

## ORIGINAL RESEARCH

# Changing Trends in Peptic Ulcer Disease – Incidence, Clinical Presentation and Management

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## ABSTRACT

**Introduction:** Peptic ulcer disease is one of the common acute abdominal emergencies. Though lot of work had been done on the etiology of this condition, one specific etiological agent cannot be incriminated in the causation of this particular disease. Aim of the study was to study various risk factors regarding peptic ulcer disease, its complications and its surgical management.

**Materials and methods:** Study carried out for a period of one year and Total 90 cases were included in study presenting symptom of the patient, Recurrent attacks of peptic ulcer disease of the patient, evidence of gastric outlet obstruction, evidence of perforation.

**Results:** Duodenal ulcer was seen in 78.57% of patients and gastric ulcer seen in 21.43% of patients. The peak incidence of duodenal ulcer was between 25-55 years and of gastric ulcer was 45 – 65yr and 67.34% cases are male and 32.65% cases are female. Most of the patients presented with epigastric pain (96.9%). The evidence of PUD was maximum in patients with blood group “O” positive. Alcohol and smoking habits delay healing of peptic ulcer. H. pylori positivity is seen in 84.4% of DU and 71.4% of GU patients. Complication rate of PUD are 8.16.

**Conclusions:** The overall incidence of peptic ulcer disease has declined significantly, due to better medical therapy, including proton pump inhibitors (PPI), regimens for eradication of Helicobacter pylori, and improvements in endoscopic methods for control of hemorrhage. Surgery for peptic ulcer disease is now typically confined to complicated patients.

**Keywords:** Peptic ulcer, Complications, Surgical management

**How to cite this article:** Gandla Anil Kumar, Goparaju Shanti Kumar, M. Srinivas. Changing trends in peptic ulcer disease – incidence, clinical presentation and management. International Journal of Contemporary Medical Research 2015;2(5):1111-1115

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**Source of Support:** Nil

**Conflict of Interest:** None

## INTRODUCTION

The term “peptic ulcer” refers to an ulcer in the lower esophagus, stomach, duodenum, in the jejunum after surgical anastomosis to the stomach. Peptic ulcers are so named because, in addition to acid being a requirement for their occurrence, pepsin is probably also required.

Peptic ulcer is one of the most common maladies that affect the mankind in South India. Though lot of work had been done on the etiology of this condition, one specific etiological agent cannot be incriminated in the causation of this particular disease.

Peptic ulcer may produce one of the three main complications: Hemorrhage, perforation or obstruction. These can develop without any premonitory symptoms but typically appear as an abrupt change from preexisting dyspepsia.

These complications arise due to failure of adequate and timely medical treatment, poor socio-economic conditions (prevalence of H.pylori), use of NSAID’s, alcohol abuse and smoking.

In our study, we will be restricted to find out the incidence, etiological factors, response of peptic ulcer disease to conservative management, to study the complications due to irregular treatment taken, and various surgical treatment modalities.

The history of management of peptic ulcer disease is one of the great stories in the history of general surgery.<sup>1</sup> Medical therapy cures peptic ulcer in the vast majority of cases, therefore in many areas of the world elective surgery for peptic ulcer disease has almost but disappeared.<sup>2</sup> Selective H<sub>2</sub> receptor blockers, proton pump inhibitors & antibiotic therapy were found to eradicate H. pylori.

An advance in the understanding of pathophysiology of peptic ulcer disease has led to changes in treatment. Surgical management of peptic ulcer disease is still useful in cases of drug failure, for unable to obtain the drugs or to comply with the medical therapy. In the most parts of the world, surgical therapy is now utilized primarily for complications of peptic ulcer disease. These are usually emergency operations. Currently up to 90% of all ulcer operations are interventions for complications including hemorrhage, perforation & gastric outlet obstruction.<sup>3</sup>

Complications of peptic ulcer disease requiring operative intervention have remained important. However, the absolute number of procedures performed has significantly diminished in recent years.<sup>4</sup>

