

Ramadan and Peptic Ulcer Perforation: A Review

Muhammed Rasid Aykota¹, Ali Kagan Gokakin^{1*} and Arzu Oezcelik²

¹Department of General Surgery, Pamukkale University, Turkey

²Department of General Surgery Istanbul Bilim University, Turkey

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ABSTRACT

Peptic Ulcer Perforation (PUP) is a serious surgical emergency with high risks of mortality and morbidity up to 30 and 50%, respectively. The average age range of the patients with PUP differs among countries according to their socioeconomical status. While heavy smokers young adult males are typical candidates for PUP in developing world, other risk factors predominate in developed countries; advance age with multiple co-morbidities, *Helicobacter pylori* infection, long lasting PUD history, and several medications. The whole ninth lunar month called Ramadan is the time of intermittent fasting for all healthy adult Muslims. This religious ritual requires no food and/or liquid intake (either oral or intravenously) in day time from sunrise to sunset. There are more than one billion Muslims all over the world who are fasting under different conditions and for different durations.

It can be concluded that lots of the parameters were found similar in the patients with PUP in Ramadan months and patients with PUP in non-Ramadan months . We recommend, that the patients with PUD may take antisecretory agents such as proton pump inhibitors during the period of Ramadan fasting.

Introduction

Peptic Ulcer Disease (PUD) is a common health problem, although effective medical treatment options have emerged after 1980s. It affects approximately 4% of the overall population[1,2]. Mortality due to severe hemorrhage and life-threatening perforations showed no significant decrease in terms of incidence over the last decades despite novel medications [3-6]. Peptic Ulcer Perforation(PUP) is a serious surgical emergency with high risks of mortality and morbidity up to 30 and 50%, respectively [7-9].

The average age range of the patients with PUP differs among countries according to their socioeconomical status. While heavy smokers young adult males are typical candidates for PUP in developing world, other risk factors predominate in developed countries; advance age with multiple co-morbidities, *Helicobacter pylori* infection, long lasting PUD history, and several medications, i.e. Nonsteroidal anti-Inflammatory Drugs (NSAID) and steroids [2,10-12].

The whole ninth lunar month called Ramadan is the time of intermittent fasting for all healthy adult Muslims [13-16]. This religious ritual requires no food and/or liquid intake (either oral or intravenously) in day time from sunrise to

Correspondence:

Ali Kagan Gokakin,

Department of General Surgery,

Pamukkale University, Turkey,

Tel:+90258 296 58 98;

GSM:+90 505 467 08 68;

Email: dralihan20@hotmail.com

sunset. While the type of food consumption does not change due to fasting, distinct shift in consumption time and amount per meal is apparent. A common schedule of oral intake is such; a very early breakfast before the sunrise ("suhoor"), lunch is skipped, and a main meal ("iftar") after sunset [17]. This ritual inevitably affects the timing of medicines (orally or even intravenously) [18-20], as well as the sleep timing and duration [21].

A Muslim Patient with PUP can fast or not? is a hard question to respond due to metabolic alterations during Ramadan are not completely demonstrated in the medical literature. However, in a previous study published by Azizi et al [22], it was noted that patients with complicated PU should be advised against fasting, whereas asymptomatic patients may try fasting.

Previous studies focused on the association between Ramadan and PUP are designed retrospectively, and far from pointing out the whole parameters affecting this complication. As a matter of fact, there are only nine (except one case report) papers can be found in the search of literature. Only five of them are in English, whereas two of them are in French [23,24], and the rest one is in Czech [25]. PUP is increasing in Ramadan or not? Papers published in English were analyzed to point out the answer of this question.

A total of 3178 patients who underwent surgery due to PUP were analyzed in those papers. Of these patients, 773 (24,3%) were operated on Ramadan months, whereas 2405 (75,7%) were operated on non-Ramadan months. The data in these studies were collected between 1976 and 2016 at various time intervals. The oldest one was published in 1994 [15], and the newest one [26] was published in last year.

NSAID use increases the risk of PUP [26], and approximately 2%-4% of chronic NSAID users will perforate in time [27-29]. In our search, NSAID use was demonstrated as a risk factor about the 3,7% and 24,7% of the patients with PUP in Ramadan months, in two studies [16,20], whereas the others were not denoted NSAID use.

The prevalence of *H. pylori* infection, confirmed with histopathological methods in patients with PUP, ranges from 50%-80% in literature [30,31]. Only one study

was evaluated *H. pylori* infection by using histopathological methods as a risk factor PUP in Ramadan and found 90 % interrelation.

In a meta-analysis, the relationship between tobacco use and PUD was shown as 23% [32]. While increasing the acidity in duodenum, Tobacco inhibits both pancreatic bicarbonate secretion and healing of duodenal ulcers [33]. Kucuk et al. [20], and Bener et al. [16] were found a relationship between PUP in Ramadan and smoking as %42 and %15, respectively.

Concomitant disease was found in a range 5,4% to 41,4% [16,9] in patients with PUP in Ramadan, however the effect of those diseases in PUP was not pointed out clearly.

To specify an age difference clearly between the patients who operated in Ramadan months and who operated before or after Ramadan months is difficult, because the results are variable. Among the five studies focused on this subject, two of them found younger patients in Ramadan but the others found no difference in terms of age.

It seems as if it is not protective to use an antiulcer drug on the time of admission in patients with PUP in Ramadan, because in three studies about %20 to %50 of them were the active user antiulcer drugs [9,16].

Among these five studies, gender distribution in four studies was strongly against males, except for one [15]. The socioeconomical status of the patients was similar, because 80% of the papers were originated from the same country.

It is well known that gastrointestinal disorders can be affected by fasting. In the search of the English literature, only five studies were published, which have focussed on the impact of Ramadan on PUP and all these studies have different results [6,9,15,16,20]. So far, no progressive clinical study has been conducted specifically on the effects of Ramadan fasting on PUP. The goal of this review was to evaluate the effect of Ramadan on PUP by analyzing previous studies.

In our search, the demographical data of the patients and the risk factors for PUP during the fasting and the non-fasting months showed minimal differences..

However, that can be due to the origin of studies, one is from Tunus the others are from Turkey.

The severe complication of PUD known as PUP were found to be higher during Ramadan in two studies [6,15], whereas relatively higher in two [9,20]. No difference was found in the rest one [16]. In this review, it was not possible to point out the differences in Gastric Ulcer Perforation and Duodenal ulcer perforation due to the lack of data in the papers.

Duration of fasting may have an effect on the results in all trials. The duration of fasting varies between 10 and 19 h in our country, depending on which season of the solar calendar Ramadan coincides with that year (approximately 10 days earlier every year). So, going back to 36 years in the data of the patients made the manuscript of Kocakusak et al [6] valuable. However, lack of risk factors and

Hence, it is certain that this review has limitations. Finding out all the data requires a perspective of 36 years because. Further, this review can reflect only the results of Turkey and Tunus. There are more than one billion Muslims all over the world who are fasting under different conditions and for different durations.

It can be concluded that lots of the parameters were found similar in the patients with PUP in Ramadan months and patients with PUP in non-Ramadan months. We recommend, that the patients with PUD may take antisecretory agents such as proton pump inhibitors during the period of Ramadan fasting.

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