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EVALUATION OF CLINICAL FEATURES AND RISK FACTORS IN THE DIAGNOSIS OF PERFORATED DUODENAL ULCER

Dr. Weam Rashad Ismail*

M. B.Ch. B. High Diploma General Surgery - College of Medicine /Baghdad University, High Diploma General Surgery Department: Surgery – Al-Shahid Al-Sadr Hospital.

***Corresponding Author: Dr. Weam Rashad Ismail**
M. B.Ch. B. High Diploma General Surgery - College of Medicine /Baghdad University, High Diploma General Surgery Department: Surgery – Al-Shahid Al-Sadr Hospital.

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ABSTRACT
This study aimed to determine the prevalence of perforated peptic ulcer (PPU) in patients admitted to Department of Al-Shahid Al-Sadr Hospital-Baghdad/Iraq during the period from November 2016 to November 2019, and describe the values of making the diagnosis on clinical bases with hope of achieving absolute cure.

In this retrospective study, we examined the data derived from cases of 37 patients who were admitted and diagnosed as PPU. The patients had at least one or more risk factors leading to PPU (smoking, stimulants, non-steroidal anti-inflammatory drugs NSAIDS…). Those patients' symptoms almost initiated about 24 hours prior to admission. Their age ranged between 19-79 years.

Results showed that 27(72.9%) cases were diagnosed as perforated duodenal ulcer, and 10(27.1%) cases were diagnosed as perforated gastric ulcer (P.G.U), and 13(35.1%) cases were to be stimulant-induced perforated ulcer and as duodenal or gastric in 9 and 4 cases, respectively. Significant relation was found between drug-induced perforated ulcer D.I.U, smoking, other stimulants (coffee and tea) and hypertension. Furthermore, a significant relation was found between taking NSAID and each of PGU, P.D.U and (D.I.P.U).

It can be concluded that the mean age of participants was 49 years old, and the males were more common 86.5% with a male to female ratio 6:1. The most common PPU was duodenal, and patients taking NSAIDs have a higher risk for developing gastric ulcer and D.I.U.

KEYWORDS: PDU, NSAIDS, P.G.U, D.I.P.U

INTRODUCTION
Peptic ulcer disease (PUD) is characterized by focal defects in the gastric or duodenal mucosa that extend to the submucosa or deeper. It is caused by an imbalance between gastric acid-pepsin and mucosal defense barriers. Globally, at least 4 million people are affected by peptic ulcer diseases annually.[1] Its incidence ranged from 1.5%-3%.[2]

Usually, 10%-20% of patients with PUD may have complications and only 2%-14% of those will have perforation causing severe illness.[3] On review of the international literature, it was found that PUD had a morbidity rate of up to 50% and mortality rate of up to 30% globally,[4] while the mortality rate in our study was (13.4%). It is reported that about 5% of patients with PUD will have a perforation during their life.[5]

It is difficult to determine the underlying factor causing peptic ulceration due to a variety of risk factors, including Helicobacter Pylori (H. Pylori), smoking, alcohol, stress, and (NSAIDS).[2,6-14]

MATERIALS AND METHODS
This retrospective study involved patients who were admitted as an emergency cases to Al-Shahid Al-Sadr Hospital from November 2016 to November 2019. Our study included all the patients who were diagnosed with gastric or duodenal perforated ulcer (37 patients). All the data were collected by authors to ensure the privacy and all the names were blinded. The data collected included the age of the participants, the time onset of symptoms and history of PUD risk factors. A careful clinical history, physical examination were the core factors in making up the diagnosis, diagnostic procedures were done according to availability, including checking erect chest and abdomen X-rays on X-ray monitor, abdominal ultrasound) as well as routine laboratory tests (blood count and formula, bleeding and coagulation times, prothrombin time, creatinine, urea & electrolytes, blood

sugar and urinalysis). Surgical interventions was based on clinical impression whether it was compatible with investigation findings or not, since the seriousness of the clinical impression was the most important factor in deciding the steps of the management. Furthermore, days of hospitalization and mortality were recorded.

Statistical analysis was done using the SPSS version 20 program.

RESULTS

Thirty seven patients were admitted to the surgical department at Al-Shahid Al-Sadr Hospital with PPU. They were between 19-79 years old; the mean and standard deviation of age was 49.0±13.3 years-old (Figure 1). Thirty two patients were males (86.5%) compared to only 5 females (13.5%) with a prevalence ratio male: female (6:1).