	Males					Females				
		GU	E	DU	%		GU	%	DU	%
Age (in years)										
15-25	9	0	0%	9	9.2%	2	0	0%	2	2.04%
26-35	13	1	1.02%	12	12.2%	3	1	1.02%	2	2.04%
36-45	17	2	2.04%	15	15.3%	4	1	1.02%	3	3.06%
46-55	11	3	3.06%	8	8.1%	11	4	4.08%	7	7.1%
56-65	10	3	3.06%	7	7.1%	8	3	3.06%	5	5.1%
66-75	6	2	2.04%	4	4.08%	4	1	1.02%	3	3.06%
Total	66	11	11.22%	55	56.12%	32	10	10.2%	22	22.45%
Gender										
	66	11	11.22%	55	56.12%	32	10	10.2%	22	22.44%

**Table-1:** Age and sex incidence of peptic ulcer disease

Some believe that the need for emergency surgery has not reduced, probably because of the increasing incidence of NSAID'S associated complications.<sup>2</sup> so there is a need to study various risk factors regarding peptic ulcer disease, its complications and its surgical management.

## MATERIALS AND METHODS

The present study was undertaken in department of General Surgery during period October 2013 to January 2014. Total 98 Patients are included in study, of which 90 cases were treated conservatively and 8 cases were treated surgically. Patient attending casualty posted in department of General surgery where considered for study. Presenting symptom of the patient, Recurrent attacks of peptic ulcer disease of the patient, evidence of gastric outlet obstruction, evidence of perforation.

Patients who came for regular checkup were examined in detail. A general physical examination and examination of the abdomen was carried out. If present the patients were impressed upon the necessity of surgery for the chronic duodenal ulcer

Patients who came with acute episode of pain are admitted, treated with iv PPIs and investigated with upper GI endoscopy and followed up every day with continuous bedside monitoring of vital data Suitable and appropriate treatment was instituted from time to time according to the needs of the patients. After satisfactory improvement patients were discharged from the hospital with advice regarding the diet, rest, drugs to be taken and need for periodic checkup.

## RESULTS

Out of 98 cases in the study, 90 cases were treated conservatively and 8 cases were treated surgically. 4 cases were subjected to endoscopic injection for bleeding ulcer, 2 cases treated for perforation with Graham patch repair, 2 cases were treated with truncal vagotomy and gastro-jejunostomy for GOO.

In the present series 21.43% cases were gastric ulcers and 78.57% cases were duodenal ulcers. The ratio of DU: GU is 3.67:1. In the present series of 98 cases of PUD, the age

	No of patients	%
Type of ulcer		
Gastric ulcer	21	21.43
Duodenal ulcer	77	78.57
Modes of presentation		
Epigastric pain	98	96.9
Epigastric pain with Belching	54	55.1
Epigastric pain with Hematemesis	4	4.08
Epigastric pain with vomiting	2	2.0
Habits		
Alcohol only	30	30.6
Smoking only	6	6.12
Alcohol and Smoking	22	22.2
None	40	40.8

**Table-2:** Peptic ulcer disease in the cases

of the patient varied from 20 years - 75 years. The peak age incidence of DU was between 25 and 55 years and of GU was between 45 – 65 yr which is quite in conformity with the opinion expressed by leading authorities who have made observation regarding age incidence of PUD (table 1).

The present series shows incidence of DU is common in middle age group and of GU is more in old age. In this present series of 98 cases, 66 are males and 32 are females. Male: female ratio is 2.06:1.

The present series is not a large series to give a definite opinion regarding the study of sex incidence but it definitely brings to light the preponderance of male incidence over the female sex. The high incidence of male can be explained on the basis of indulgence in smoking, alcoholism and intake of NSAID's.

In the present series most of the patients 97% presented with epigastric pain. The remaining 55% came belching, 2% cases with hematemesis, 1% cases presented with vomiting at first time of presentation (table 2).

In the present study 50% patients with blood group O, 12.2% patients with blood group A, 22.4% patients with blood group B, 15.4% patients with blood group AB has PUD.:

In the present series, 6.12% patients were only smokers, 30.6% patients were only alcoholic and 22.24% patients were both alcoholic and smokers. 40.8% patients were non-alcoholic and a non-smoker (fig 1).

25 patients had history of having taken NSAID - who is a known case of osteoarthritis, others had no such history. 6 out of 8 complicated cases has h/o NSAIDS use.

Complete healing of ulcer occurred in 53 patients which was compared with habits of the patients in which alcohol and smoking habit delayed healing of ulcer (fig 2).

