disease Ramadan	History of acid Peptic disease Rest of year
1 st year	12(46%)	23(66.5%)
2 nd year	13(46.5%)	28(68.5%)
3 rd year	20(48.5%)	42(72%)
Total	45(47%)	93(69%)

(35/231, 15%) patients of perforated duodenal ulcer had history of regular use of non-steroidal anti-inflammatory agents.

Erect chest x-ray demonstrated gas under the diaphragm in (199/ 231 , 86%) in whom X-ray examination was done .

There was no significant correlation between the size of perforation & the presence or absence of gas under the diaphragm .

Only two patients had a previous surgery for duodenal ulcer perforation.

DISCUSSION:

Perforated duodenal ulcer is a serious complication of peptic ulcer disease with potential risk of grave complications. The disease affects adult age groups in this study, 125 patients (54%) were between 20- 40 years of age unlike western data with a tendency of the disease to affect older age group (19,20). &our result are similar to Umar et al (20) & Durham et al (21) that perforated duodenal ulcer is predominantly an adult disease with its predominance around the 20 to 40 years age

In our study the results were showing that the percentage of patients that presented during the holy month of Ramadan were far more than those who presented during the rest of the year . In total about 41.6% of the patients presented in the 3

months of Ramadan and only 58.4 % presented during the rest of the 33 months during this study , and these results is approximately similar to Umar et al (the percentage of patients presenting during Ramadan is 36% (21).

The percentage of patients with perforated DU (acute abdomen) from other patients with acute abdomen during Ramadan was 19.5 % these results approximately similar to Dönderici et al & Hosseini et al^(9,15).

Year wise breakdown of patient presentation is also quite consistent in showing that the percentage of patients presenting during the holy month of Ramadan ranged from 31 to 45% of the total presentations during that year. This clearly showed that there were some factors, which along with fasting resulted in duodenal ulcer perforation , This indicates that fasting may be a triggering factor for perforation. It had already been mentioned that fasting is attended by increased incidence of peptic ulcer complications^(9,14).

During the history taking of these patients, special attention on charting the risk factors for duodenal ulcer perforation and the results in the end concluded that factors like a previous history of acid peptic disease was seen in 69%(n=93) of the total number of patients. In the holy month of

Ramadan 47% (n=45) of the patients with a perforated duodenal ulcer had a history of acid peptic disease, which is an important finding, this result is consistently similar to Hosseini et al, Umar et al^(15,21).

In our study we noted that non-steroidal anti-inflammatory drugs were taken regularly by 15% of patients.

Similarly, in Ramadan we found that 43% from all the patients were smokers.

The percentage of smokers overall and specially during the month of Ramadan are quite consistent with the world figures which show that smoking is seen in around 42.6% of all perforated duodenal ulcer patients⁽²³⁾.

Regular smoking and use of non-steroidal anti-inflammatory drugs during the month of Ramadan increases a patients predisposition to perforation of a duodenal ulcer.

Eighty six percent of those who underwent CXR showed gas under the diaphragm, a figure much higher than the currently reported 60-70% of patients^(24,25,26,27). In the same context, the presence of gas under the diaphragm did not seem to have any correlation with the size of the perforation. Almost all patients were treated surgically, open surgical treatment is still the primary option in all hospitals in our country.

Worldwide the gender, which is favored by duodenal ulcer perforation, is male and in our series too the male to female ratio for perforated duodenal ulcer was 6: 1. In a number of western studies like the one by Coleman et al⁽²⁸⁾, or the one by Walt et al⁽²⁹⁾ show ratios of 4:1. Cuscheri et al have shown a lower ratio that is ranging from 2:1 to 4:1⁽³⁰⁾.

In our study we noticed the increased no. of patients with perforated duodenal ulcer in the last year of study 41 patients in comparison to last 2year 26 to 29 patients respectively & this is probably due to increase number of referring patients to our hospital, secondly due to increasing stressful conditions in our country, or might increase of Iraqi fasting at Ramadan.

It has long been debate whether patients with active duodenal ulcer or at the risk of duodenal ulcer perforation may fast at Ramadan, two separate studies from early 1950s showed the increase risk of duodenal ulcer perforation during Ramadan^(31,32). However, since then, many aspects have changed in duodenal ulcer management including anti-ulcer drugs such as histamine-2 blockers & proton pump inhibitors or the

availability of endoscopic examination. A recent study has concluded that Ramadan fasting increases the risk of duodenal ulcer complications including hemorrhage & perforation (9). In other study, Feldman et al suggested that patients with acute duodenal ulcer or gastric ulcers should not fast, in order not to increase the risk of duodenal ulcer complications(16). Similarly Azizi claimed that patients with active duodenal ulcers should not fast, even when on treatment (14). In contrast, in a recent study, endoscopic surveillance should the cure the duodenal or gastric ulcer - including active bleeding ulcers - with an eradication therapy in 94.4 % (17-18) in the fasting group & 95.5 % (20 of 21) in the non fasting group (15). Similarly, in another prospective study, with 57 patients, the investigators showed that patients with duodenal ulcer treated with Lansoprazole might fast without running any risk⁽³³⁾.

CONCLUSION:

This study demonstrated that incidence of duodenal ulcer perforation is relatively high in Ramadan among the people who are fasting. We concluded that during the holy month of Ramadan people who are regular smokers, who have a history of acid peptic disease and the ones who regularly use non-steroidal anti-inflammatory drugs are at increased risk of duodenal perforation.

These patients should take necessary precautions like use of H antagonists, proton pump inhibitors, cessation of smoking and dietary restriction specially during the holy month of Ramadan.

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