On review, we found 27 (72.9%) patients had perforated duodenal ulcer (P.D.U), 10 (27.1%) with perforated gastric ulcer (P.G.U) and 13 (35.1%) were either duodenal or gastric (9 and 4 cases, respectively) had a drug-induced ulcer (D.I.U) (Table 1).

All the patients had abrupt onset of acute abdominal pain on presentation. In addition, 45.9% of them complained of vomiting, 40.5% had constipation, 18.9% had fever, 2.7% had hematemesis and 5.4% had melena. Table 2 summarizes the symptoms of patients at presentation. Results also revealed that 81.1% of all patients were smokers, 10.8% were alcoholic, 32.4% had stimulants intake (tea, coffee) and 37.8% were taking NSAIDS. Table 3 showed the patients' relation to PUD risk factors. Only 14 patients (37.8%) have been taking NSAIDS and 5 (35.7%) out of 14 were between (60-69) years old.

Erect abdomen X-ray including the dome of diaphragm proved that 22 (59.5%) were with free air under the diaphragm.

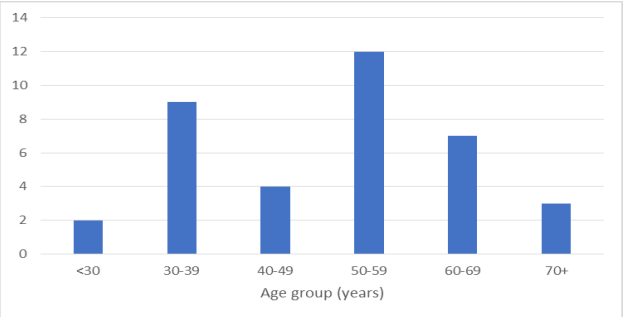

Figure (1): Age distribution of patients.

Table (1): Distribution of types of PPU among patients in this study.

Ulcer type	Patients	Percentage
P.D. U	27	72.9%
P.G. U	10	27.1%
D.I.U (duodenal or gastric)	13	35.1%

Table (2): Occurrence of different symptoms in patients of this study.

Symptoms	Number of patients	Percentage
Abdominal pain	37	100.0%
Vomiting	17	45.9%
Constipation	15	40.5%
Fever	7	18.9%
Hematemesis	1	2.7%
Melena	2	5.4%

Table (3): Relationship between patients and PUD risk factors.

Risk Factor	Number of patients	Percentage
Smoking	30	81.1%
Alcohol	4	10.8%
Stimulants	12	32.4%
NSAIDS	14	37.8%

DISCUSSION

It is a serious complication of PUD characterized by (PPU) which occurs in about 5% of PUD. PPU is considered a serious insult due to its high morbidity rates and its (1.3% to 20%) mortality rates.[1]

In our study, 9(24.3%) out of 37 patients were within the age group (30-39) years compared to 12(32.4%) patients in the age group (50-59) years. Thus, making the latter age group the most vulnerable and more common to PPU. With varying rates among other ages. Also 32(86.5%) male patients and 5 (13.5%) females were found, with a ratio of males to females 6:1, which is inconsistent with global data stating that female are more than half of PPU cases.[2]

In addition, 22(59.5%) were admitted within less than 24 hours, and the remaining 15 (40.5%) were attended after more than 24 hours from the onset of symptoms. In our study, we found that 100% of patient's complained of abdominal pain.

PPU has many risk factors such as *Helicobacter pylori* (H. pylori), smoking, NSAIDs, alcohol, stress and stimulants such as (tea and coffee).[1]

NSAIDS a worldwide known to be a risk factor in precipitating PPU. 1 of 4 patients taking NSAIDs for a long period will get a PUD and 2-4% will have complications (bleeding or perforation).[15-18] In our study, 14 (37.8%) patients were taking NSAIDs and mostly were within the age group (60-69) years.

PUD is related to smoking 23%.[19] Most likely, due to its effect on pancreatic bicarbonate secretion, which increases gastric acidity.[19,20] In our study, 30 (81.1%) patients were smokers. Alcohol and stimulants also increase PUD risk and, in our study, 10.8% and 32.4% of all patients were taking alcohols and stimulants respectively.

All patients referred to Radiology Department for chest and abdomen screening in the erect position urgently, and in case of acute abdomen presentation, estimation of serum amylase/lipase was done.[21] 75% of PPU have free air under the diaphragm.[22] In our study, 59.5% of patients had free air under the diaphragm.

Closure of perforation is the treatment of choice for PPU.[2] Thirty seven patients (100.0%) were treated with classical surgery.

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