On follow up of cases in present study 53.06% cases ulcer healed completely, 38.77% cases showed decreased size of ulcer, 4 cases complicated with bleeding, 2 cases with perforation, 2 cases with gastric outlet obstruction (table 3).

There are 8.16% cases got complicated in the present study. In all cases, immediately, intravenous proton pump inhibitors are given, intravenous fluids started. In the present series, out of 90 cases were treated conservatively 8 cases subjected to surgical management. 4 cases had bleeding as complication, 2 cases had perforation, 2 case presented with gastric outlet obstruction. In the present 98 cases of study, 90 cases are treated conservatively, 8 cases are treated surgically. The choice of definitive surgery was decided depending on the presenting complaint of patient on follow up.

**DISCUSSION**

Although incidence of surgery for peptic ulcer diseases has reduced drastically with advent of H2 receptor antagonist, proton pump inhibitors and H-pylori eradication treatment but surgery for complications has not changed.

The ratio of DU: GU in present series is 3.67:1 which is almost equivalent to previous studies. study done by SJ Rosenstock, T Jorgensen<sup>5</sup> which is 3.8:1 ratio and study done by Pakistan Medical Research Council<sup>6</sup> it is 5: 1 in duodenal to gastric ulcer ratio.

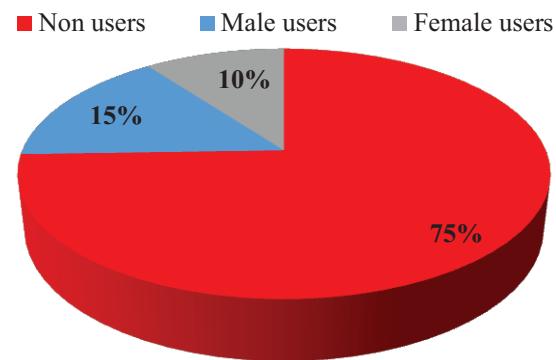
In the present series the incidence of duodenal ulcers were more common in middle age and of gastric ulcers in old age, which is similar to previous studies mentioned. WHO<sup>7</sup> studies show that most common age group effected in duodenal ulcer is 30-40yr and gastric ulcer in 40-60yr. In other study done by Jorghensen T Vergera<sup>8</sup> DU found 30-60yrs age group is more effected in gastric ulcer it is > 50 yrs.

The present series male to female ratio is 2.06:1 which is similar to previous studies. Studies done by Jorghensen T Vergera<sup>8</sup> -3: 1 ratio, Am J Public Health<sup>6</sup> -1.7: 1, Kurata JH et al<sup>9</sup>-2.2:1 were observed. The present series is not a large series to give a definite opinion regarding the study of sex incidence but it definitely brings to light the preponderance of male incidence over the female sex. The high incidence of male can be explained on the basis of indulgence in smoking, alcoholism and intake of NSAIDs.

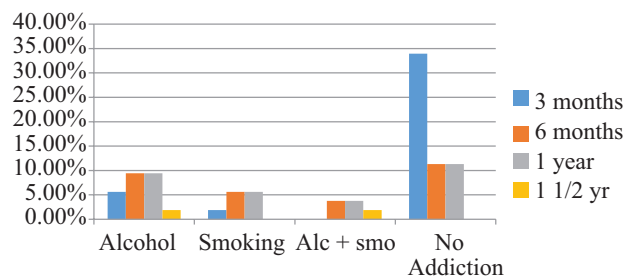
In the present series both peptic ulcer disease was more in months of October to January. The most common presentation of peptic ulcer disease to the emergency department is epigastric pain in the present series. In publication by Stanley J Sweirzewski the most common symptom of peptic ulcer disease is burning pain in the upper center of the abdomen (called epigastric pain).<sup>10</sup>

	Number of cases	%
Complications		
Complete healing of ulcer	52	53.06
Decrease size of ulcer	38	38.77
Bleed from ulcer	4	4.08
Perforation	2	2.04
Gastric outlet obstruction	2	2.04
H-pylori negativity from previously +ve cases	71	88.75
Treatment		
Conservative	90	91.83
Endoscopic injection of adrenaline	4	4.08
Closure with graham patch repair	2	2.04
Truncal vagotomy with gastro -jejunostomy	2	2.04

**Table-3: Complications and treatment of peptic ulcer disease**



**Figure-1: History of NSAID use in relation to peptic ulcer**



**Figure-2: Healing of ulcer in relation to habit**

In the present series peptic ulcer is shown to be most commonly associated with blood group 'o' (50.0%) which is supported by MK Abdulridha<sup>11</sup> with high incidence in 'O' group blood (57.5%). Binding of different isolates of *H. pylori* to human leukocytes from each ABO blood group was assessed by flow cytometry. The mean binding indices of the 4 *H. pylori* isolates to leukocytes from blood group O donors were significantly higher than the binding to those of other blood groups.<sup>12</sup>

In the present series peptic ulcer disease appears to be slightly more in patients who had habits of smoking and alcohol consumption. It is supported by below studies.

Recent studies have suggested that tobacco smoking causes peptic ulcer. For that reason, ulcer patients should be advised to cease smoking irrespective of *H pylori* infection status<sup>13</sup>

Emergency operations in PUD	Year	%
Aliment Pharmacol Ther <sup>25</sup>	1987 – 1992	9.2%
Aliment Pharmacol Ther <sup>25</sup>	1993 – 1998	7.5%
Aliment Pharmacol Ther <sup>25</sup>	1999 – 2004	5.7%
Present study	2013 – 2014	6.12%

**Table-4:** Previous studies in comparison

Alcohol consumption and cigarette smoking are two etiologic factors that have a close relationship with peptic ulcer diseases. Cigarette smoking is coupled with the initiation and prolongation of gastric ulcers. Epidemiologic data show that cigarette smoking increases both the incidence and relapse rate of peptic ulcer diseases and also delays ulcer healing in humans. Concurrent consumption of alcohol and cigarette smoking significantly increases the risk of gastric ulcers. Substances other than nicotine in cigarette smoke may also contribute to the above effects.<sup>14</sup>

H/O of NSAIDs use is in 25 of all patients. In Patients who presented with complications 6 (75%) out of 8 had h/o of NSAIDs use. So complication rates are more in people who use NSAIDs. In previous studies as Blower AL et al<sup>15</sup> -73%, Wilcox C M et al<sup>16</sup>-75%, Lans et al<sup>17</sup>- 70% which is in cohort with present study.

In the present series 84.4% of patients with DU and 71.4% of patients with GU had H.pylori positivity. Mustapha SK et al.<sup>18</sup> 100% of patients with DU and 61.9% of patients with GU, Marshall et al.<sup>19</sup> 100% of patients with DU and 81.8% of patients with GU Wulfen V et al.<sup>20</sup> 83.3% of patients with DU and 72.2% of patients with GU, This shows that H.pylori is the most important risk factor for peptic ulcer formation.

H.pylori negativity after treatment in present series is 88.75% which is similar to previous studies. J.Nutr.<sup>21</sup> 90%, Sun Q, Liang X<sup>22</sup> -93% patients with H.Pylori negative after treatment.

In the present series complication incidence is 8.16%. This is somewhat more compared to previous studies done Meran JG1, Wagner S, Manns M<sup>23</sup> of 2-5%. The present series is not a large study to predict the rates of PUD complications. but in the present series bleeding of peptic ulcer which is 4.08 %, was more common in peptic ulcer disease followed by perforation of 2.06% and gastric outlet obstruction of 2.06% this is supported by study done by American college of Gastroenterology<sup>24</sup> with bleeding of peptic ulcer 6-10 %, perforation of 5 % and gastric outlet obstruction of 2 %. In the present series most common complication is bleeding of peptic ulcer which is similar to previous studies.

Emergency operations in our study are 6.12% which shows emergency operations are decreasing for peptic ulcer disease which can be substantiate by previous study. Thus emergencies in peptic ulcer disease appears to decrease over time (table 4).

## CONCLUSIONS

Peptic ulcer is more common in males and duodenal ulcer has a predilection for young adults and gastric ulcer has a

predilection for old age. Peptic ulcers are more in males. Epigastric pain is the most common presenting complaint. H.Pylori, alcohol, smoking are identified as risk factors and delay healing of ulcer. The overall incidence of peptic ulcer disease has declined significantly, due to better medical therapy, including proton pump inhibitors(PPI), regimens for eradication of Helicobacter pylori, and improvements in endoscopic methods for control of hemorrhage. Surgery for peptic ulcer disease is now typically confined to complicated patients.

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